



The Planning Inspectorate  
Yr Arolygiaeth Gynllunio

**Sizewell C Nuclear Power  
Station (EN010012)**

Correspondence received after submission of the Examining  
Authority's Recommendation Report to the Secretary of State on  
Friday 25 February 2022

<b>No.</b>	<b>From</b>	<b>Organisation</b>	<b>Date received</b>
1	MF Rowe		28/02/2022
2	Sarah Morgan	Farnham Environment Residents & Neighbours	16/03/2022
3	Simon Amstutz	Suffolk County Council	05/04/2022
4	Nick Scarr		07/04/2022
5	Nick Scarr		18/04/2022
6	Nick Scarr		25/04/2022
7	Roger Howard		25/04/2022
8	NNB Generation Company (SZC) Limited	NNB Generation Company (SZC) Limited	05/05/2022
9	Simon Ransome		11/05/2022
10	Christopher Hudson	Suffolk County Council Councillor	16/05/2022
11	Margaret Jeffrey		16/05/2022
12	Roland Walker		16/05/2022
13	John Barrett		16/05/2022
14	Catherine Cawood		17/05/2022
15	Ciara Scallon		17/05/2022
16	Jo Small		18/05/2022
17	Harry Barclay		18/05/2022
18	Sarah Barrett		19/05/2022
19	Anna Cockburn		19/05/2022
20	Tracy Rogers		20/05/2022
21	Deborah Sheppard		20/05/2022
22	Alison Shirreff		20/05/2022
23	Richard Barney		20/05/2022
24	Paul Marwood		20/05/2022
25	Zoe Readhead		20/05/2022
26	Peter Allsop		20/05/2022

<b>No.</b>	<b>From</b>	<b>Organisation</b>	<b>Date received</b>
27	Claire Fried		20/05/2022
28	Chris Adelson		20/05/2022
29	Stephanie Williams		20/05/2022
30	Paul Taylor		20/05/2022
31	J R		20/05/2022
32	C Boxer		20/05/2022
33	Susie Weston		20/05/2022
34	Sir David & Lady Madel		20/05/2022
35	Jill Newcombe		20/05/2022
36	Helen Smart		20/05/2022
37	John Pitts		21/05/2022
38	Bernard Reynolds		21/05/2022
39	Sue and Ken Powell		21/05/2022
40	John Busby		21/05/2022
41	Chris Collie		21/05/2022
42	Amanda Taylor		21/05/2022
43	Laura Bonnett		21/05/2022
44	Dr A Eastaugh		21/05/2022
45	Alison Youngman		21/05/2022
46	Cindy Shelley		22/05/2022
47	Lady Gill Hancock		22/05/2022
48	Joan Steel		22/05/2022
49	Philip Shelley		22/05/2022
50	Stephen Chamberlain		22/05/2022
51	Angela Cosstick		22/05/2022
52	Joan Gernand		22/05/2022
53	Peta-Jane Whiting		22/05/2022

<b>No.</b>	<b>From</b>	<b>Organisation</b>	<b>Date received</b>
54	Sally Barley		22/05/2022
55	Hazel Collins		22/05/2022
56	Andrew Freese		22/05/2022
57	Juliet Bullimore		22/05/2022
58	Virginia Storey		22/05/2022
59	Bruce Gernand		23/05/2022
60	James Alexander		23/05/2022
61	John Daniels		23/05/2022
62	Carolyn Tyrrell-Sheppard		23/05/2022
63	Michael Laschet		23/05/2022
64	Antony Easton		23/05/2022
65	Erica Rae		23/05/2022
66	Jean Short		23/05/2022
67	Mandy Mackmin		23/05/2022
68	Wendy Brooks		23/05/2022
69	Leaf Kalfayan		23/05/2022
70	Alastair Carr		23/05/2022
71	Sarah Rogers		23/05/2022
72	Nic Blyth		23/05/2022
73	Calee Fitches		23/05/2022
74	Graham & Janet Staveley-Dick		23/05/2022
75	Maria Boyle		23/05/2022
76	Charlie Sayle		23/05/2022
77	Gill Parnaby		23/05/2022
78	Margaret Douglas		23/05/2022
79	John Tomlinson		23/05/2022
80	Ann Follows		23/05/2022

<b>No.</b>	<b>From</b>	<b>Organisation</b>	<b>Date received</b>
81	Margaret Douglas		23/05/2022
82	Andrew Jones		23/05/2022
83	Dr Helen Barrett		23/05/2022
84	April Lawlor		23/05/2022
85	Si Church		23/05/2022
86	Emily Mills		23/05/2022
87	Nick Burfield		23/05/2022
88	Lucia Daniels		23/05/2022
89	Gosia Hobson		23/05/2022
90	Tristan Winter		23/05/2022
91	John Richard Atkinson		23/05/2022
92	Graham Kellaway		23/05/2022
93	Jenny Allwood		23/05/2022
94	R Adela and P Benney		23/05/2022
95	Mary Scott		23/05/2022
96	Mr & Mrs Lacey		23/05/2022
97	Kate Viscardi		23/05/2022
98	Susan Seabrook		23/05/2022
99	Marguerite Ingle		23/05/2022
100	Suvi McCreadie		23/05/2022
101	Kathleen Wilkinson		23/05/2022
102	Lucy Cohen		24/05/2022
103	Julie Bourne		24/05/2022
104	Christopher Douglas		24/05/2022
105	Vicky Fehler		26/05/2022
106	Tim Hardy		26/05/2022
107	Jennifer Pinard		29/05/2022

<b>No.</b>	<b>From</b>	<b>Organisation</b>	<b>Date received</b>
108	Nick Scarr		29/05/2022
109	Nick Scarr		14/06/2022
110	Together Against Sizewell		15/06/2022
111	Paul Collins		16/06/2022
112	Nick Scarr		19/06/2022
113	Nick Scarr		21/06/2022
114	Bill Parker		22/06/2022
115	Bill Parker		22/06/2022
116	Bill Parker		30/06/2022
117	Rosie Sutherland	RSPB and Suffolk Wildlife Trust	06/07/2022

**From:** [REDACTED]

**Sent:** 28 February 2022 18:01

**To:** SizewellC <sizewellc@planninginspectorate.gov.uk>

**Subject:** Fwd: SZC PROJECTS - NOISE ASSESSMENT AT WHITEARCH PARK , BENHALL

Morning. I received the enclosed email from Stuart Dodson, a resident on our residential / Holiday park in Benhall.

Within this it states that 48 level crossing will have to be upgraded or closed, the stretch of line we are and have been communicating about is from Woodbridge to Saxmundham.

We can understand that with the extra loads these trains will be carrying, that level crossing will have to be upgraded, but that would be necessary anyway and does not effect the possibility of reinstatement to the second track from Woodbridge to Saxmundham, this has been our campaign over the past two years, meetings have been held with Dalcour Maclaren to discuss acoustic barriers and the reinstatement of the second track, to allow these trains to run during the day, not at night.

There is 707 homes within 200m of this track from Woodbridge to Saxmundham, plus three residential homes with 85 places and a few scattered properties in between, I know this as I counted these one Saturday, at this time a councillor informed me that they have had vibrations from other heavy night trains that have awoken them and they live 800m from the track.

20 billion pounds to build and that's before the added extra costs, why not spend a small amount of money in relaying the track from Woodbridge to Saxmundham, to allow the possible 4000 plus people from suffering 10 years of sleep deprivation and run the trains during the day.

Regards M.F.Rowe. Director of Whitearch Ltd. Benhall.

[REDACTED]

Begin forwarded message:

**From:** "Sizewell C" <[info@sizewellc.co.uk](mailto:info@sizewellc.co.uk)>

**Date:** 24 February 2022 at 16:29:41 GMT

**To:** "Stuart Dobson" [REDACTED]

**Cc:** [REDACTED]

[REDACTED] **ASSESSMENT AT WHITEARCH PARK , BENHALL**

**Reply-To:** "Sizewell C" <[info@sizewellc.co.uk](mailto:info@sizewellc.co.uk)>

Dear Stuart,

The feasibility studies for acoustic fencing at locations along the East Suffolk line are underway. They will not require a visit to Whitearch Park as all of the necessary information about the site has already been obtained. We will be able to provide an update once the studies have been completed.

You may be aware that Sizewell C previously considered the potential for upgrades on the East Suffolk line, including a passing loop, as part of a rail-led transport strategy. This option was discounted due to the complexity of the works, which required the upgrades or closure of 48 level crossings along the East Suffolk line. The proposed implementation timescales and additional risk did not align with our overall programme for the delivery of the project, and we have therefore instead pursued an integrated transport strategy.

Further information about the steps that we are implementing to mitigate noise and vibration for residents along the East Suffolk line can be found in our [Rail Noise Mitigation Strategy](#).

With regards to the Two Village Bypass: as set out in our planning application, the objective of the proposal is to improve traffic flow and safety at the Farnham Bend by delivering an alternative route for Sizewell C traffic. It is a measure supported both by Suffolk County Council and East Suffolk Council.

As we have previously advised, if you would like to speak to Network Rail it would be best to call their helpline on 03457 114141.

We will contact you once the feasibility study has been concluded but will not have any further updates before then.

Best wishes  
The Sizewell C Project Team

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F [REDACTED]

Sent: 22/02/2022

To: [sizewell@edfconsultation.info](mailto:sizewell@edfconsultation.info)

[REDACTED]

Subject: SZC PROJECTS - NOISE ASSESSMENT AT WHITEARCH PARK , BENHALL

Dear Sirs

I am in receipt of your Sizewell C Project Update of February 2022.

In order to keep you updated I am attaching a copy of my email of yesterday's date to Energy Infrastructure Planning ( [beisoip.gov.uk](http://beisoip.gov.uk) ) which speaks for itself. The main concern of my wife and I are the proposed night trains as you will be aware from my earlier correspondence.

The proposal to build a bypass at Farnham and Stratford St. Andrews for the sake of mitigating noise for just **36 dwellings** near the A12 is ridiculous when considering **685 dwellings** between Ipswich and Saxmundham alongside the railway line will be affected by **noise** and **vibration** with no proposals other than, potentially a noise barrier.

You will observe from my attached email the simple suggestion with regard to dealing with the problem of night trains. Even with such trains using the line between 6.00 am and 11.00 pm it will still be necessary for the erection of a sound barrier and mitigation of the vibration issue. Whilst your correspondence with me has always been headed Noise Assessment the **VIBRATION** issue is not to be overlooked . Please acknowledge that.

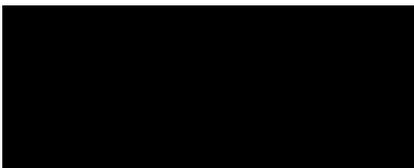
Please advise me of the name and contact details of the party at Network Rail who is responsible for dealing with this matter. I have asked you for this previously .

Is there an update on the feasibility study please.

Kind regards

Stuart Dobson

**Stuart C. Dobson**  
**Land & Property Consultant**



**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** Two Village Bypass Dormice Surveys incomplete  
**Date:** 16 March 2022 15:43:38

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Dear Planning Inspectorate,

We understand that the Examination has closed, but the dormouse survey is still incomplete for the Two Village Bypass which is very concerning. In their latest document as per link below it says EDF undertook visits in September but the report doesn't make any reference to continuing the surveys?

We would like to understand whether SZC will be submitting survey information to the ExA, covering the end of the 2021 season and/or beginning of the 2022 season, in order to meet minimum survey standards used to determine presence / likely absence. We also know that certain dormice boxes were not accessed in September as no one contacted the owner and, it would have been impossible to access them otherwise.

[REDACTED]

Please can you make sure EDF do their job properly when it comes to endangered species.  
Regards,  
Farnham Environment Residents & Neighbours

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** 20025669 AONB Concern re potential changes to application at Sizewell C  
**Date:** 05 April 2022 11:16:46  
**Attachments:** [REDACTED]

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The AONB team was alerted to a letter dated 18 March from BEIS to NNB Generation Company (SZC) Limited, Environment Agency, The Marine Management Organisation, Natural England and Office for Nuclear Regulation with ref EN10012 and available on PINS website at:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-008877-Sizewell%20C%20-%20Secretary%20of%20State%20Information%20Request.pdf>

In the letter it asks the applicant at section 3.3:

3.3. The Applicant should confirm if it would be possible for the proposed temporary desalination plant to permanently meet the full water supply demand for the lifetime of the proposed Development should no alternative water supply solution be identified. The response should include any further information that will assist the Secretary of State in understanding the water supply strategy for the lifetime of the proposed Development.

If the applicant confirms it is considering a permanent desalination plant, or it 'reserves the right' to develop a permanent desalination plant will there be a need to change the Development Consent Order and if so will the change be consulted on with all interested parties and stakeholders?

Many thanks

*Simon*

**Simon Amstutz**  
AONB Manager

Pronouns: He/Him/His [REDACTED]

**[Respect, Protect and Enjoy AONBs: Our National Landscapes](#)**

**Dedham Vale AONB and Stour Valley Project**

t: 01394 445225 m: [REDACTED] dd 01394 445222 w: [dedhamvalestourvalley.org](http://dedhamvalestourvalley.org)

**Coast & Heaths AONB**

t: 01394 445225 m: [REDACTED] dd 01394 445222 w: [suffolkcoastandheaths.org](http://suffolkcoastandheaths.org)

**Address:** AONB Office, Highways Depot, Dock Lane, Melton, Woodbridge, Suffolk, IP12 1PE

Please consider the environment before printing this email.

**AONB grants now open for applications**

Do you need funding for a community project? More than £110,000 of grant funding is now available across the [Dedham Vale](#) and [Coast & Heaths](#) AONBs. We would welcome your applications.



Note I work flexibly. I work my contracted hours on a 9 day fortnight basis and will usually be unavailable every other Friday

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**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** The Planning process  
**Date:** 07 April 2022 08:00:13

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Dear Sizewell C Team,

In Rob Harrabin's BBC article today, "*Energy strategy: UK plans new nuclear reactors to boost production*"

it states:

*"...It [government] also confirmed advanced plans to approve two new reactors at Sizewell in Suffolk during this parliament."*

That Sizewell C can be essentially considered as 'approved' without apparent due regard to the planning process is a concern both in itself and as a precedent to future applications.

Regards  
Nick Scarr

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** BEEMS TR553  
**Date:** 18 April 2022 12:22:25  
**Attachments:** [Notes on TR553.pdf](#)

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For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C,

Subject: BEEMS TR553

I would be grateful if you would consider my response, '*Notes on BEEMS TR553*', a response to the latest flood risk assessment modelling paper from the Applicant.

TR553 appears to replace TR544 which was the subject of your 'outstanding matters, section 5' letter of the 18th March 2022, your ref: EN10012.

TR553 appeared in the public domain on 11/4/2022 so I am responding at the earliest opportunity.

Kind regards  
Nick Scarr IP 20025524

Date: 18 04 2022

## Notes on BEEMS TR553.

Interested Party number 20025524. Nick Scarr. 18 /4/2022.

BEEMS TR553 has been published on the Sizewell C portal on the 11/4/22 almost two months after being made available to the Environment Agency.

The Applicant states the following:

- *“Technical report (BEEMS TR553: Modelling of Soft Coastal Defence Feature under Design Basis Conditions) was provided on 18<sup>th</sup> February 2022 for review [to the Environment Agency] ... The report was **not submitted** as part of the DCO application or examination.”* See: BEEMS TR553, Appx 5 page 10.

TR553 appears to be the basis for a Statement of Common Ground between the Environment Agency and the Applicant and therefore a highly relevant document.

BEEMS TR553 is an exercise in modelling the Soft Coastal Defence Feature and appears to directly address points raised in my paper REP7-220, *“Impacts on Coastal Process - TR545, CPMMP - Response to questions Deadline D7”*, on the limitations of BEEMS TR545. TR553 now represents orthodox conservative modelling in many areas including regarding the offshore geomorphology— i.e., the *absence* of the Sizewell Dunwich banks and the nearshore bars represents the higher inshore wave climate and hence conservative modelling.

This position is undeniably a step forward but is in direct variance with the Applicant’s stance in the DCO that the *presence* of the Sizewell Dunwich banks and nearshore bars represents the highest inshore wave climate and hence conservative modelling for all epochs and scenarios as follows:

- *“...the assessment concluded that ...with the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal. As such, the scenario with the bank in place was adopted in the MDS FRA for all scenarios and epochs as a conservative approach.”* REP7-052 (EN010012-007054- Responses to ExQ2 epages 104-115.

Considerations relating to TR553:

1 2140 – the ‘explicit date’ for spent fuel removal.

TR553 now extends modelling to 2140, the ‘explicit’ date committed to by the Applicant for Spent Fuel removal from site, as follows:

- *“The key dates relevant to flood risk for the operation of the station are; the end of operation of the station at 2085...**end of interim spent fuel store 2140**... 6.12 Rev: Reports Referenced in the Environmental Statement. Page 14 epage 144.*
- *“...on-site risks would only be considered [modelled] to 2140 as the end of Interim Spent Fuel Store.”* DCO: 6.12 Revision: Reports Referenced in the Environmental Statement. page 2 of 22, epage 228

However, it seems implausible that spent fuel can in fact be removed from site by this date. This is explained in my paper “*Sizewell C Main nuclear platform flood resilience in the next century.*” – The relevant section is attached as Appendix 2.

## 2 Shoreline recession —The Sizewell Dunwich banks, their wave energy dissipation properties and the correct format for conservative modelling.

TR553 states:

*“It is worth noting that the combined waves and water levels of Scenario A1 and E1 are representative of offshore conditions applied directly to the XBeach-G model boundary, which is landward of **Sizewell-Dunwich Bank**—this means that the natural energy dissipating effects of the bank are not included in the A1 and E1 models, but are included in the XBeach-G F1 model.”*

However, TR553 then states:

*“There is no evidence to suggest that the bank would be lost over the life of the station” Page 46*

What is certain is that the unconsolidated parts of the Sizewell-Dunwich banks (the entire Dunwich bank and the non-coralline parts of the Sizewell bank) will change over this period. They are changing now. The last decade has resulted in notable depletion of the northern third of the Dunwich bank and Climate change sea level rise and storm frequency change add further levels of uncertainty.

It is axiomatic to state that conservative modelling must not rely on the ‘*natural energy dissipating effects*’ of the Sizewell Dunwich banks for the majority of scenarios and epochs and may not assume their substantial retention over the next 150 years.

Unfortunately, the basis of the DCO and DCO Addendum shoreline modelling is the Applicant’s unorthodox claim that the *presence* of the Sizewell Dunwich banks represents conservative modelling for all scenarios and epochs—the Applicant in fact suggesting in the DCO Question and Answer papers the obtuse corollary that the absence of the banks would be a ‘benefit’ to Sizewell C as follows:

- *“...If Dunwich Bank were lost or substantially reduced (in extent or elevation) there is a greater potential for erosion of the shoreline around Dunwich and, importantly, the Minsmere – Dunwich Cliffs, resulting in a local increase in the supply of sand and pebbles (i.e., beach shingle) from the cliffs. This sediment would move south and could reduce erosion rates. Reduced erosion rates could tend to increase resistance to flooding over the Minsmere and Sizewell frontages.”* Responses to the ExA’s Third Written Questions (ExQ3) Volume 1 - SZC Co. Responses page 68.
- See my responses in REP2-393, REP5-253, REP7-219, REP10-345 for further information.
- This approach taken in the DCO has been contrary to the Applicant’s research in pre-DCO BEEMS papers and accredited academic papers and hence has been the basis of my objections. It is also directly contradicting the conservative methodology of TR553.

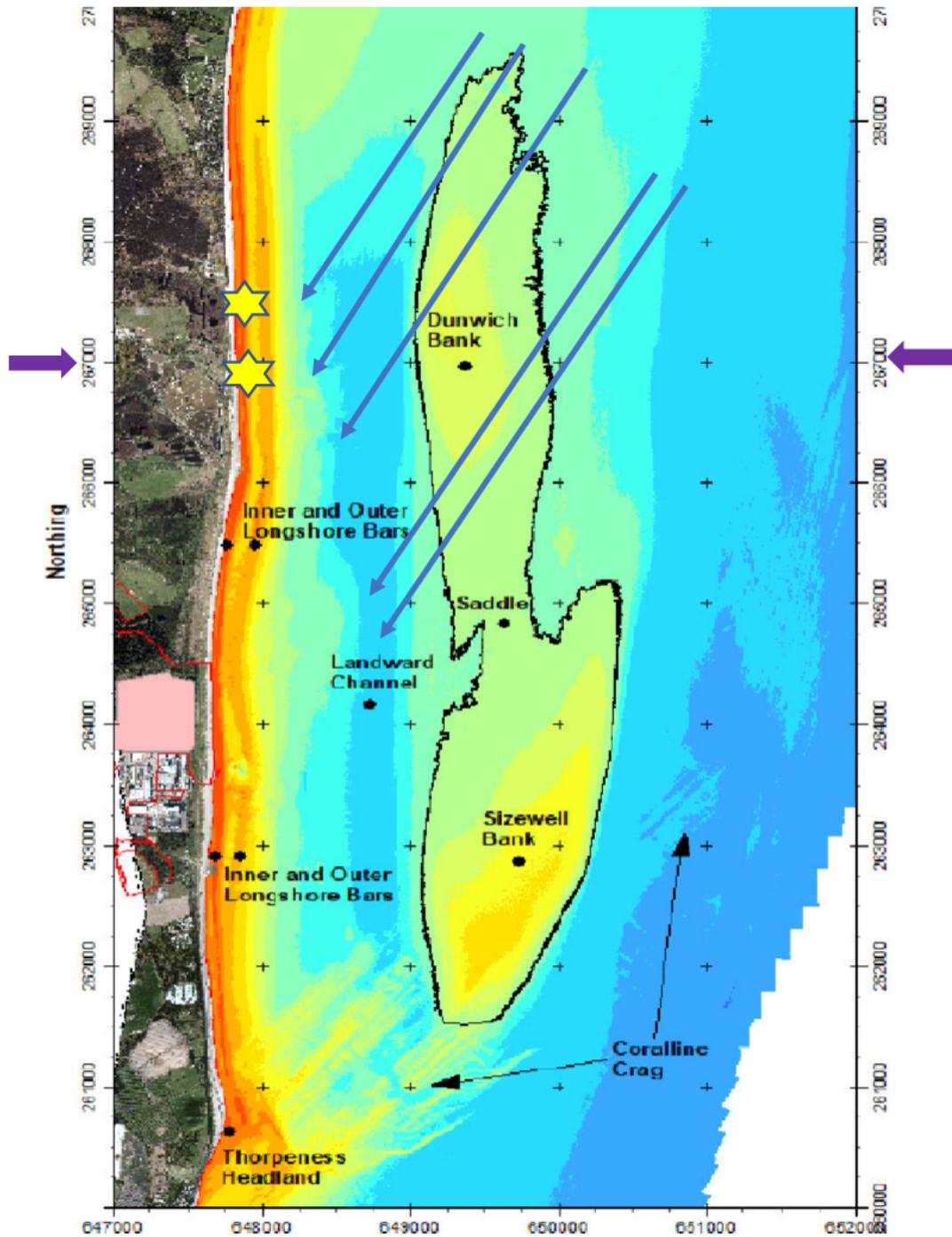
TR553 represents a major step forward by acknowledging the correct importance of the Sizewell Dunwich banks and applying conservative modelling to the Soft Coastal Defence feature (SCDF) by excluding the energy dissipating effects of the banks and nearshore bars. The difficulty is that the study is isolated and particular to the SCDF and lacks the scope to consider persistent and significant



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## APPENDIX 1

The chart below illustrates the Sizewell Dunwich banks.



The Sizewell-Dunwich Banks. The purple arrows mark 26700N— to the north of which the crest height of Dunwich bank is lowering. Chart base from BEEMS Technical Report TR500 'Sizewell-Dunwich Bank Morphology and Variability'. Page 14. Markup my addition.

- The orange and red lines show the ‘inner and outer’ nearshore, longshore bars. The DCO provided detailed bathymetry of the inner and outer Longshore bars and not the Sizewell-Dunwich banks.
- The pink square shows the proposed location of Sizewell C.
- **“Records over the last decade show...Dunwich Bank exhibited greater variability in both its morphology and position with erosion north of 267000N, [shown by the purple arrows] resulting in bank lowering of -0.5 to -1.5 m”** DCO: Geomorphology Appendix 20A, op cit., Page 21. BEEMS Technical Report TR500).
- The five blue arrows show the direction of the most significant storm waves from the North/North East— **the largest and longest waves arrive from the N-NE sector. [1:100 wave heights 7.3m-7.8m]**. The driver of sudden and significant erosion on this stretch of coast is from the NNE NE and Easterly directions. The loss of just the northern section of the bank could allow unbroken storm waves to break on the foreshore and increase water volumes in the South Minsmere levels in flood conditions. See map in section 4.3. DCO: Geomorphology Appendix 20A. op.cit., Paragraph 2.3.2.2.2

Haskoning’s modelling assumes ‘shore-normal’ angles (all waves will strike the shore at 90 degrees). In the complex bathymetry offshore from Sizewell plus significant wave directions stated above do not appear to support this assumption. Shallow nearshore (even before the nearshore bar locations) wave refraction locally will redirect waves and cause them to line up parallel to local bathymetric contours. section 7.

- There has been net erosion of the foreshore in the area of the proposed Sizewell C since 1993 according to BEEMS Table 2. This may be an indication of compromise to the Dunwich bank. See BEEMS TR223 op cit., Page 119 and Table 12 on page 115.
- The two yellow stars show the locations of breaches - 267400 15/12/03 and 14/2/05 and 266900 14/2/05. **“This 200 m section is the most vulnerable stretch of coastline between Dunwich and Sizewell, and represents the most likely location of a major breach occurring during a future storm surge.”** Pye and Blott 2005, Coastal evolution RSPB op. cit., page 154 of 160. Page 28/160

## APPENDIX 2

### Sizewell C and the Applicant’s claim for spent fuel removal by 2140. Is this a plausible timeframe?

#### Introduction and purpose.

The Applicant’s flood risk assessment for Sizewell C is committed to 2140 as the ‘decommissioned date’ for spent fuel confirmed by the following:

- *“The lifetime of the development includes for removal of all spent nuclear fuel by 2140...The Application and flood risk assessment are explicit about the timeframes being assessed in relation to 2140.”*
- *“The key dates relevant to flood risk for the operation of the station are; the end of operation of the station at 2085...end of interim spent fuel store 2140... 6.12 Rev: Reports Referenced in the Environmental Statement. Page 14*
- *“...on-site risks would only be considered [modelled] to 2140 as the end of Interim Spent Fuel Store.”*  
Royal Haskoning, flood risk modelling, page 2 of 22 in 6.12 Revision: Reports Referenced in the Environmental Statement.

This timeframe of 2140 is important as ‘on-site risks would only be considered to this date’ according to the Applicant’s own modelling presented by Royal Haskoning.

This paper is a response to the stated, ‘decommissioned date of 2140’ and posits the view that such a timeframe is imposed by the Applicant’s flood risk assessment presented in its ‘Table 2.1’ and its selected main nuclear platform level. This paper suggests this timescale for spent fuel removal is implausible and that the spent fuel store could remain in commission well beyond 2140 and consequently exposed to untenable flood risk.

1. The critical nature of the 2140 date—EDF’s assessment of still water and wave overtopping of the main nuclear platform beyond 2140.

If we refer to the Applicant’s ‘Table 2.1’:

*“2.1.5 Table 2.1 [reproduced below] presents a list of overtopping scenarios for the reasonably foreseeable (RCP8.5 95 percentile) and credible maximum (H++ or BECC Upper) climate change allowances and respective extreme still water levels, highlighting in red bold those scenarios with extreme sea level above platform height that were not undertaken in this assessment”* FRA ADDENDUM: op cit., Main Development Site Flood Risk Assessment Addendum Appendices A-F Part 10 of 10

Table 2.1: Summary of wave overtopping scenarios

Return period	2090 epoch		2140 epoch		2190 epoch	
	RCP8.5	H++	RCP8.5	BECC	RCP8.5	BECC
200-year	4.58	5.19	5.48	7.58	6.31	<b>8.48</b>
1,000-year	5.12	5.73	6.02	<b>8.12</b>	6.85	<b>9.02</b>
10,000-year	5.98	6.59	6.88	<b>8.98</b>	7.71	<b>9.88</b>

FRA ADDENDUM: op cit., Main Development Site Flood Risk Assessment Addendum Appendices A-F Part 10 of 10

The figure of interest is the RCP8.5 1:10,000 in 2140. The table clearly shows that beyond 2140 the main nuclear platform is at risk of flooding in a 1:10,000 RCP8.5 scenario and that there is a consequent critical requirement for Sizewell C to be decommissioned (at least in terms of spent fuel removal) by this date for the safety of local populations, environment, and staff.

## 2. The profound difficulties in achieving a decommissioned date of 2140.

Government policy is that spent fuel is transported directly from site of creation to a geological disposal facility (GDF), **there is no 'intermediate' location for spent fuel proposed.** However:

### 2.1 Policy: Spent fuel is not waste and *is not currently destined for geological disposal.*

- *"...your understanding that spent fuel is 'not waste' and is not destined for geological disposal unless and until it is classified as waste, is correct."*  
[13<sup>th</sup> October 2021 email to me from Radioactive Waste Management Ltd.](#)

### 2.2 Spent Fuel Cooling: High burnup spent fuel of the type produced by Sizewell C requires a longer cooling period (see my paper REP2-503) before geological disposal can be considered and that does not correlate with a decommissioned date of 2140.

- The Nuclear Decommissioning Authority (NDA) suggests the cooling requirements will result in a decommissioning date for Sizewell C between **2180 to 2230**:

*"Current RWMD generic disposal studies for spent fuel define a temperature criterion for the acceptable heat output from a disposal canister. In order to ensure that the performance of the bentonite buffer material to be placed around the canister in the disposal environment is not damaged by excessive temperatures, a temperature limit of 100°C is applied to the inner bentonite buffer surface. **Based on a canister containing four EPR fuel assemblies, each with the maximum burn-up of 65 GWd/tU and adopting the canister spacing used in existing concept designs, it would require of order of 140 years for the activity, and hence heat output, of the EPR fuel to decay sufficiently to meet this temperature criterion.**"*

*"It is acknowledged that the cooling period specified above is greater than would be required for existing PWR fuel to meet the same criterion [due to its higher levels of radioactivity and high decay heat radioisotopes] and RWMD proposes to explore how this period can be reduced. This may be achieved for instance through refinement of the assessment inventory (for example by considering a more realistic distribution of burn-up), by reducing the fuel loading in a canister [which will increase the geological disposal footprint] or by consideration of alternative disposal concepts. The sensitivity of the cooling period to fuel burn-up has been investigated by consideration of an alternative fuel inventory based on an assembly irradiation of 50 GWd/tU. For this alternative scenario it is estimated that the cooling time required will reduce to the order of **90 years** to meet the same temperature criterion."*

[NDA 'Geological Disposal Generic Design Assessment: Summary of Disposability Assessment for Wastes and Spent Fuel arising from Operation of the UK EPR' Jan 2014 section 6, page 6.](#)

'Together Against Sizewell C' raised the above points from the Nuclear Decommissioning Authority (NDA) with the Office for Nuclear Regulation (ONR) who responded as follows with reference to HINKLEY POINT C:

*"As an example, for HPC (using indicative timescales and dates):*

- *The assumed availability date for the GDF ~2130 for fuel from new reactors.*
- *Assumed start of generation of HPC: 2025*
- *Assumed end of generation of HPC: 2085*

- *The date from which fuel will be sufficiently cool to start to transfer to the GDF (from 55-60 after end of generation): 2140-2145*
- *The date by which all fuel will be transferred to the GDF: ~2150-2155 (assumed to take just over 9 years)*
- *The dry fuel store will not be needed until ~10 years start of operation of HPC: ~2035*
- *The dry fuel store will then be needed for 50 years remaining operation of HPC, 55-60 years for the fuel to cool and 10 years to allow transfer of fuel to the GDF, which is 115-120 years.*
- *Removal of all fuel from site and end of use of the dry fuel store is therefore: ~2150-2155.*
- *The initial design life for the dry fuel store is 120 years (noting the design is conceived to allow for refurbishment or replacement) which would take it to: ~ 2155*
- *“In summary, the number of years before the fuel can be taken off site to the GDF is approximately 55-60 years from end of generation, which is because of the temperature criterion associated with the GDF canister. Fuel could potentially be moved from site safely earlier (but not currently to the GDF), although this is not planned.” ONR reference HPGE202006066, ‘TASC Review of the Minutes of the ONR/Stop Hinkley Meeting in Bridgewater January 2020 Authors: Chris & Jen Wilson Date: 17 June 2020’.*

The basis of the ONR’s ‘downward revision’ of the NDA’s specified high burnup spent fuel cooling period, as stated in its response above, is that not all fuel will be burnt to 65 GWd/tU. I accept this although the ONR is unclear as to what the average burn rate will be and hence, in my view, there is a sense of the arbitrary about the revision which would benefit from more detailed validation. In my opinion, there is a need for a statement of common ground between the NDA and the ONR defining this cooling period within somewhat finer limits than 55-140 years, particularly the period in cooling ponds.

Even if the ‘revised cooling period’ from the ONR is correct and applied to Sizewell C’s spent fuel, and we accept the GDF will be commissioned and run smoothly, and one assumes that Sizewell C is completed on time (2035) and will operate until 2095 without lifetime extensions, then spent fuel could, at the very earliest, be removed by 2160/2165 (2095 + 55-60 years cooling +10 years to remove).

For spent fuel to be removed from site by 2160/2165 (20-25 years *after* the “*explicit timeframes*” committed to by the Applicant) requires the acceptance of **major** assumptions as follows:

1. Spent fuel will be classified as waste. This is currently not the case.
2. That there are no over-runs in construction time of Sizewell C.
3. That there are no lifetime extensions to Sizewell C.
4. That one accepts the validity of the ONR’s downward revision of the required cooling period specified by the NDA from 140 years to 55-60 years.
5. That a GDF is available within 120 years, and it will take no more than 10 years to consign the Sizewell C spent fuel.
6. That the GDF can accept and consign Sizewell C’s spent fuel at the same time as other nuclear waste if necessary. It is not at all clear that this will be the case.
7. That the timeframe for the deposition of other committed nuclear waste to be consigned prior to Hinkley C and Sizewell C— that is, legacy nuclear waste, including spent fuel from

power stations and the highly enriched submarine spent fuel— operates within the allocated timescale without over-run. EN-6 confirms that the initial disposal of legacy wastes (i.e. those already in existence from AGRs and SZB) will take until 2130 to be consigned to the proposed GDF. See EN-6 Vol II page 16.

Therefore, in summary I suggest that the Applicant's 2140 date for decommissioning is implausible and that even the later dates of 2160/65 are dependent on major assumptions and unsupported by an agreed and conclusive analysis of fuel cooling requirements.

## APPENDIX 3

The control and influence of the Sizewell-Dunwich banks on shoreline change and Coastal processes at Sizewell—three major historical 'episodes'.

This is taken from my main paper REP2-393, reproduced here for convenience.

EDF's BEEMS report TR058, quoting Pye and Blott, states:

*"The 1836 [1736-1836] shoreline at Sizewell is the most eroded shoreline in the records assembled by Pye and Blott (2005), being some 60 – 100 m landward of its current position and just 20 m seaward of the present location of the Sizewell B cooling-water pump house. By 1883, the shoreline had advanced by up to 130 m, presumably as a result of the increased sediment supply from the cliffs to the north."*

BEEMS Technical Report Series 2009 no. TR058, Sizewell: *Morphology of coastal sandbanks and impact to adjacent shorelines*. Page 40.

*"Major changes have occurred along the coastline in the last 1000 years, with coastal projections north of Southwold, at Southwold itself, at Dunwich and at Thorpeness all having been eroded by significant distances (up to over 1 km)".* BEEMS TR139, Edition 2: A Consideration of "Extreme Events" at Sizewell, Suffolk, With Particular Reference to Coastal Morphological Change and Extreme Water Levels. Page 4 of 301.

For details of erosion/accretion described in the following, see: *Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk*, UK Author(s): Kenneth Pye and Simon J. Blott (May, 2006), pp. 453-473. See also Pye Blott, 2005, *Coastal Processes and Morphological Evolution of the Minsmere Reserve and Surrounding Area, Suffolk*.

**Three** 'approximately 100-year' episodes are recorded for Sizewell:

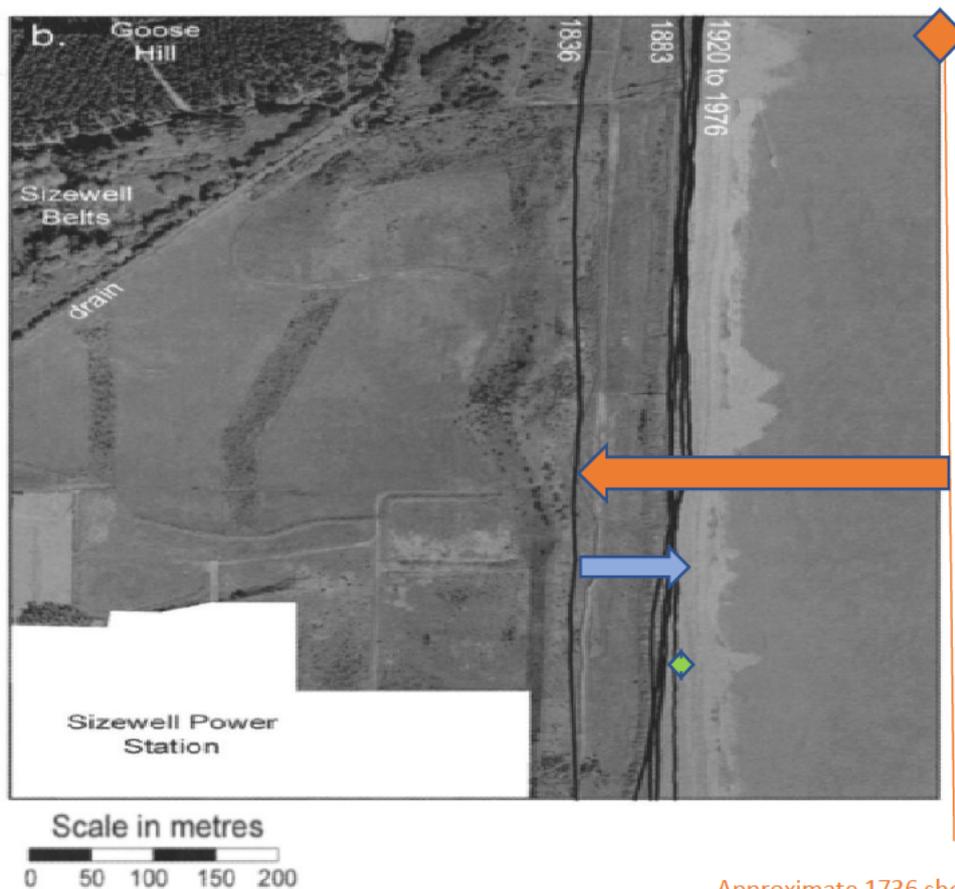
- 1. Erosion:** As stated above, the Sizewell shoreline between 1736 and 1836 is *"the most eroded shoreline in the records"* according to BEEMS TR058 quoting Pye and Blott (2005). It appears that the 1836 shoreline had eroded approximately 300m in one century and was just 20m seaward of the present-day Sizewell B. Orange arrow in the air photo below.
- 2. Accretion: The Sizewell-Dunwich bank grew after 1824 and protected the shoreline;** between 1836 and 1903/1920 the Sizewell shoreline accreted by 83m with sediment from cliffs to the north, particularly Dunwich, to roughly its present location. The present Sizewell shoreline is hence 'soft and erodible'. Blue arrow on the air photo below.

- BEEMS states, however, “The last 2 to 3 decades of strong erosion at Dunwich were not, however, matched by ongoing accretion in the south”. BEEMS TR223 op cit., Page 119, Table 12 on p. 115.

3. **Stability:** 1920- present day, relative stability. Green arrow on the photo below.

The following ‘air photograph’ taken in 2000 showing imposed historical coastline positions and Sizewell B power station shows the three episodes:

Three major 100-year episodes of erosion, accretion and relative stability of the Sizewell shoreline discussed earlier on a large-scale air photograph:



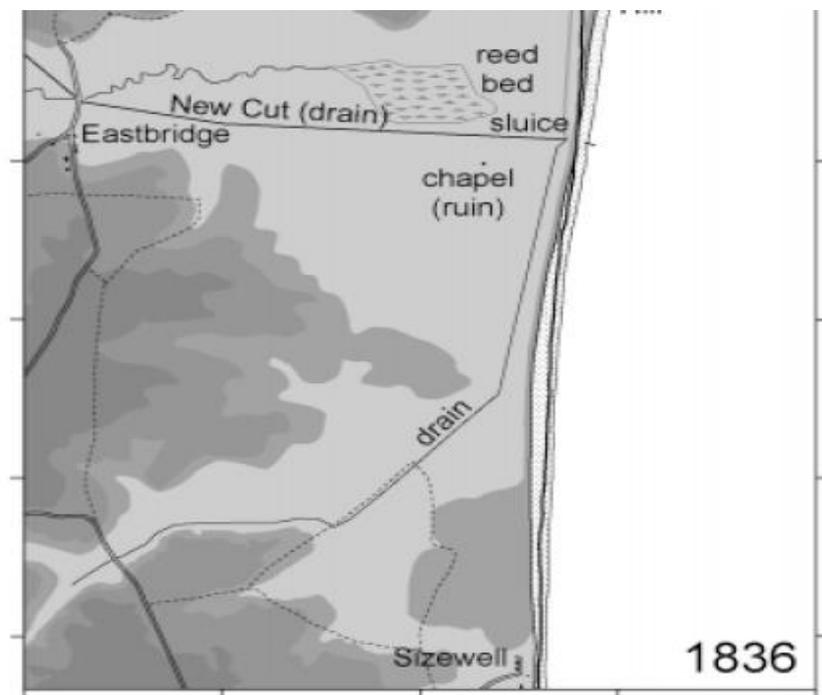
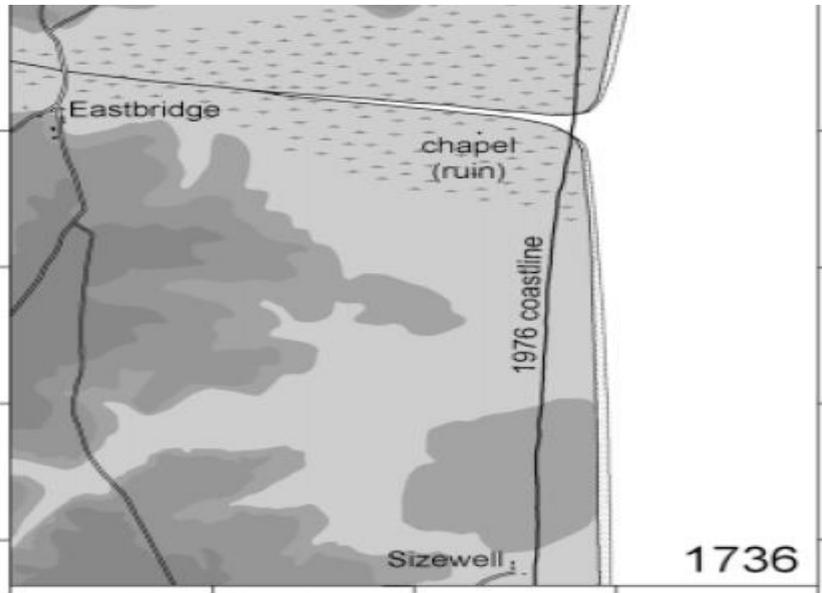
Approximate 1736 shoreline-300m seaward.

‘Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk’, UK Author(s): Kenneth Pye and Simon J. Blott Source: Journal of Coastal Research, Vol. 22, No. 3 (May 2006).

1. **Orange arrow** shows erosion period 1736-1836.
2. **Light blue arrow** shows accretion period post the development of the Sizewell-Dunwich banks, 1836-1920.
3. **Light green double arrow** shows the relative stability period 1920- present.

The following two historical maps illustrate the coastline in 1736 and 1836. The 1736 shoreline according to Pye and Blott appears to be approximately 300m-350m to seaward of Sizewell B and as stated earlier is “...the most eroded shoreline in the records assembled by Pye and Blott (2005)”.

“Historical maps showing coastal changes at Minsmere since 1736, based on maps by Kirby (1737), Hodskinson (1783), and the Ordnance Survey (1837, 1883–84, 1928, and 1976–82). The position of mean high water in 1976 is displayed as a solid line on each map for reference. Topography is shaded at 5m intervals.” See: ‘Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk’, UK Author(s): Kenneth Pye and Simon J. Blott Source: Journal of Coastal Research, Vol. 22, No. 3 (May 2006). Page 462



Squares are 1km scale.

My own measurements, which are not included in this document, using modern Ordnance Survey and maps drawn of the Suffolk Coast in 1737 by John Kirby et al., and allowing for major errors, suggest erosion at Sizewell *far greater* than 350m in this period 1736-1836. This is consistent with other observations on this coast such as Benacre cliffs: “the mean rate of retreat of the Benacre Cliffs was 7.02 meters per year” BEEMS TR311, 2.3.3.

This extreme erosion that has particularly occurred at Sizewell may be explained by the following statement that wave energy coefficients are not constant along this length of coast:

*“Indeed [wave energy coefficients] suggest a concentration of energy in the Sizewell area, [offshore of the Sizewell-Dunwich banks] especially for wave headings between 230 and 300 degrees. Wave refraction calculations also suggest that, particularly with waves come from the direction of maximum fetch (210 degrees), there are energy foci along the coast, notably between Sizewell and Thorpeness.”* Institute of Oceanographic Sciences, Sizewell-Dunwich banks field study, Topic Report 6, Carr, King, Heathershaw and Leeds. Page 15

It appears clear that sediment released in northern cliff erosion has not remained within the system which disputes these claims within the DCO:

1. *“The last 2 to 3 decades of strong erosion at Dunwich were not matched by ongoing accretion in the south.”* BEEMS TR223 Table 12, shows net erosion of the Sizewell C foreshore since 1993.
2. The Dunwich bank northern third has dropped between 1 and 2m – a huge amount of sediment seemingly lost to the system, not retained.

Based on the above, in my view there is no plausible mechanism that could justify the assumption for the maintenance and preservation of the unconsolidated Dunwich bank over the next two 100-year episodes of coastal processes, the uncertainties of which can only be increased by climate change sea-level rise and storm level change. This loss could result in significant shoreline erosion around Sizewell C. See my papers REP2-393, REP7-219, REP10-345.

In summary of Appendix 3 it can be stated that the Sizewell Dunwich banks are **the** decisive arbiter of micro-stability of the nuclear coastline at Sizewell. They protect the inner and outer longshore bars and after the growth of the Dunwich bank from 1836 has protected the shoreline from being the *‘most eroded in records’* through accretion to stability. The banks will always be of critical importance to Sizewell C and conservative modelling cannot, under any circumstances in my view, rely on their overall retention and maintenance to end of station life. See my document REP2-393 sections 2, 6, 7.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Fwd: BEEMS TR553  
**Date:** 25 April 2022 15:20:33  
**Attachments:** [Notes on TR553.pdf](#)

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Dear Gareth Leigh,

The response below can be ignored in view of today's instructions posted on the Planning Inspectorate website.

I will reply according to those instructions later this week.

Kind regards  
Nick Scarr

----- Forwarded message -----

**From:** Nick Scarr <[REDACTED]>  
**Date:** Mon, 18 Apr 2022 at 12:22  
**Subject:** BEEMS TR553  
**To:** SizewellC <[sizewellc@planninginspectorate.gov.uk](mailto:sizewellc@planninginspectorate.gov.uk)>

For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C,

Subject: BEEMS TR553

I would be grateful if you would consider my response, '*Notes on BEEMS TR553*', a response to the latest flood risk assessment modelling paper from the Applicant.

TR553 appears to replace TR544 which was the subject of your 'outstanding matters, section 5' letter of the 18th March 2022, your ref: EN10012.

TR553 appeared in the public domain on 11/4/2022 so I am responding at the earliest opportunity.

Kind regards  
Nick Scarr IP 20025524

Date: 18 04 2022

## Notes on BEEMS TR553.

Interested Party number 20025524. Nick Scarr. 18 /4/2022.

BEEMS TR553 has been published on the Sizewell C portal on the 11/4/22 almost two months after being made available to the Environment Agency.

The Applicant states the following:

- *“Technical report (BEEMS TR553: Modelling of Soft Coastal Defence Feature under Design Basis Conditions) was provided on 18<sup>th</sup> February 2022 for review [to the Environment Agency] ... The report was **not submitted** as part of the DCO application or examination.”* See: BEEMS TR553, Appx 5 page 10.

TR553 appears to be the basis for a Statement of Common Ground between the Environment Agency and the Applicant and therefore a highly relevant document.

BEEMS TR553 is an exercise in modelling the Soft Coastal Defence Feature and appears to directly address points raised in my paper REP7-220, *“Impacts on Coastal Process - TR545, CPMMP - Response to questions Deadline D7”*, on the limitations of BEEMS TR545. TR553 now represents orthodox conservative modelling in many areas including regarding the offshore geomorphology— i.e., the *absence* of the Sizewell Dunwich banks and the nearshore bars represents the higher inshore wave climate and hence conservative modelling.

This position is undeniably a step forward but is in direct variance with the Applicant’s stance in the DCO that the *presence* of the Sizewell Dunwich banks and nearshore bars represents the highest inshore wave climate and hence conservative modelling for all epochs and scenarios as follows:

- *“...the assessment concluded that ...with the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal. As such, the scenario with the bank in place was adopted in the MDS FRA for all scenarios and epochs as a conservative approach.”* REP7-052 (EN010012-007054- Responses to ExQ2 epages 104-115.

Considerations relating to TR553:

1 2140 – the ‘explicit date’ for spent fuel removal.

TR553 now extends modelling to 2140, the ‘explicit’ date committed to by the Applicant for Spent Fuel removal from site, as follows:

- *“The key dates relevant to flood risk for the operation of the station are; the end of operation of the station at 2085...**end of interim spent fuel store 2140**... 6.12 Rev: Reports Referenced in the Environmental Statement. Page 14 epage 144.*
- *“...on-site risks would only be considered [modelled] to 2140 as the end of Interim Spent Fuel Store.”* DCO: 6.12 Revision: Reports Referenced in the Environmental Statement. page 2 of 22, epage 228

However, it seems implausible that spent fuel can in fact be removed from site by this date. This is explained in my paper “*Sizewell C Main nuclear platform flood resilience in the next century.*” – The relevant section is attached as Appendix 2.

## 2 Shoreline recession —The Sizewell Dunwich banks, their wave energy dissipation properties and the correct format for conservative modelling.

TR553 states:

*“It is worth noting that the combined waves and water levels of Scenario A1 and E1 are representative of offshore conditions applied directly to the XBeach-G model boundary, which is landward of **Sizewell-Dunwich Bank**—this means that the natural energy dissipating effects of the bank are not included in the A1 and E1 models, but are included in the XBeach-G F1 model.”*

However, TR553 then states:

*“There is no evidence to suggest that the bank would be lost over the life of the station” Page 46*

What is certain is that the unconsolidated parts of the Sizewell-Dunwich banks (the entire Dunwich bank and the non-coralline parts of the Sizewell bank) will change over this period. They are changing now. The last decade has resulted in notable depletion of the northern third of the Dunwich bank and Climate change sea level rise and storm frequency change add further levels of uncertainty.

It is axiomatic to state that conservative modelling must not rely on the ‘*natural energy dissipating effects*’ of the Sizewell Dunwich banks for the majority of scenarios and epochs and may not assume their substantial retention over the next 150 years.

Unfortunately, the basis of the DCO and DCO Addendum shoreline modelling is the Applicant’s unorthodox claim that the *presence* of the Sizewell Dunwich banks represents conservative modelling for all scenarios and epochs—the Applicant in fact suggesting in the DCO Question and Answer papers the obtuse corollary that the absence of the banks would be a ‘benefit’ to Sizewell C as follows:

- *“...If Dunwich Bank were lost or substantially reduced (in extent or elevation) there is a greater potential for erosion of the shoreline around Dunwich and, importantly, the Minsmere – Dunwich Cliffs, resulting in a local increase in the supply of sand and pebbles (i.e., beach shingle) from the cliffs. This sediment would move south and could reduce erosion rates. Reduced erosion rates could tend to increase resistance to flooding over the Minsmere and Sizewell frontages.”* Responses to the ExA’s Third Written Questions (ExQ3) Volume 1 - SZC Co. Responses page 68.
- See my responses in REP2-393, REP5-253, REP7-219, REP10-345 for further information.
- This approach taken in the DCO has been contrary to the Applicant’s research in pre-DCO BEEMS papers and accredited academic papers and hence has been the basis of my objections. It is also directly contradicting the conservative methodology of TR553.

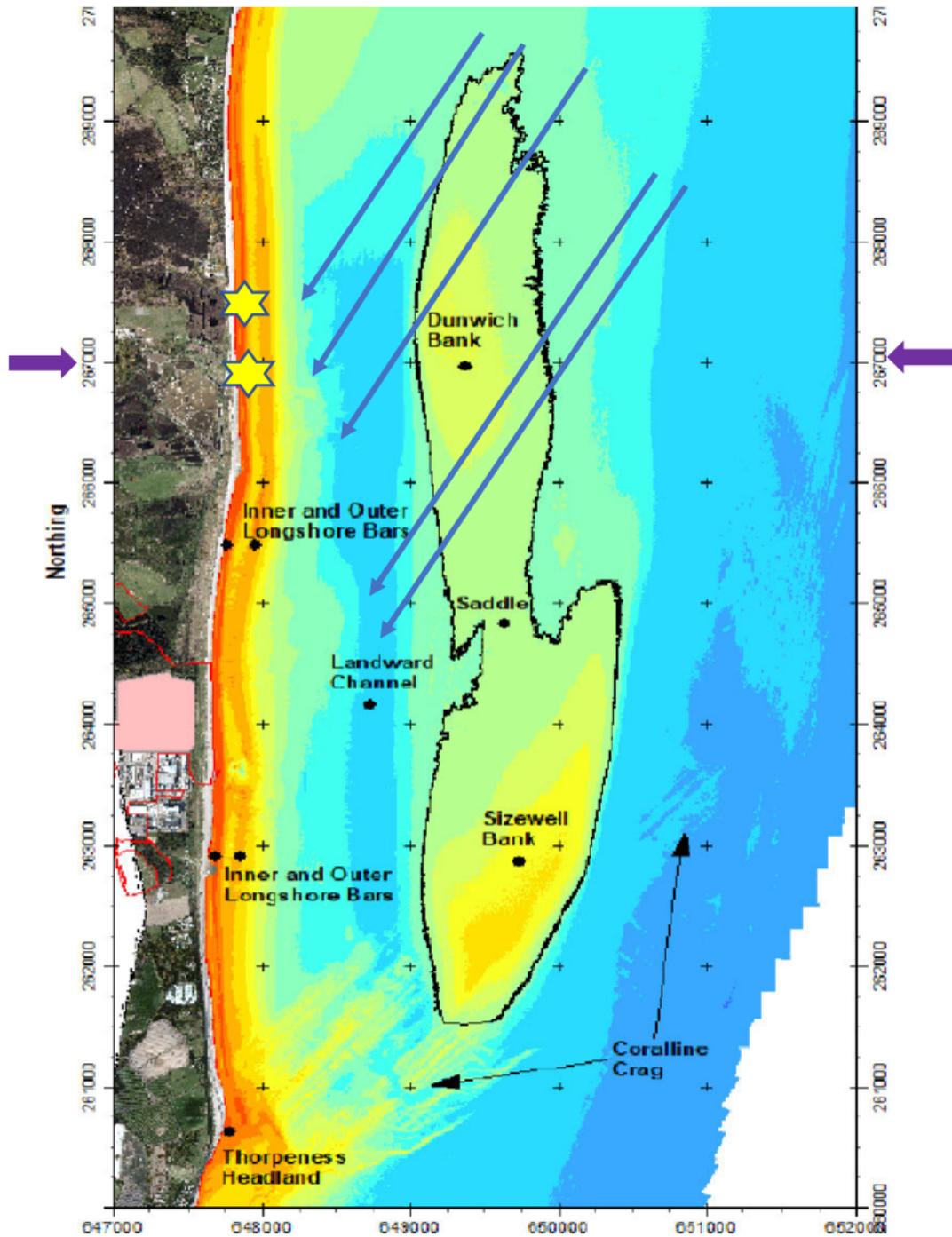
TR553 represents a major step forward by acknowledging the correct importance of the Sizewell Dunwich banks and applying conservative modelling to the Soft Coastal Defence feature (SCDF) by excluding the energy dissipating effects of the banks and nearshore bars. The difficulty is that the study is isolated and particular to the SCDF and lacks the scope to consider persistent and significant



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## APPENDIX 1

The chart below illustrates the Sizewell Dunwich banks.



The Sizewell-Dunwich Banks. The purple arrows mark 26700N— to the north of which the crest height of Dunwich bank is lowering. Chart base from BEEMS Technical Report TR500 'Sizewell-Dunwich Bank Morphology and Variability'. Page 14. Markup my addition.

- The orange and red lines show the ‘inner and outer’ nearshore, longshore bars. The DCO provided detailed bathymetry of the inner and outer Longshore bars and not the Sizewell-Dunwich banks.
- The pink square shows the proposed location of Sizewell C.
- **“Records over the last decade show...Dunwich Bank exhibited greater variability in both its morphology and position with erosion north of 267000N, [shown by the purple arrows] resulting in bank lowering of -0.5 to -1.5 m”** DCO: Geomorphology Appendix 20A, op cit., Page 21. BEEMS Technical Report TR500).
- The five blue arrows show the direction of the most significant storm waves from the North/North East— **the largest and longest waves arrive from the N-NE sector. [1:100 wave heights 7.3m-7.8m]**. The driver of sudden and significant erosion on this stretch of coast is from the NNE NE and Easterly directions. The loss of just the northern section of the bank could allow unbroken storm waves to break on the foreshore and increase water volumes in the South Minsmere levels in flood conditions. See map in section 4.3. DCO: Geomorphology Appendix 20A. op.cit., Paragraph 2.3.2.2.2

Haskoning’s modelling assumes ‘shore-normal’ angles (all waves will strike the shore at 90 degrees). In the complex bathymetry offshore from Sizewell plus significant wave directions stated above do not appear to support this assumption. Shallow nearshore (even before the nearshore bar locations) wave refraction locally will redirect waves and cause them to line up parallel to local bathymetric contours. section 7.

- There has been net erosion of the foreshore in the area of the proposed Sizewell C since 1993 according to BEEMS Table 2. This may be an indication of compromise to the Dunwich bank. See BEEMS TR223 op cit., Page 119 and Table 12 on page 115.
- The two yellow stars show the locations of breaches - 267400 15/12/03 and 14/2/05 and 266900 14/2/05. **“This 200 m section is the most vulnerable stretch of coastline between Dunwich and Sizewell, and represents the most likely location of a major breach occurring during a future storm surge.”** Pye and Blott 2005, Coastal evolution RSPB op. cit., page 154 of 160. Page 28/160

## APPENDIX 2

### Sizewell C and the Applicant’s claim for spent fuel removal by 2140. Is this a plausible timeframe?

#### Introduction and purpose.

The Applicant’s flood risk assessment for Sizewell C is committed to 2140 as the ‘decommissioned date’ for spent fuel confirmed by the following:

- *“The lifetime of the development includes for removal of all spent nuclear fuel by 2140...The Application and flood risk assessment are explicit about the timeframes being assessed in relation to 2140.”*
- *“The key dates relevant to flood risk for the operation of the station are; the end of operation of the station at 2085...end of interim spent fuel store 2140... 6.12 Rev: Reports Referenced in the Environmental Statement. Page 14*
- *“...on-site risks would only be considered [modelled] to 2140 as the end of Interim Spent Fuel Store.”*  
Royal Haskoning, flood risk modelling, page 2 of 22 in 6.12 Revision: Reports Referenced in the Environmental Statement.

This timeframe of 2140 is important as ‘on-site risks would only be considered to this date’ according to the Applicant’s own modelling presented by Royal Haskoning.

This paper is a response to the stated, ‘decommissioned date of 2140’ and posits the view that such a timeframe is imposed by the Applicant’s flood risk assessment presented in its ‘Table 2.1’ and its selected main nuclear platform level. This paper suggests this timescale for spent fuel removal is implausible and that the spent fuel store could remain in commission well beyond 2140 and consequently exposed to untenable flood risk.

1. The critical nature of the 2140 date—EDF’s assessment of still water and wave overtopping of the main nuclear platform beyond 2140.

If we refer to the Applicant’s ‘Table 2.1’:

*“2.1.5 Table 2.1 [reproduced below] presents a list of overtopping scenarios for the reasonably foreseeable (RCP8.5 95 percentile) and credible maximum (H++ or BECC Upper) climate change allowances and respective extreme still water levels, highlighting in red bold those scenarios with extreme sea level above platform height that were not undertaken in this assessment”* FRA ADDENDUM: op cit., Main Development Site Flood Risk Assessment Addendum Appendices A-F Part 10 of 10

Table 2.1: Summary of wave overtopping scenarios

Return period	2090 epoch		2140 epoch		2190 epoch	
	RCP8.5	H++	RCP8.5	BECC	RCP8.5	BECC
200-year	4.58	5.19	5.48	7.58	6.31	<b>8.48</b>
1,000-year	5.12	5.73	6.02	<b>8.12</b>	6.85	<b>9.02</b>
10,000-year	5.98	6.59	6.88	<b>8.98</b>	7.71	<b>9.88</b>

FRA ADDENDUM: op cit., Main Development Site Flood Risk Assessment Addendum Appendices A-F Part 10 of 10

The figure of interest is the RCP8.5 1:10,000 in 2140. The table clearly shows that beyond 2140 the main nuclear platform is at risk of flooding in a 1:10,000 RCP8.5 scenario and that there is a consequent critical requirement for Sizewell C to be decommissioned (at least in terms of spent fuel removal) by this date for the safety of local populations, environment, and staff.

## 2. The profound difficulties in achieving a decommissioned date of 2140.

Government policy is that spent fuel is transported directly from site of creation to a geological disposal facility (GDF), **there is no 'intermediate' location for spent fuel proposed.** However:

### 2.1 Policy: Spent fuel is not waste and *is not currently destined for geological disposal.*

- *"...your understanding that spent fuel is 'not waste' and is not destined for geological disposal unless and until it is classified as waste, is correct."*  
[13<sup>th</sup> October 2021 email to me from Radioactive Waste Management Ltd.](#)

### 2.2 Spent Fuel Cooling: High burnup spent fuel of the type produced by Sizewell C requires a longer cooling period (see my paper REP2-503) before geological disposal can be considered and that does not correlate with a decommissioned date of 2140.

- The Nuclear Decommissioning Authority (NDA) suggests the cooling requirements will result in a decommissioning date for Sizewell C between **2180 to 2230**:

*"Current RWMD generic disposal studies for spent fuel define a temperature criterion for the acceptable heat output from a disposal canister. In order to ensure that the performance of the bentonite buffer material to be placed around the canister in the disposal environment is not damaged by excessive temperatures, a temperature limit of 100°C is applied to the inner bentonite buffer surface. **Based on a canister containing four EPR fuel assemblies, each with the maximum burn-up of 65 GWd/tU and adopting the canister spacing used in existing concept designs, it would require of order of 140 years for the activity, and hence heat output, of the EPR fuel to decay sufficiently to meet this temperature criterion.**"*

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[NDA 'Geological Disposal Generic Design Assessment: Summary of Disposability Assessment for Wastes and Spent Fuel arising from Operation of the UK EPR' Jan 2014 section 6, page 6.](#)

'Together Against Sizewell C' raised the above points from the Nuclear Decommissioning Authority (NDA) with the Office for Nuclear Regulation (ONR) who responded as follows with reference to HINKLEY POINT C:

*"As an example, for HPC (using indicative timescales and dates):*

- *The assumed availability date for the GDF ~2130 for fuel from new reactors.*
- *Assumed start of generation of HPC: 2025*
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- *The date from which fuel will be sufficiently cool to start to transfer to the GDF (from 55-60 after end of generation): 2140-2145*
- *The date by which all fuel will be transferred to the GDF: ~2150-2155 (assumed to take just over 9 years)*
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- *Removal of all fuel from site and end of use of the dry fuel store is therefore: ~2150-2155.*
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- *“In summary, the number of years before the fuel can be taken off site to the GDF is approximately 55-60 years from end of generation, which is because of the temperature criterion associated with the GDF canister. Fuel could potentially be moved from site safely earlier (but not currently to the GDF), although this is not planned.” ONR reference HPGE202006066, ‘TASC Review of the Minutes of the ONR/Stop Hinkley Meeting in Bridgewater January 2020 Authors: Chris & Jen Wilson Date: 17 June 2020’.*

The basis of the ONR’s ‘downward revision’ of the NDA’s specified high burnup spent fuel cooling period, as stated in its response above, is that not all fuel will be burnt to 65 GWd/tU. I accept this although the ONR is unclear as to what the average burn rate will be and hence, in my view, there is a sense of the arbitrary about the revision which would benefit from more detailed validation. In my opinion, there is a need for a statement of common ground between the NDA and the ONR defining this cooling period within somewhat finer limits than 55-140 years, particularly the period in cooling ponds.

Even if the ‘revised cooling period’ from the ONR is correct and applied to Sizewell C’s spent fuel, and we accept the GDF will be commissioned and run smoothly, and one assumes that Sizewell C is completed on time (2035) and will operate until 2095 without lifetime extensions, then spent fuel could, at the very earliest, be removed by 2160/2165 (2095 + 55-60 years cooling +10 years to remove).

For spent fuel to be removed from site by 2160/2165 (20-25 years *after* the “*explicit timeframes*” committed to by the Applicant) requires the acceptance of **major** assumptions as follows:

1. Spent fuel will be classified as waste. This is currently not the case.
2. That there are no over-runs in construction time of Sizewell C.
3. That there are no lifetime extensions to Sizewell C.
4. That one accepts the validity of the ONR’s downward revision of the required cooling period specified by the NDA from 140 years to 55-60 years.
5. That a GDF is available within 120 years, and it will take no more than 10 years to consign the Sizewell C spent fuel.
6. That the GDF can accept and consign Sizewell C’s spent fuel at the same time as other nuclear waste if necessary. It is not at all clear that this will be the case.
7. That the timeframe for the deposition of other committed nuclear waste to be consigned prior to Hinkley C and Sizewell C— that is, legacy nuclear waste, including spent fuel from

power stations and the highly enriched submarine spent fuel— operates within the allocated timescale without over-run. EN-6 confirms that the initial disposal of legacy wastes (i.e. those already in existence from AGRs and SZB) will take until 2130 to be consigned to the proposed GDF. See EN-6 Vol II page 16.

Therefore, in summary I suggest that the Applicant's 2140 date for decommissioning is implausible and that even the later dates of 2160/65 are dependent on major assumptions and unsupported by an agreed and conclusive analysis of fuel cooling requirements.

## APPENDIX 3

The control and influence of the Sizewell-Dunwich banks on shoreline change and Coastal processes at Sizewell—three major historical 'episodes'.

This is taken from my main paper REP2-393, reproduced here for convenience.

EDF's BEEMS report TR058, quoting Pye and Blott, states:

*"The 1836 [1736-1836] shoreline at Sizewell is the most eroded shoreline in the records assembled by Pye and Blott (2005), being some 60 – 100 m landward of its current position and just 20 m seaward of the present location of the Sizewell B cooling-water pump house. By 1883, the shoreline had advanced by up to 130 m, presumably as a result of the increased sediment supply from the cliffs to the north."*

BEEMS Technical Report Series 2009 no. TR058, Sizewell: *Morphology of coastal sandbanks and impact to adjacent shorelines*. Page 40.

*"Major changes have occurred along the coastline in the last 1000 years, with coastal projections north of Southwold, at Southwold itself, at Dunwich and at Thorpeness all having been eroded by significant distances (up to over 1 km)".* BEEMS TR139, Edition 2: A Consideration of "Extreme Events" at Sizewell, Suffolk, With Particular Reference to Coastal Morphological Change and Extreme Water Levels. Page 4 of 301.

For details of erosion/accretion described in the following, see: *Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk*, UK Author(s): Kenneth Pye and Simon J. Blott (May, 2006), pp. 453-473. See also Pye Blott, 2005, *Coastal Processes and Morphological Evolution of the Minsmere Reserve and Surrounding Area, Suffolk*.

**Three** 'approximately 100-year' episodes are recorded for Sizewell:

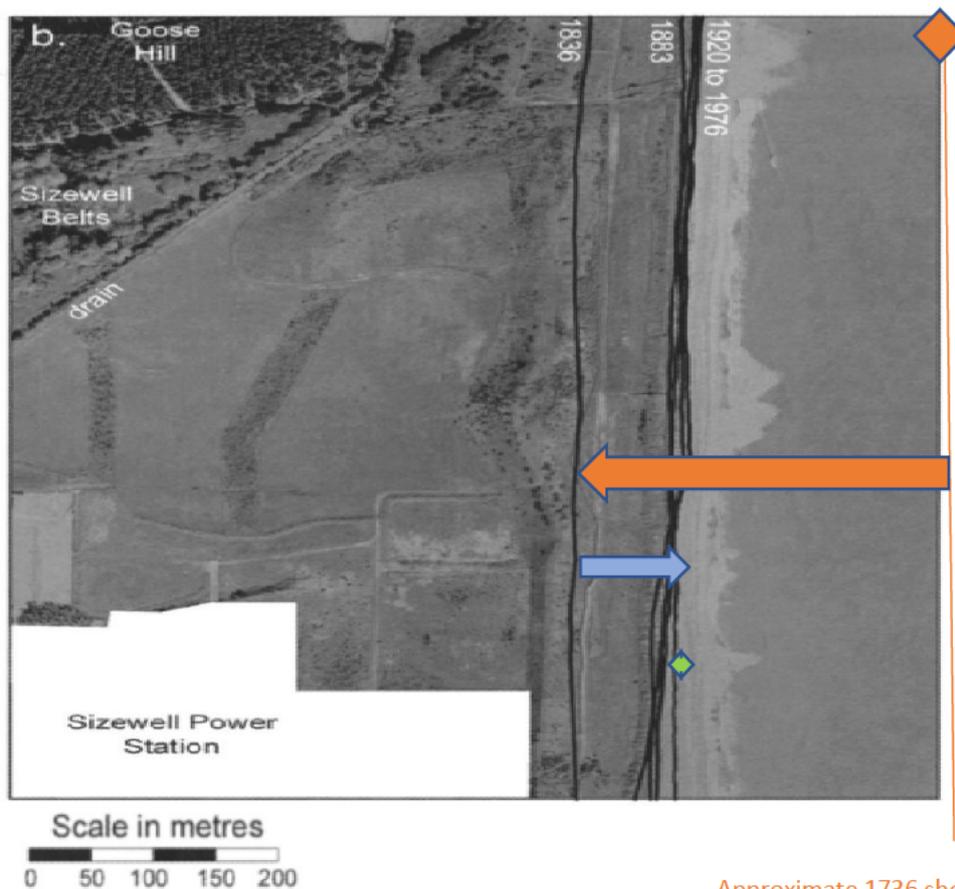
- 1. Erosion:** As stated above, the Sizewell shoreline between 1736 and 1836 is *"the most eroded shoreline in the records"* according to BEEMS TR058 quoting Pye and Blott (2005). It appears that the 1836 shoreline had eroded approximately 300m in one century and was just 20m seaward of the present-day Sizewell B. Orange arrow in the air photo below.
- 2. Accretion: The Sizewell-Dunwich bank grew after 1824 and protected the shoreline;** between 1836 and 1903/1920 the Sizewell shoreline accreted by 83m with sediment from cliffs to the north, particularly Dunwich, to roughly its present location. The present Sizewell shoreline is hence 'soft and erodible'. Blue arrow on the air photo below.

- BEEMS states, however, “The last 2 to 3 decades of strong erosion at Dunwich were not, however, matched by ongoing accretion in the south”. BEEMS TR223 op cit., Page 119, Table 12 on p. 115.

3. **Stability:** 1920- present day, relative stability. Green arrow on the photo below.

The following ‘air photograph’ taken in 2000 showing imposed historical coastline positions and Sizewell B power station shows the three episodes:

Three major 100-year episodes of erosion, accretion and relative stability of the Sizewell shoreline discussed earlier on a large-scale air photograph:



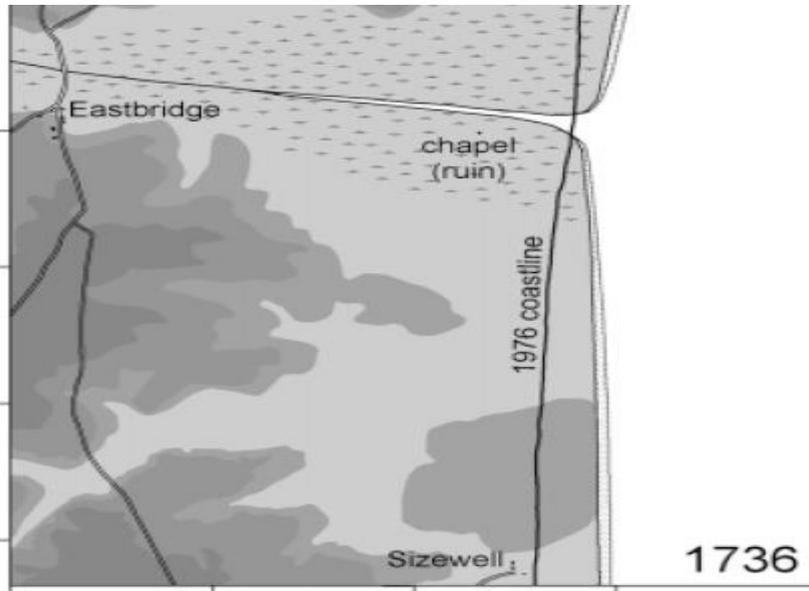
Approximate 1736 shoreline-300m seaward.

‘Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk’, UK Author(s): Kenneth Pye and Simon J. Blott Source: Journal of Coastal Research, Vol. 22, No. 3 (May 2006).

1. **Orange arrow** shows erosion period 1736-1836.
2. **Light blue arrow** shows accretion period post the development of the Sizewell-Dunwich banks, 1836-1920.
3. **Light green double arrow** shows the relative stability period 1920- present.

The following two historical maps illustrate the coastline in 1736 and 1836. The 1736 shoreline according to Pye and Blott appears to be approximately 300m-350m to seaward of Sizewell B and as stated earlier is “...the most eroded shoreline in the records assembled by Pye and Blott (2005)”.

“Historical maps showing coastal changes at Minsmere since 1736, based on maps by Kirby (1737), Hodskinson (1783), and the Ordnance Survey (1837, 1883–84, 1928, and 1976–82). The position of mean high water in 1976 is displayed as a solid line on each map for reference. Topography is shaded at 5m intervals.” See: ‘Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk’, UK Author(s): Kenneth Pye and Simon J. Blott Source: Journal of Coastal Research, Vol. 22, No. 3 (May 2006). Page 462



Squares are 1km scale.

My own measurements, which are not included in this document, using modern Ordnance Survey and maps drawn of the Suffolk Coast in 1737 by John Kirby et al., and allowing for major errors, suggest erosion at Sizewell *far greater* than 350m in this period 1736-1836. This is consistent with other observations on this coast such as Benacre cliffs: “the mean rate of retreat of the Benacre Cliffs was 7.02 meters per year” BEEMS TR311, 2.3.3.

This extreme erosion that has particularly occurred at Sizewell may be explained by the following statement that wave energy coefficients are not constant along this length of coast:

*“Indeed [wave energy coefficients] suggest a concentration of energy in the Sizewell area, [offshore of the Sizewell-Dunwich banks] especially for wave headings between 230 and 300 degrees. Wave refraction calculations also suggest that, particularly with waves come from the direction of maximum fetch (210 degrees), there are energy foci along the coast, notably between Sizewell and Thorpeness.”* Institute of Oceanographic Sciences, Sizewell-Dunwich banks field study, Topic Report 6, Carr, King, Heathershaw and Leeds. Page 15

It appears clear that sediment released in northern cliff erosion has not remained within the system which disputes these claims within the DCO:

1. *“The last 2 to 3 decades of strong erosion at Dunwich were not matched by ongoing accretion in the south.”* BEEMS TR223 Table 12, shows net erosion of the Sizewell C foreshore since 1993.
2. The Dunwich bank northern third has dropped between 1 and 2m – a huge amount of sediment seemingly lost to the system, not retained.

Based on the above, in my view there is no plausible mechanism that could justify the assumption for the maintenance and preservation of the unconsolidated Dunwich bank over the next two 100-year episodes of coastal processes, the uncertainties of which can only be increased by climate change sea-level rise and storm level change. This loss could result in significant shoreline erosion around Sizewell C. See my papers REP2-393, REP7-219, REP10-345.

In summary of Appendix 3 it can be stated that the Sizewell Dunwich banks are **the** decisive arbiter of micro-stability of the nuclear coastline at Sizewell. They protect the inner and outer longshore bars and after the growth of the Dunwich bank from 1836 has protected the shoreline from being the ‘*most eroded in records*’ through accretion to stability. The banks will always be of critical importance to Sizewell C and conservative modelling cannot, under any circumstances in my view, rely on their overall retention and maintenance to end of station life. See my document REP2-393 sections 2, 6, 7.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C - Objection  
**Date:** 25 April 2022 17:19:13

---

Sir/ Madam

Ref: Sizewell C - Objection

I am an "Interested Party" in the sense that I live several months every year at Aldeburgh.

My objection to Sizewell C concerns its massive environmental impact: the devastation and consequences will be immense and far-reaching as well as irreversible.

Less destructive alternatives need to be explored and exhausted before anything as radical as SC is undertaken.

Sincerely

Roger Howard

[REDACTED]

**From:** [REDACTED]  
**To:** [Evans, Sian](#)  
**Subject:** SZC Co. submission in response to marsh harriers  
**Date:** 05 May 2022 19:12:44  
**Attachments:** [image001.png](#)  
[050522 SZC Letter to BEIS incl DCO sHRA 2nd Addendum Attachment A.pdf](#)

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Sian, further to recent notification of a pair of breeding marsh harriers within the SSSI please find attached some additional information that we hope will be helpful to the Secretary of State. It is a single attachment combining the cover letter and associated HRA addendum; and please note the we have not provided a redacted version as this is not necessary. However, if it would be helpful to have them as separate documents (i.e. cover letter separate to the supporting addendum) please let me know.

With Kind Regards,

**Carly Vince**  
Chief Planning Officer

T: + [REDACTED]  
E: [REDACTED]  
90 Whitfield Street  
London. W1T 4EZ



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NNB Generation Company (SZC) Limited  
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Registered Office: 90 Whitfield Street, London, W1T 4EZ

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Mr Leigh  
Department for Business, Energy and Industrial Strategy  
1 Victoria Street  
London.  
SW 1H 0ET

5<sup>th</sup> May 2022

Dear Mr Leigh,

**Application EN010012 for The Sizewell C Project by NNB Generation Company (SZC) Limited (SZC Co.) – Supplementary information in relation to breeding marsh harriers within the EDF Sizewell Estate**

I write on behalf of NNB Generation Company (SZC) Limited (“the Applicant”) to advise you of a recent factual development of relevance to the forthcoming determination of its application for a development consent order to authorise the construction and operation of a new nuclear power station at Sizewell in Suffolk.

As you will be aware, one of the issues that is addressed in the application material and was considered during the examination of the application is the potential for impacts on marsh harriers. Surveys carried out by the Applicant this spring have recorded a pair of marsh harriers nesting in an area of Sizewell Marshes SSSI that would be permanently lost to construct Sizewell C, if consented. This is the first time breeding marsh harriers have been recorded in Sizewell Marshes SSSI since annual surveys of the site began 25 years ago.

In addition, breeding marsh harriers have been recorded within the replacement reedbed habitat that the Applicant has created at Aldhurst Farm, as they have done over the past few years.

Breeding marsh harrier are a qualifying feature of the adjacent Minsmere – Walberwick Special Protection Area (SPA) and Ramsar site.

In view of the absence of breeding marsh harrier from Sizewell Marshes SSSI until now and only very recent nesting activity at Aldhurst Farm, the Shadow Habitats Regulations Assessment (HRA) [APP-145] and Shadow HRA Addendum [AA-173] do not assess potential direct impacts on marsh harriers nesting outside of the SPA and Ramsar site. Rather, their focus is to assess disturbance from construction activities to breeding marsh harriers that forage over the functionally-linked Minsmere South Levels and Sizewell Marshes SSSI, but nest within the SPA and Ramsar site. This distinction is important and the assumption to date that nesting is effectively confined to the SPA and Ramsar site has not been challenged by Interested Parties, in particular Natural England and the RSPB.

However, in response to the recent breeding activity outside of the SPA and Ramsar site, we have prepared a further Shadow HRA Addendum (May 2022) to address this additional impact pathway that now exists, that is to say direct impacts due to habitat loss and/or disturbance on marsh harriers nesting within the main development site, the retained parts of Sizewell Marshes SSSI and/or Aldhurst farm. This document is submitted as “Attachment A”. The updated assessment concludes that the recent breeding activity does not change the outcome of the Shadow HRA, that is to say that it remains the case that the potential for adverse effects is limited to the potential displacement of birds from functionally linked foraging

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habitat, these effects being addressed via the creation of compensatory foraging habitat on former arable land.

The Applicant has also considered whether there are any implications for assessment of likely significant environmental impacts in the Environmental Statement [APP-224]. Whilst for the same reasons as set out above the Environmental Statement does not specifically contemplate marsh harriers breeding within Sizewell Marshes SSSI, it was noted in Table 14.23 that there was evidence of breeding within Aldhurst Farm. The assessment considered impacts on breeding birds for example at Paragraph 14.12.20 of [APP-224] which states “ ... habitat suitable for foraging **and breeding** birds would be lost within the site as a result of the proposed development. Loss of habitat can affect birds directly **by removing habitat required for nesting** and for foraging (leading to a reduction in breeding populations and breeding success); **and indirectly through habitat fragmentation** potentially making the remaining habitat patches too small to support viable **breeding** or wintering populations (requiring bird populations to travel further afield to find resources such as food and nesting sites). (**Emboldened text for emphasis**).

The ecological impact assessment was undertaken separately for each receptor, including breeding marsh harrier, for which it was concluded that impacts would be **significant (moderate adverse)**, due primarily to potential noise, visual and recreational disturbance to foraging marsh harriers within Sizewell Marshes SSSI. The Applicant does not consider that the assessment, or the conclusions reached, are sensitive to occasional breeding of marsh harriers within Sizewell Marshes SSSI.

It is noted that the Environmental Statement [APP-224] also states at paragraph 14.12.22 that “To mitigate for the loss of habitat within Sizewell Marshes SSSI (and provide alternative wetland habitat), primary mitigation measures to create replacement 2km of ditches and 5.4ha of reedbed and open water habitat have already been implemented at Aldhurst Farm”. The recent survey record of marsh harriers breeding there every year since 2019 serves to demonstrate the effectiveness of this mitigation.

As part of this same exercise, the Applicant has also considered whether the mitigation and control measures that have already been proposed under the draft DCO (having regard to the environmental information) would remain appropriate and adequate in circumstances where marsh harrier continue to breed within Sizewell Marshes SSSI, or indeed Aldhurst farm, during the construction phase of the Project.

In relation to land within the main development site, paragraph 1.4.4 of the Code of Construction Practice [REP10-072] secured by draft DCO Requirement 2 commits the Applicant to the following controls:

- All vegetation removal must be supervised by (the) ECoW and must have regard to the breeding birds and any additional measures that may be defined in a relevant protected species licence or mitigation strategy; and
- If a protected species or signs of a protected species are found within the active construction site, the ECoW must be contacted immediately to advise on the appropriate course of action.

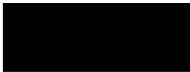
In addition, the Terrestrial Ecology Monitoring & Mitigation Plan (TEMMP) secured under Draft DCO Requirement 4 commits the Applicant to carry out annual breeding bird surveys on land in the vicinity of the main development site. Details are provided in Table 3.1 ‘Sizewell Marshes SSSI – Monitoring of Retained Areas’, which specifically include a requirement for surveys of Sizewell Marshes SSSI and Aldhurst Farm. These measures would ensure that any Marsh Harriers nesting within the relevant areas would be identified and appropriate adaptive measures taken in response. The survey results and adaptive measures would need to be agreed with the Ecology Working Group and Environmental Review Group established under Schedule 11 of the Deed of Obligation.

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Marsh harrier are also protected under the Wildlife and Countryside Act 1981 (as amended) making it an offence to intentionally take, damage or destroy a nest whilst in use or being built. They are also listed under Schedule 1 of the Act, making it an offence to intentionally or recklessly disturb the birds whilst nest building or at a nest containing eggs or young, or to disturb the dependent young. One of the main purposes of the measures identified above is to ensure that no such offence is committed, and this would apply equally in relation to Marsh harriers.

For those reasons, the Applicant considers that the mitigation and control mechanisms that have already been proposed and secured remain appropriate and adequate to address the potential impact.

Yours sincerely,



Carly Vince  
Chief Planning Officer, SZC Co.

**Encl. Attachment A**

c.c. Siân Evans – Planning Inspectorate

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**ATTACHMENT A**



# The Sizewell C Project

## 5.10 Shadow Habitats Regulations Assessment Addendum (May 2022)

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Revision: 1.0  
Applicable Regulation: Regulation 5(2)(e)  
PINS Reference Number: EN010012

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May 2022



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## CONTENTS

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# 1 ASSESSMENT OF EFFECTS OF THE SIZEWELL C PROJECT ON THE MINSMERE-WALBERSWICK SPA AND RAMSAR SITE BREEDING MARSH HARRIER POPULATION: IMPLICATIONS OF RECENT NESTING ON FUNCTIONALLY LINKED LAND

## 1.1 Background

### a) Assessment and nesting occurrence as determined in the shadow Habitats Regulations Assessment

1.1.1 The potential effects of the construction and operation of the Sizewell C Project (subsequently referred to as ‘the Project’) on European designated sites have been assessed in the shadow Habitats Regulations Assessment (HRA) [APP-145] and shadow HRA Addendum [AS-173]. This includes consideration of the potential effects on the breeding marsh harrier population which is a qualifying feature of the Minsmere-Walberswick Special Protection Area (SPA) and Ramsar site, as assessed at sections 8.8d) and 8.9 for the SPA and Ramsar site, respectively. Further consideration of the potential effects on this SPA population is presented in paragraphs 4.3.52 – 4.3.69 of the Report on the Implications for European Sites [PD-053].

1.1.2 The Minsmere-Walberswick SPA (and Ramsar site) lies to the north of the main development site for the Project. Along most of its length, the northern boundary of the main development site is separated from the SPA by distances of between several hundred metres to more than a kilometre, although the eastern part of the SPA is adjacent to this boundary for a short distance (Figure 4.1 in the shadow HRA [APP-145]). The shadow HRA [APP-145] focussed the assessment on the known marsh harrier nest sites in the Minsmere reedbed, which is within the SPA and beyond the distance at which most potential effects from the Project are considered likely to occur<sup>1</sup>. While the ES acknowledged that a breeding territory had been established within the new reedbed creation area at Aldhurst Farm, this was not deemed relevant to the shadow HRA given its location outside the SPA and Ramsar site and given that it was (at the time) a single breeding occurrence. Thus, in terms of the potential for effects on the SPA marsh

<sup>1</sup> Noting that for the increased recreational disturbance effect pathway, which has the potential to manifest at greater distances from the main development site, other factors (notably the management and control of visitors) meant that effects on nesting birds are highly unlikely.

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harrier population, attention was focussed on the use of functionally linked habitat outside the SPA (and in closer proximity to the main development site) for foraging and the extent to which the Project could (potentially) affect this. This focus is apparent from the Report on the Implications for European Sites [PD-053], which does not refer to the potential for effects to occur at the marsh harrier nest sites.

- 1.1.3 The shadow HRA [APP-145] concluded that noise and visual disturbance associated with construction of the main development site could result in the displacement of marsh harriers from functionally linked foraging habitat in the Sizewell Marshes and, to a lesser extent, the Minsmere South Levels. On the basis of a number of highly precautionary assumptions, such displacement was considered to have the potential to lead to an adverse effect on the SPA marsh harrier population, with this being addressed through the creation of compensatory foraging habitat on former arable land within the EDF Sizewell estate to the north of the main development site, adjacent to the SPA. This compensatory habitat includes both terrestrial and wetland components. The terrestrial habitat creation has already been substantially completed and is described in SZC **On-site Marsh Harrier Compensatory Habitat Strategy** (September, 2021) [[REP10-128](#)]. The additional wetland habitat is to be created between mid-August 2022 and February 2023 as outlined in SZC Co.'s response to the Secretary of State's letter of 18<sup>th</sup> March 2022. Requirement 27 of the dDCO requires a marsh harrier implementation plan in general accordance with [[REP10-128](#)] to be agreed with East Suffolk Council, following consultation with Natural England, before commencement.

b) **The occurrence of nesting marsh harriers outside the SPA**

- 1.1.4 It has recently become apparent that marsh harriers have started to nest in reedbed habitats which are outside the Minsmere-Walberswick SPA (and Ramsar site) and within, and in the vicinity of, the main development site for the Project. Since 2019 nesting activity has been recorded in the new reedbeds created by SZC Co. at Aldhurst Farm to help compensate for the unavoidable permanent loss of 5.74ha of Sizewell Marshes SSSI needed to build Sizewell C. Nesting activity has, for the first time, also been recorded within Sizewell Marshes SSSI in the current (2022) breeding season. While there is also reedbed habitat within the SSSI that is

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potentially suitable to support nesting marsh harrier, to date there is no other known breeding activity in the SSSI based on 25 years' monitoring<sup>2</sup>.

- 1.1.5 The locations of the above nesting areas are approximately 3.5km (at Aldhurst Farm) and 2.5km (at Sizewell Marshes SSSI) from the marsh harrier nesting area in the Minsmere reedbeds within the SPA and, as such, are sufficiently close to be regarded as having the potential to be functionally linked with the SPA population. Given the pattern of regular use of the Aldhurst Farm reedbed by nesting marsh harrier as observed over recent years (see below), including the current (2022) breeding season, and the occurrence of a breeding pair in 2022 in Sizewell Marshes SSSI, this is therefore SZC Co's revised assumption for the purposes of the sHRA.
- 1.1.6 The first nesting activity in Aldhurst Farm reedbeds was recorded in 2019, with observations suggesting that a single pair was nesting there. Subsequently, two females (believed to be associated with the same male<sup>3</sup>) were considered likely to have nested at Aldhurst Farm in 2020, with anecdotal evidence suggesting two pairs also nested there in 2021. In the current breeding season (2022) it appears that single females have established nests in Aldhurst Farm and Sizewell Marshes SSSI. The nesting activity in the current breeding season has been established during breeding bird surveys that are being undertaken by the Project. As in 2020, it appears that both of the current nesting attempts are associated with a single male.
- 1.1.7 The occurrence of this recent nesting activity on functionally linked land means that there is potential for direct habitat loss and disturbance associated with the Project to have effects on nesting marsh harrier, which represents a change to the conclusions reached in the shadow HRA [APP-145] in this regard (see above). Therefore, it is necessary to also consider whether the activities associated with the Project could result in adverse effects on the SPA population via effects (direct habitat loss and visual, noise and recreational disturbance) on the birds nesting on the functionally linked land at Aldhurst Farm and Sizewell Marshes SSSI. This assessment (both alone and in-combination with other plans and projects) is set out below.

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<sup>2</sup> Breeding bird surveys of Sizewell Marshes SSSI have been carried out by Suffolk Wildlife Trust on behalf of Nuclear Generation Limited (part of EDF) on an annual basis since 1997

<sup>3</sup> Marsh harriers can be polygynous with a single male mating with multiple females and contributing to provisioning these females and the subsequent broods.

## 1.2 The potential for adverse effects

1.2.1 Marsh harriers nesting at Aldhurst Farm and the Sizewell Marshes are vulnerable to potential effects from the Project activities which, for example, could; (i) cause the nesting attempts to fail; (ii) temporarily displace nesting pairs from the sites (e.g. noise and visual disturbance during construction - see Figure 8A.1 in the shadow HRA Addendum [AS-173]); or (iii) cause permanent loss of the nesting habitat (i.e. for the current nesting attempt within the Sizewell Marshes SSSI).

1.2.2 There is, however, no potential for adverse effects to occur on the SPA population as a consequence of the recent nesting activity on functionally linked land. This is because the SPA population and the associated conservation objectives are not dependent on such nesting activity. The reasons for this are set out below in terms of (i) the potential for effects to arise on the SPA population and (ii) the historical dependence of the SPA population on the provision of nesting habitat on functionally linked land.

- Effects on the population nesting within the designated land: As described above, the potential for direct effects on nesting birds is limited to those using sites on functionally linked land, which would not affect the population nesting within the designated land. Thus, potential effects on birds using functionally linked land for nesting contrasts with the situation in relation to birds which nest within the SPA but may be displaced from foraging habitat on functionally linked land (because the latter situation could affect the population nesting within the SPA).

This aligns with the guidance on functionally linked land commissioned by Natural England, which recognises that assessments have to determine how critical the functional linkage is to the designated population and whether it is necessary to maintain or restore favourable conservation status of the qualifying feature<sup>4</sup>. This is particularly important where, as here, the SPA population is regarded as being in favourable condition (having a 'maintain' objective), with the most recently available estimate of 17 nests in 2018 (as detailed in Table 6.6 in the shadow HRA [APP-145]) being

<sup>4</sup> Chapman, C. and Tyldesley, D. (2016) Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – a review of authoritative decisions. Natural England Commissioned Reports, No. 207.

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slightly above the citation population size of 15 females (recorded pre-1991)<sup>5</sup>.

Furthermore, the SPA population has fluctuated in size over the years (e.g. up to 31 nests were recorded in 2007 - Table 6.6 in the shadow HRA [APP-145]) and the extent of reedbed nesting habitat within the SPA has not declined, with much of it being actively managed to ensure its suitability for key nesting species, such as marsh harrier<sup>5</sup>. This further demonstrates that the designated land provides sufficient nesting habitat to maintain the population at or above the citation level and avoid deterioration from its current level, and that the SPA population is not dependent on functionally linked land for nesting.

- Absence of historical dependence of the designated population on functionally linked land for nesting: As described above, the records of nesting activity at Aldhurst Farm and the Sizewell Marshes derive from recent years only (i.e. 2019 - 2022). Aldhurst Farm has been subject to a wetland habitat creation scheme, which was completed in 2015/16 [REP5-126]. Prior to this it was arable farmland. Whilst the recent marsh harrier nesting activity is testament to the success of the habitat creation, and the speed at which it has matured, it is clear that prior to the wetland habitat creation scheme at Aldhurst Farm, the land had little or no potential to provide supporting nesting habitat for the SPA population (noting that the SPA has been designated since 1991). The current breeding activity in Sizewell Marshes SSSI is the first that has been recorded in the SSSI in 25 years of monitoring.

As explained above, it is self-evident that land within the SPA provides sufficient nesting habitat to maintain the population at or above the citation level and avoid deterioration from its current level, so that the SPA population is not considered to be dependent on nesting habitat on functionally linked land outside the designated site. This assessment is further supported by the fact that such nesting activity is almost entirely limited to recently created nesting habitat.

- 1.2.3 These conclusions apply equally to ‘Project alone’ and the ‘Project in-combination’ assessments because the SPA population and associated conservation objectives are not dependent on the nesting activity within the functionally linked land.

<sup>5</sup><https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9009101&SiteName=mins mere&SiteNameDisplay=Minsmere-Walberswick+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=>

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## 1.3 Conclusions

- 1.3.1 The assessment of the potential effects of the Project on the Minsmere-Walberwick SPA (and Ramsar site) breeding marsh harrier population was undertaken on the basis that nesting by marsh harrier was limited to the reedbed habitats within the designated site. Recent nesting activity by marsh harriers on land which is outside, but functionally linked to, the SPA (and Ramsar site) means that it is necessary to also consider whether the conclusions reached in the shadow HRA [APP-145] of no effect on site integrity in respect of breeding marsh harrier remain valid.
- 1.3.2 The SPA population is not dependent on the nesting habitat on functionally linked land and such nesting habitat has only been created recently or has never previously been recorded being used (in 25 years of monitoring). It is therefore evident that this recent nesting activity by marsh harriers does not affect the conclusions of the shadow HRA [APP-145]. This is the case for both the ‘Project alone’ and the ‘Project in-combination’ assessments.
- 1.3.3 Thus, in relation to the Minsmere-Walberswick SPA (and Ramsar site) breeding marsh harrier qualifying feature, it remains the case that the potential for adverse effects is limited to the potential displacement of birds from functionally linked foraging habitat due to noise and visual disturbance during construction (with this effect being addressed via the creation of compensatory foraging habitat on former arable land within the EDF Sizewell estate to the north of the main development site, adjacent to the SPA). Therefore, the conclusions reached in the shadow HRA [APP-145] are unaffected by the recent nesting activity on functionally linked land.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 11 May 2022 11:48:50

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I wish to register my objection to this development on the grounds set out in brief below.

Cost/ Value for money.

Projected costs were £20 bn. This estimate excluded the now planned sea off loading facility ( jetty) and the costs of water supply. The costs of building materials and transport have risen by 25% since the estimate. No nuclear facility has been constructed that didn't have significant cost overruns. Putting all this together we can expect the final costs to be in the order of £30-£40 bn. This is madness.

So much cheaper to insulate homes and reduce waste of energy by commerce and industry. Also such a programme would provide a lot more employment than a nuclear power plant.

Water

Suffolk is currently the area of the UK that suffers most from water shortages . This can only get worse as it includes some of the greatest population rises of any part of the country. How much will the proposed desalination plant cost and it should be noted that desalination is a energy hungry process.

Transport.

The route to Sizewell must use the A12. This is fairly heavily congested currently. Even taking into account the planned village bypasses this route is wholly inadequate for the huge amount of construction traffic planned.

Location

There appears to be no good reason to locate a new nuclear power plant so far from areas of high energy usage. Suffolk contributes more than its fair share of energy generation for the UK.

Regards Simon Ransome

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 16 May 2022 09:21:20

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Dear Planning Inspectorate,

These are my objections to the Sizewell C development:  
The development will take 10-12 years to complete and will not solve the immediate energy crisis.

It is very expensive £20 billion plus and has massive design faults elsewhere it has been tried.

It threatens R.S.P.B. Minsmere, local fauna and flora, rendering Suffolk's "Heritage Coast" an "Energy Coast".

This will not provide a Green solution, as there is no long-term plan to deal with nuclear waste.

Local economy would suffer, as tourist industry would lose money and jobs, while most new jobs would come from other nuclear projects, like Hinckley Point.

The site is within an AONB, without a water supply.

It is the wrong project, in the wrong place at the wrong price.

Yours faithfully,

County Councillor Christopher G. Hudson.

Get [REDACTED]

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This privacy notice [redacted]  
[redacted] tells you how I collect and use personal data.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** SizewellC  
**Date:** 16 May 2022 09:36:17

---

Dear SizewellC Planning Inspectorate,

The proposals put forward by SizewellC will have an enormous affect on the holiday industry here in a heritage area of Suffolk.

After the completion of SizewellB and many years of work promoting East Suffolk as a holiday destination the project will have disastrous affects on all those employed and running holiday businesses from the north to the south of this beautiful area of Britain.

The building of a link road just south of Yoxford is scheduled to take two years to complete and will have a great affect on those living near by. Like wise the building of roundabouts and by passes. All this before the estimated 11 years of project build.

We are now told that EDF will require such enormous amounts of water during construction that a salt water desalination plant is now needed.

Special work is also needed for the stabilisation of the marsh and shifting shingle at the site of the reactors. Nuclear waste is still stored on sight and is a hazard which will be added to with the new waste from the reactors.

Protection from attack must also be considered in light of recent Russian threats.

New technologies re power will render this project out of date long before completion or activation.

Pollution from the building and road delivery will be so large it will take scores of years to mitigate.

Thank you for taking the the time to read this email.

Yours sincerely Terence Jeffrey, [REDACTED] [REDACTED].

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to Sizewell C  
**Date:** 16 May 2022 18:42:36

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Dear Planning Officer,

I'd like to raise a strong objection to the proposed development of Sizewell C. There are many reasons to object.

The project promises to create jobs but in reality the build is highly specialised and the jobs will simply go to workers who have already built Hinckley point and other migrant workers. I fear that job creation for the local community will be minimal. One of the main sources on income for the Heritage Coast is tourism and this will be severely hampered due to traffic congestion for many years. The overall economic effect on the local area is likely to be negative rather than positive, with many existing businesses being compromised for a decade. Once built the plant will only require a small staff to run and there will be no lasting positive impact on employment, plus is a huge threat to existing businesses and employers.

From an energy perspective Nuclear is hugely expensive and the energy produced will not be competitive in the market place once the project is finished, meaning it will be a huge white elephant that will require vast sums of public money to subsidise the plant. It would be far more cost effective to invest in both renewables and energy storage and distribution infrastructure rather than a very old and expensive technology that will soon be obsolete. For example by the time the project is complete there will be hundreds of thousands of battery electric vehicles that can store renewable energy and give back to the grid when not in use. We should be developing the tech solutions to support this. We should also be developing a hydrogen infrastructure for home heating and energy capture from renewables.

Finally the location is bizarre and obviously unsuitable. The site lies within an area of outstanding natural beauty and along the heritage coastline. This area already receives huge amounts of traffic and the roads are not suitable for the vast number of trucks needed to build the plant. The environmental impact to local farmland, coastal areas, rare birds and landscape is unacceptable. These are the habitats we are trying to preserve with low carbon energy so it seems perverse to deliberately destroy them. There are many more suitable sites in less congested areas, which won't disturb the rare natural marshland habitats of the region.

Overall the project seems extremely ill conceived and poses a huge risk to the tax payer, the local economy and the wildlife and natural resources of the Suffolk coastal region.

BW Dr Roland Walker

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objections to the building of the neuclear power station at Sizewell  
**Date:** 16 May 2022 21:42:05

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Dear Inspectorate

For all the many reasons I am sure you will hear from wiser and better informed folk than me; from the lack of potable water to lack of a dentist, or it being an outdated design and it being twenty years too late. I am wholly opposed to the building of yet another neuclear power station at Sizewell. My own particular reasons for opposing it are: because it is in my back yard, where I live and work where it will seriously effect, not only my relatively peacefull home , situated as it is on the A1120 in Yoxford but equally important to me is where I get my work. Most of my work is concerned with what might loosely be described as tourist related. Tourism, directly and indirectly has got to be the biggest area of employment for this part of the coast and this will be literally decimated. I can't see myself being able to cycle to my works in Hinton safely, particularly in the darker months of the year as my journey takes me a couple of miles up the A12.

The lack of the relief road for at least the first two years of the proposed construction will be hell for us all.

Trusting in your good sense and good judgement, Regards John Barrett

Ps. Think what your children will make of your decision.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** objection to Sizewell C  
**Date:** 17 May 2022 15:58:46

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Dear Secretary of State,

I am deeply concerned about the environmental impact of the proposed Sizewell C development. Attempts to mitigate the adverse effects on biodiversity, the shoreline and the marsh Site of Special Scientific Interest are woefully inadequate. And the longterm risks posed by the site and the inevitable nuclear waste don't bear thinking about. It would be irresponsible and deeply reprehensible to leave such problems for future generations.

Your sincerely,

Catherine Cawood

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to construction of Sizewell C  
**Date:** 17 May 2022 21:35:31

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Dear Sirs,

I am writing to express my opposition to the construction of the proposed Sizewell C power plant.

In trying to quantify the scale of the build costs, I looked for comparisons. It turns out that the projected £20 billion cost forecast for construction of Sizewell C equates to .9% of the UK economy's GDP, or the same value as the entire charity sector in which I and 950,000 work. (NCVO Almanac 2021) Quite startling what you can do with £20 billion for good. Not harm. The proposed damage to a whole region, in terms of disruption to lives, infrastructure, biodiversity, wildlife, habitat and tourism is unthinkable. If this were being proposed in Westminster or in the Chiltern Hills, it would have been thrown out at inception and it should be rejected here.

Suffolk gave us innovations that changed the world: Radar & broadband to name just two. This is a country that built an empire, contributed significantly to genome sequencing that has changed our ability to identify disease and produce the vaccines that we have been fortunate to have in the last two years. It is unthinkable also, that with the correct attention and resources, we can not come up with a net zero, ecologically sound alternative to Sizewell C. It will do nothing to solve our immediate energy pressures as it will not come online till 2034. Our county is not a price any government should be willing to pay, for a highly risky venture with such predictably dire consequences that are completely preventable.

Further too that:, there is the choice of partner:

EDF is 84% owned by the French government and received a bail out of €2.1 billion earlier this year.

It may be taken back into government ownership and so, 6 million UK households energy needs would be directly controlled by another sovereign power

They are subject to energy price caps and other regulation in their home country that will continue to have a significant impact on their financial viability

EDF closed Dungeness nuclear plant 7 years early due to corroding pipework so whatever plans are out in place for length of service, cannot be guaranteed

Hitchai and Toshiba walked away from the building of nuclear plants in the UK because they were too risky commercially despite being underwritten by the UK government

Site specific issues of coastal erosion, no portable water to the site, flooding risk and Sites of Scientific being disturbed or displaced have been well covered by many others I am sure.

Yours faithfully,

Ciara Scallon

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Views on the planned power station  
**Date:** 18 May 2022 10:44:16

---

To whom it may concern.

I am writing again to set out some of my objections to the proposed Sizewell C development.

I am a Suffolk resident of 50 plus years and have known the coastal area for all of that time. It is within an area of Outstanding Natural Beauty and should be protected as such. Minsmere and the surrounding marshes, heaths and forests have huge biodiversity and Sizewell C puts all of that at risk from the moment the preparations to build start and for decades after its completion and into the future decades until and beyond it's decommissioning.

The plans do not meet the Environment Act of 2021 in protecting endangered and protected species.

There is insufficient water supply for the construction process. The water table of surrounding marshlands which holds so much diversity is threatened.

The coast is threatened with erosion during the process and for the decades following.

The plans to mitigate the increased traffic along small local roads and lanes is totally inadequate.

I cannot state strongly enough how much I am opposed to this development.

Nuclear energy is not green!

Regards

Jo Small

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Potable water supply  
**Date:** 18 May 2022 17:52:28

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I am concerned that the demand for potable water by the Sizewell reactors will be so great that water for local drinking and agricultural irrigation will not be available. This is the third extremely dry spring and I believe the chalk aquifer and farmers reservoirs are already running low and it is just May.

Harry Barclay

[REDACTED]

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 19 May 2022 00:22:31

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To whom it may concern.

I write to you today about my concerns over the proposed EPR at Sizewell.

My main points are these:

1) EDF now proposes to start the project without any traffic mitigation measures for the first 2 years - this is total madness. There will be chaos: 600 HGV's and all the extra smaller vehicles will totally clog up the A1122 and cause rat runs on by roads; our infrastructure is just designed for this. Local businesses will struggle to function and delays will add hugely to their costs. Tourism, which is currently very reliable and important here, will be all but destroyed once people realise they can no longer find here the peace, quiet and beauty in nature that has been our very successful USP; businesses like mine will die, along with all the service industries and attractions. Our quality of life will be decimated by noise and air pollution and all the inconveniences associated with traffic problems; the stress of it will cause health problems for an already strained service. This is currently a very popular area for cycling, but people like me will no longer be able to bike to Leiston and the surrounding area to do our shopping, or visit friends, or the doctor; it won't be safe.

2) The Environment Agency has calculated that the best case scenario we can expect in terms of sea level rise, is that the Sizewell site will become an island. Given the radiation there, this seems at best naive and at worst, stupid.

3) There is no evidence that the EPR design will even work: according to the World Nuclear Status Report ( March 2022), in China it's been shut down for a year because of a fundamental design fault. The EPR in Finland was started in 2005 and apparently is due to start up in July this year, but has been described as an industrial and economic disaster. And then there's Flamanville, where costs are quadruple what was initial estimates and it's still not finished; it's start delayed yet again. And the UK Government wants taxpayers to foot the bill....really!!! This is more madness.

4) As far as climate change is concerned, we have run out of time and big nuclear plants cannot help us reduce carbon emissions because it's too slow.... we need solutions **now**, to reduce the need for energy, as well as using renewables, storage and improvements to the grid. Actually, building big plants like Hinkely and Sizewell C are adding to the problem because concrete is a big emitter of carbon. Actually, nuclear power stations don't last all that long anyway; it wouldn't take many hundreds of years before we ran out of room for them. It doesn't help that the PM recently said that nuclear power will reduce our utility bills, encouraging the old idea that nuclear power will give us unlimited, cheap fuel, which is utter rubbish.

5) Sizewell C threatens our nature reserve at Minsmere at a time when we're supposed to be trying to protect biodiversity. EDF has made the most ridiculous claims that they are providing alternative sites for wildlife, but these are not equivalent and amount to green washing....perhaps they have plans to provide maps for the wildlife, so it knows where to move to.....ridiculous!

The list of reasons not to build Sizewell C on and on; it's very long, but I have yet to hear any convincing arguments in its favour.

Regards,  
Sarah Barrett.



**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Fwd: Sizewell  
**Date:** 19 May 2022 10:59:08

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Sent from my iPhone

Begin forwarded message:

**From:** anna Cockburn [REDACTED]  
**Date:** 19 May 2022 at 10:57:48 BST  
**To:** [sizewell@planninginspectorate.gov.uk](mailto:sizewell@planninginspectorate.gov.uk)  
**Subject:** Sizewell

Dear Sir/madam,

I am writing to express my deep concern about the development of Sizewell C at Minsmere.

The threat of damage to biodiversity in such a sensitive area during and after completion of prolonged construction has not been mitigated sufficiently. There will inevitably be seriously heavy over-use of the B122 due to EDF's inadequate alternatives being put into place, prior to commencement of work on the site at Sizewell.

The serious threat of flooding, even as soon as 2140 by EDF's own admission, should in itself be enough to abandon the entire project.

During the decade or more that EDF would be building, we could better be investing in the development of smaller reactors and renewable power sources instead. This would mean cheaper less disruptive local power sources.

Yours faithfully  
Anna Cockburn.

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** No to Sizewell C  
**Date:** 20 May 2022 10:47:42

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To the Secretary of State

I am appalled at the destruction that would be caused if SizewellC goes ahead. Biodiversity will be adversely affected both on site and on the shingle. Birds at Minismere will also be negatively affected and the effects will last for generations. In addition the development of Sizewell Marsh SSI compensation plans do not meet Environment Act 2021 requirements

Suffolk Roads are completely inadequate to the transport requirements. I object to the use of the Sizewell Link road route over the route W suggested/supported by Suffolk County Council

The erosion potential is huge, as is the flood risk. This area of UK coastline, receding as it is is inappropriate for such a sizeable infrastructure build.

Eastbridge too will pay a high cost for the development.

The costs of the project can be expected to spiral, as they are at Hinkly Point and the technology will be utterly outdated by the time it is finished - why is the government even considering this approach?

Please refuse planning for Sizewell C

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 20 May 2022 11:12:22

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Dear Sir/Madam,

Please don't go ahead with plans to extend Sizewell. It was a dreadful decision the first time and it is madness this time.

Just the building of it will be so destructive to this very special area, birds and wildlife and it will be too late. We need to put all the money to renewables as soon as possible and encourage business and people to use less energy.

Yours faithfully

Deborah Sheppard

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** sizewell c  
**Date:** 20 May 2022 11:25:33

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From: Alison Shirreff, [REDACTED]

Dear Inspectors,

Nuclear power is a very expensive way to go as has been noted at Hinkley; EDF argues that the cost to Sizewell will be less as they will have the technology in place, but what they have not taken into consideration is the additional problems which have still not been ironed out:  
Water: there is not enough and the desalination plant which was going to be temporary might become permanent to the detriment of the flora and fauna both in and out of the sea.

Environment: this is a very vulnerable coastline prone to erosion and major changes. EDF plans to put in massive pilings to mitigate the chances of movement but the engineering behind this plan has an element of speculation as to whether it will work.

Transport: the idea that roads can be built over ancient wet woodland without harming them is just silly and very costly both to the woodland and in monetary terms. EDF have not clarified any details of their road systems or how they will carry any changes out apart from a general plan and assurance that it will cause no harm. They have little understanding of the environment they are dealing with and the sensitivity of the flora and fauna that are embedded in these ancient woodlands, heaths and acid grassland. An example is their idea of making a new environment for all these animals and plants at Palgrave near Bury St Edmunds which is close to 70 miles from the coast and therefore has a totally different structure, indeed one which could well kill off many of the species they are hoping to save.

Tourism: this is an area which attracts a wide variety of people from across the country and the world. Minsmere bird reserve is second to none and has thousands of visitors. Further north are the coastal resorts of Walberswick, Southwold and Lowestoft with popular beaches in between, but these are places which are full both during the summer and in the winter, especially in the holidays. Snape is a popular music and arts venue not far away too. Sizewell will be cutting through much of this and will inevitably put people off from coming.

Climate crisis: If we as a country fail to address the climate crisis and reduce our carbon footprint considerably there will be a massive increase in displaced people, food shortages and global health problems. We need to put our resources into renewable energy which is cheaper, quicker to install and has far less impact on the environment. We also need to urge the government to encourage people to reduce their energy usage. Nuclear power will do nothing to help this, it will have gigantic costs in carbon during the build and by the time it is up and running we will be out of time as far as our carbon footprint is concerned.

Waste: This is a problem which still has not been solved.

What kind of legacy are we handing to our children and grandchildren?

PLEASE, I urge you, do not let these plans go ahead.

Your very sincerely, Alison Shirreff



Virus-free. [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Date:** 20 May 2022 11:26:54

---

Hi i am writing this email to voice my concern over the plan to build another reactor at sizewell. I feel that although we need more energy this is not the right course. For the following reasons, It will be years before the reactor comes online. I consider the safety risks unacceptable, there is no strategy for disposal of waste, it is a beautiful area to be spoilt.

Reduction in energy use by insulation and education should be our first action with more investment in renewables.

I wish to be counted as a no to sizewell c.

Richard Barney

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Alternative  
**Date:** 20 May 2022 11:39:54

---

Dear Sir / Madam

As a retired employee of Magnox at Sizewell A and a supporter of Nuclear Power, could I offer an alternative to the proposed Sizewell C Power Station.

Considering all the local environmental arguments over the impact of construction and the industrialisation of this part of coastline, but also understanding the need to play a part in a new low carbon and secure electrical supply for the country, may I say the following:-

The Magnox Sizewell A Site is currently in a state of decommissioning, of which I myself have played a significant part, at present I understand the Turbine Hall is earmarked for demolition in the not too distant future, considering this therefore and the latest news that Rolls Royce are at a significant development stage of their Small Modular Reactor (SMR) Programme, would it not therefore be a logical thought to see if one of these reactors could be located on the Sizewell A Site.

I realise that this would entail significant groundworks and waste management etc but at least it is on existing Brownfield and not Greenfield land, Minsmere would remain untouched, a boost for British engineering and Jobs, and furthermore a far less environmental impact on both construction and the requirement for infrastructure development.

Just my thoughts.

Kind Regards

Paul Marwood

Sent from [REDACTED] for Windows

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 20 May 2022 11:53:42

---

To Whom this May Concern,

I am deeply concerned at the idea of yet another power station being erected on our Suffolk coast. As the RSPB have already said publicly, this is not the right place for such a building. The Minsmere reserve and other SSI's are unique and should not be papered over. Of course power for the country is important, but there are other sites better equipped to deal with this without the long-term impact that will ensue at Sizewell.

To say that Nuclear power is 'green' (debatable) and then to take away so much natural habitat and cause such disruption in order to build it is, quite honestly, unforgivable.

There are other alternatives...

Regards,

Zoë

Zoë Neill Readhead  
Principal  
Summerhill School,  
Westward Ho!  
Leiston  
Suffolk  
IP16 4TD

Office:01728 830540  
Mobile [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** EN010012 – The Sizewell C Project - my reference: 20025619  
**Date:** 20 May 2022 12:20:27

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Dear Sir,

I write further to our previous correspondence to voice my objection to the above . I do not propose to reiterate by basic objections to the scale, length of time and environmental point but to concentrate on road traffic.

When I looked at the Sizewell USB stick and the Construction Traffic Management Plan Clause 3.3. it gave me the following estimated traffic movement statistics:-

1. Early years prior to construction of the Two Village Bypass and the Sizewell Link Road
  - Up to 600 HGV movements – 300 each way
  - 250 LGV movements – 125 each way
  - Abnormal loads on 50-60% of days with an average of 4 per day including Saturdays
2. At peak construction and after construction of TVBP and SLR
  - Up to 1000 HGV movements - 500 each way typical day 650 – 325 each way
  - Up to 700 LGV movements – 350 each way
  - No differentiation on abnormal loads so presumably as above

*Relevant extracts below*

### *3.3 Freight movements*

#### *a) HGV movements*

*3.3.1 During the early years, prior to the implementation of the two village bypass and Sizewell link road, SZC Co. estimates there would be up to 600 two-way HGV movements (i.e. 300 HGV movements in each direction) travelling from the wider highway network to the main development site....*

*3.3.3 At peak construction, which is estimated to occur in 2028, the number of HGVs travelling from the wider highway network to the main development site on the busiest day would be 1,000 two-way HGV movements (i.e. 500 HGV movements in each direction). On a typical day it is expected that there would be 650 two-way HGV movements per day (i.e. 325 HGV movements in each direction).*

*3.3.7 During the early years there are estimated to be 250 two-way LGV movements (i.e. 125 LGV movements in each direction) to the main development site.*

*3.3.8 At peak construction, LGVs would undertake small-scale deliveries to the main development site. Postal deliveries would be required to use the postal consolidation facility located at the southern park and ride site, instead of going to the main development site. The number of LGV movements estimated to be generated per day during the construction peak are:*

- *Total: 700 two-way LGV movements (350 deliveries):*

*3.3.12 Based on experience at Hinkley Point C to date, not every day is expected to have an abnormal load delivery by road to the main development site but circa 50–60% of the days may have abnormal load deliveries and during those days the experience from Hinkley Point C suggests that there is likely to an average of 4 abnormal load deliveries per day by road, including on Saturdays.*

*4.4.7 The maximum daily limits on HGV movements from the wider highway network to the main development site will be as follows:*

- *Monday to Friday:*
  - *during the early years, unless and until the Sizewell link road and two-village bypass are available for use, no more than 600 movements per day (300 deliveries);*
  - *thereafter, no more than 1,000 movements per day (500 deliveries).*
- *Saturday: Throughout the construction period, no more than 500 HGV movements per day (250 deliveries).*

*4.4.8 These daily limits will be applied to HGV movements for the Sizewell C Project routing on the B1122 in the early years and on the Sizewell link road once it is available.*

The traffic in the early years will be routed along the B1122, an unimproved rural road with sharp bends and houses on Middleton Moor which have very short front gardens. It also passes through the small village on Theberton. The volume of traffic predicted will be absolutely devastating for those living on or near the road and will cause extreme inconvenience to other local residents trying to access the B1122, the A12 and other local roads.

This traffic will inevitably come from the A12. Improvements are planned but stop short of Colchester. Thereafter it is a dual two lane highway and is pretty congested now, so what it will be like northbound carrying a substantial proportion of the traffic predictions is not difficult to imagine, more disruption and inconvenience to many people over a wide area. The bypass proposals are inadequate and the link road proposed from Yoxford misses an opportunity to follow a more direct and rural route from South of Saxmundham (Route W (D2), favoured by Suffolk County Council and others).

Please reject the application.

Yours faithfully,  
Peter Allsop

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell c  
**Date:** 20 May 2022 15:16:14

---

Dear Sirs,

This project is not economically viable and the area is unsuitable.

It is ludicrous to imagine this monster construction in an area like this beautiful natural setting.



A Moment of Stillness by Claire Fried

Claire Fried



**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C - Registering my concerns  
**Date:** 20 May 2022 15:36:04

---

Dear Secretary of State,

I wish to register the following concerns over the planning for Sizewell C (SZC):-

Water - The project has not planned for where and how the water is to be supplied in sufficient detail. Suffolk is one of the driest counties and additional water will be needed. A desalination plant has been mentioned which will add significantly to the build. Also the lack of space on the site means there are serious concerns as to whether it is a solution. That's without considering the power, concrete and materials needed to build the plant. The impact on the sea life, fish etc will also be catastrophic.

Unsupported biodiversity claims - EDF continues to claim that there will be a 19% gain in biodiversity. The figures do not add up. There will be zero biodiversity on site for the 12-15 years of the build. The rewilding of land they have purchased off site is not of the same quality. The 2021 Environment Bill has very specific requirements which are not met by this application, especially considering the effect on SSSI's such as Sizewell Marshes.

Spent fuel - Again the figures don't stack up. The spent fuel is to be offsite by 2140 but it will be 2135 before they can clear spent fuel from Sizewell A and B. Different departments have different figures for how the spent fuel timetable will work. I ask who is correct?

Value for money and public interest - I am concerned that the general public are sleepwalking into paying for the project. It is not just about looking after the planet. People are struggling to keep up with their fuel bills. The Regulated Asset Base (RAB) model to fund this project is unclear. Will it give preferential support to nuclear over renewables? Will it be a one off payment, or be required every year possibly with annual increases. Will it be needed to support unintended consequences of this build such as coastal flooding?

The responses from EDF are inadequate and inconsistent

Yours sincerely

Chris Adelson

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** sizewell c  
**Date:** 20 May 2022 16:27:19

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To whom it may concern

I would like to write regarding the proposed Sizewell c nuclear power station.

We don't need nuclear! It will take well over 10 years to build, by which time it will be out of date. I have also written a few other points that I would be grateful for you to consider.

- It will cost everyone so much money, and for something that we don't want / need.
- I can't believe the impact it would have on the surrounding area, including the much-loved Minsmere. This alone should be enough to stop the plans going ahead.
- I don't understand that Sizewell C could be given planning consent without knowing where its essential water supply will come from.
- I do not understand why 28km of new pipeline from Barsham is not in the DCO? It means it is not subject to any scrutiny and the disruption and activity are not part of EDF's figures.
- EDF give no indication of what cost this will add to the project.
- The plant will take 4 – 6 months to build and be brought in by road, but because it cannot be installed at the very beginning of construction, drinkable water will need to be brought in by tanker for the first 9 -12 months of construction, up to 40 trucks/day (80 movements). EDF claims tankers and plant transport won't raise HGV "caps" but we are doubtful.
- The plant would operate 24/7 using diesel generators until onsite power is available. This will contribute to significant CO<sub>2</sub>, Nitrogen Oxides, and PM 10s and 2.5s. Atmospheric Ozone will also increase as a result of the combination of NO<sub>x</sub> and volatile organics which have health impacts.
- Water discharged will be 1.6 times more (brine) concentrated than natural seawater and may exceed screening thresholds for zinc and chromium. Impacts on fish and other marine life from this and the water intakes are concerning

Many thanks for taking the time to read this.

Stephanie Williams

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to Sizewell C  
**Date:** 20 May 2022 17:47:26

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Dear Planning Inspectorate

**My reference: 20025682**

I write ahead of the Secretary of State's final decision re. the Development Consent Order for EDF's application to build the Sizewell C project. I would like - again - to lodge my opposition to this project and to reiterate the huge level of public opposition (both locally and from further afield) as evidenced by hundreds marching to the site last Sunday. I am not a natural protest campaigner and I found myself alongside many others for whom this was their first 'protest' march: illustrating in itself the depth of rational feeling among the local community.

I will briefly list the core areas that concern me, though I am sure you will be aware of many more that others will doubtless emphasise. I stress that I am not anti-nuclear per se and I believe that nuclear power may have a part to play in our future energy portfolio. Sizewell C is, however, emphatically the wrong project in - equally emphatically - the wrong place.

- the Sizewell site sits on one of Europe's fastest eroding coastlines. Indeed a number of experts suggest it could even be an island within the next generation. EDF have failed to offer any real reassurance regarding sea defences, and the comments they have made pay scant attention to the impact of such defences to villages and towns to the south and north of Sizewell.

- I believe that the RSPB have always consciously resisted campaigning on issues similar to this one. The fact that they feel compelled to do so in this instance (and vigorously so) shows how concerned they are about the impact of this project on one of Europe's finest nature reserves at Minsmere. EDF protest that they offer mitigation for this; they don't, and the building of Sizewell C will inflict permanent damage on a precious AONB. They make the point that Minsmere enjoys the most rigorous planning and developmental protection that our government offers, so if they are not safe - and if such protective measures count for nothing - then nowhere is.

- the precedent of EDF projects building the same EPR model is hugely alarming, and I find it hard to believe that the government has done any in-depth due diligence; if they had then surely they would withdraw their support. Every single such project has failed to work as intended and has gone significantly over both its projected build time and its budget (eg Hinkley Point is now £8bn over its initial estimated cost - nearly half of its original estimate of £18bn).

- the funding model for this project places a significant burden on the tax payer and is struggling to find sufficient private investment. While EDF stress that none of the additional expense for Hinkley will fall on the tax payer, this will absolutely not be the case with Sizewell C and I suspect the average person in the UK is currently oblivious of this.

- I have been startled by the apparent incompetence of EDF throughout the planning and consultation process. The fact that they only submitted a planning request for a water desalination plant so very late in the day (when they had been warned as far back as 2010

that this would be necessary) suggests a worrying lack of detailed planning.

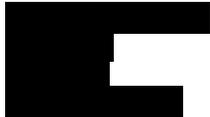
- And finally I would like to register my disapproval of the government's recent announcements of support for this project. For numerous ministers - including the prime minister - to overtly state their support for Sizewell C and to 'announce' that it will go ahead as a core part of their energy strategy BEFORE the planning process has been completed suggests a blatant lack of respect and disregard for the planning process.

Thank you for the opportunity to share my concerns with you and I trust you to make a decision based on rational factors that - surely - mitigate against the go-ahead being given for this project.

Yours sincerely

Paul Taylor

**Paul Taylor**

A black rectangular redaction box covering the signature area.A black rectangular redaction box covering the contact information area.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to Sizewell C  
**Date:** 20 May 2022 18:04:25

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Dear Secretary of State for business energy and Industrial Strategy

I am writing to make an objection to the proposed development of Sizewell C

These are as follows:

The first is that the site and the construction of the site will devastate an area of outstanding natural beauty with long term impact on the bio diversity of the environment as well as the rail links, transport infrastructures which will decimate the peace and beauty of the natural environment

2 long term erosion and flood risk are a very imminent hazard rendering the site unsafe

The decommissioning dates for removal of waste, spent fuel are 50 years too soon - more likely 2090

The money spent would be better spent on renewable energy systems and insulating homes.

Consumers of electricity will be expected to pay for this and other nuclear power stations which is outrageous especially given the recent massive rises already implemented

Comments about protesters 'jumping up and down' are insulting and patronising to people who have legitimate concerns

Yours sincerely

J R

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Protest  
**Date:** 20 May 2022 18:41:05

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As someone who can see both sides of the argument about sizewell c I must protest at the sighting of this construction. There must be a more suitable site position for this construction that will not impede onto valuable wildlife property. We are being taken for a ride by the cost implications of all this and it will help to put the country into massive debt by the time it is ready together with plans for other stations, apart from long term damage to our beautiful countryside and wildlife.

Make use of wave power around the coast of this great country, it's not the overall answer but it's far safer and less damaging to the environment.

There won't be as many jobs as they state because most technical jobs will be brought in ( probably from abroad ), and jobs available will be labouring and non technical. Yes there might be some apprenticeships but not many I'm sure.

Local temporary living accommodations will probably do well as will shops and restaurants.

**A RETHINK MUST BE CONSIDERED**

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell 'c' planning  
**Date:** 20 May 2022 19:56:48

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To whom it may concern,

I live in Suffolk and enjoy living in a quieter part of the country. While I don't live near the Sizewell site I do have a few concerns about the plans:

- the coastal erosion in East Anglia has been dramatic over the last few years, and we can see ourselves that it is either soft sandstone or loose pebble beaches. Both of which can shift and disappear very easily. So why would you build a nuclear plant on this?

- the amount of money planned to be spent on this is enormous and delivery is such a long time away. Why not invest that money now in renewable energy, which can be online so much sooner and potential avert the climate change disaster we seem to be sleepwalking towards?

- I understand that the funding is going to include French and Chinese sources..... isn't this a big risk?

- I find it so disheartening that this government is willing to break its own 'rules', yet again. Surely the whole point of an AONB is to protect key natural assets of this country, and Minsmere is a special asset. Ancient woodlands cannot just be relocated.

Please can you reconsider this plan based on the commercial, logical, practical and ecological reasons above.

Kind regards  
Susie Weston

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 20 May 2022 20:24:31

---

Dear Sir

We write to oppose the construction of Sizewell C.

Environmental Reasons:

There are many environmental reasons which make the idea of constructing this plant as unacceptable.

- Damage to Minsmere bird sanctuary
- Damage to much needed agricultural land in the area
- Detrimental Impact on the tourist industry for those seeking escape to peace and quiet
- The instability of the shore line caused by climate change, erosion and changing sea currents
- Apparently there is a big problem to provide sufficient fresh water to cool the plant and if a desalination plant was constructed nobody seems to know what could be done with the extracted brine.

Accessibility:

Accessibility to the site, given the present infrastructure would be very difficult.

After Sizewell B was constructed 60,000 people signed a petition calling for no more power stations to be built at Sizewell. This was supported by ministers at the time.

The present financing doesn't include plans or finance for appropriate road or rail links.

Technology:

The technology for this model of nuclear is still unproven and old. No power station of this kind is working satisfactorily anywhere.

We are not opposed to nuclear power in principle but not this type, this size nor in this beautiful area.

With kind regards

Sir David and Lady Madel

(Former residents of [REDACTED])

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Encouragement to quit.  
**Date:** 20 May 2022 21:21:33

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Dear those of influence,

Most people are now living in despair following catastrophes, one after another, Brexit, Covid, War, Ecological Destruction and countless others. Every one has been caused or worsened by bad decisions.

It is beyond rationality and belief that the creation of Sizewell C or any other such nuclear power production is being considered, if human survival is of interest.

Reasons to quit the plan, you know them all, they have all been made clear but there still seems to be some determination to ignore them.

Please do not be swayed by all the ignorant, obsessional, greedy, capitalist theory. Please act for some hope for the future of life and all its beauty and STOP SIZEWELL.

Still with enduring fond wishes  
Mrs Jill Newcombe

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 20 May 2022 23:39:19

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Sir,

Building a nuclear power station on an eroding coastline next to a world famous and irreplaceable nature reserve is utter madness. Renewable energy technology is so much better and cheaper. EDF are way over budget on Hinckley Point. Please, decommission B and move the nuclear waste back to France.

Best wishes

Helen smart

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** NO TO SIZEWELL C  
**Date:** 21 May 2022 08:33:51

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To whom it may concern ...

I'm totally against nuclear Sizewell C - why arn't we progressing with Tidal energy.

Best Regards  
John Pitts  
Lowestoft Town Councillor  
Pakefield Ward  
[REDACTED]

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Please note that any views expressed in this e-mail may be those of the originator and do not necessarily reflect those of Lowestoft Town Council.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 21 May 2022 09:18:11

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Dear Sir

I object to Sizewell C in that it is in the wrong place and will take up a lot of really beautiful Suffolk countryside and make it unavailable to the public or to nature. Already it is proposed to take a lot of Suffolk land for offshore power plants and pylon runs to take that power to major centres.

The costs of nuclear power get ever and ever larger (taking Hinkley Point as an example) and really cannot be justified. The roads leading to Sizewell are not adequate and to make them so will require even more good farming land.

Suffolk is convenient to London and is a good place to come out to unwind in. Building Sizewell C will make Suffolk less available for large areas of the population.

I question whether nuclear power in its present form is helpful to climate change given the massive structures that have to be built and the storage of spent fuel for centuries after use. Other options to generate power should always be considered before dangerous nuclear fuel. If nuclear power has to be used then it should be sited well away from centres of population and on marginal land with no aesthetic value.

Bernard Reynolds

Sent from [REDACTED] for Windows

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Stop Sizewell C  
**Date:** 21 May 2022 10:10:23

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There are NO reasons to support Sizewell C other than a speculative need for more nuclear power stations. I say speculative because Hinkley is still a total mess and well over cost and over time, and planning for a similar update to Sizewell now is simply FOOLISH.

Sizewell is not the area for a nuclear power station anyway. Perhaps when Sizewell first arrived, Suffolk was thought to be sleepy and rural, and people would put up with it. It now has a vibrant population, many middle-class from London, Essex, and similar, and is a cultural and tourist hub. THE COASTLINE IS SPECTACULAR AND UNSPOILT. Even Sizewell B is of some interest and very well contained and managed. BUT THE PLANS FOR SIZEWELL C ARE HORRIFIC - NOT ONLY ON THE SITE, BUT DARSHAM, MINSMERE, AND ROADS IN ALL DIRECTIONS.

THE WHOLE THING IS NOT ONLY DESTRUCTIVE BUT UNVIABLE. MY HUSBAND AND I OBJECT STRONGLY.

Sue and Ken Powell  
[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [Enquiry Unit](#)  
**Subject:** Third party investment in SZC  
**Date:** 21 May 2022 12:02:02  
**Attachments:** [EdF Energy Holdings Limited 2020 Page 22.pdf](#)  
[RAB Financing of Sizewell C Nuclear Power Plant \(Revision2\).pdf](#)

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EN010012 - The Sizewell C Project Unique Reference: 20025600

>To: The Planning Inspectorate  
>From: John Busby

Subject: Third party investment in SZC

I note that the Secretary of State has set a new deadline for the decision for this application which is **8 July 2022**.

See the extracted page from EdF Energy Holdings Limited 2020 annual report attached

*Sizewell C*

*EDF and CGN signed the Sizewell C Project equity documents on 29 September 2016 alongside the HPC contracts, for the development, building and operation of two EPR reactors (3.2GW) at Sizewell in Suffolk.*

*During development phase prior to final investment decision, EDF Energy's share of the project is 80% and CGN's is 20%. EDF has planned to pre-finance the development up to its share of an initial budget of £458 million.*

*Final investment decision is likely to be made by mid 2022. If it is postponed, an agreement would be sought on the financing of the additional costs incurred.*

***This project is based on the assumption that third party investors will invest and become majority shareholders of the Project.*** *EDF plans, at the date of the final investment decision, to become a minority shareholder with corresponding limited rights and to deconsolidate the project from the Group's financial statements (including in the calculation of economic indebtedness by the rating agencies). **At this stage, it is not certain that the Group will achieve this objective.***

*This financing model has never been implemented for projects of that scale before and therefore would be one of the largest ever equity issuance and project financing on the European scene. Securing the appropriate risk-sharing mechanism and ultimately the corresponding financing structure ahead of the Final Investment Decision is therefore key for the project, the UK Government and the current shareholders. EDF's ability to make a final investment decision on Sizewell C and to participate in the financing of this project beyond the development phase could depend on the operational control of the Hinkley Point C project, on the existence of an appropriate regulatory and financing framework, and on the availability of sufficient investors and financiers. None of these conditions are guaranteed at this time.*

It hasn't been made clear to the public that EdF SA plans to be a minority shareholder in

SZC, which may create a problem for ONR's licensing, which has to be issued to a capable developer.

Presumably a Development Consent Order cannot be issued to a development company until it has been formed and is able to make a Final Investment Decision. The announcement that Hinkley Point C will not be commissioned until 2027 and will cost £26 billion, will be a disincentive for a potential third party to invest. With the additional costs my comments on RAB financing (attached) will also need updating as will the potential "strike" price per MWh generated.

If the final investment decision is to be made before 8 July 2022, will the financing be in place and a third party nominated beforehand?

With regards

John Busby

[Redacted signature block]

Tel: +

Fax:

My articles:

[Redacted contact information]

## **RAB Financing of Sizewell C Nuclear Power Plant**

### **Financing of Hinkley Point C**

The financing of Hinkley Point C (HPC) Evolutionary Pressurised-Water Reactor (EPR) nuclear power plant was subject to a European Commission Decision of 8 October 2014 on an Aid Measure SA.34947, the first measure of which is a Contract for Difference (CfD) providing revenue support during the operational phase.

The beneficiary is NNB Generation Company Limited (NNBG), which at the time of the decision was fully controlled by Electricité de France (EdF), but now is jointly owned by EdF and CNG, a Chinese state company

The Contract for Difference ('CfD') provides revenue support during the operational phase of HPC. The CfD is a private law agreement between NNBG and the CfD Counterparty.

Under the CfD, NNBG will receive an amount of revenues which is determined by the sum of the wholesale market price at which it sells electricity and a difference payment corresponding to the difference between the pre-determined Strike Price ('SP') and the Reference Price ('RP') observed in the previous reference period.

When the RP is lower than the SP, the CfD Counterparty will pay the difference between the SP and the RP, ensuring that NNBG will ultimately receive relatively stable revenues, subject to its selling strategy and the amount of output it produces.

Conversely, when the RP is higher than the SP, NNBG will be obliged to pay the difference to the CfD Counterparty.

The RP is a weighted average of wholesale prices which the UK sets. In the case of NNBG, the relevant RP is the Baseload Market RP, which applies to all baseload generation operators.

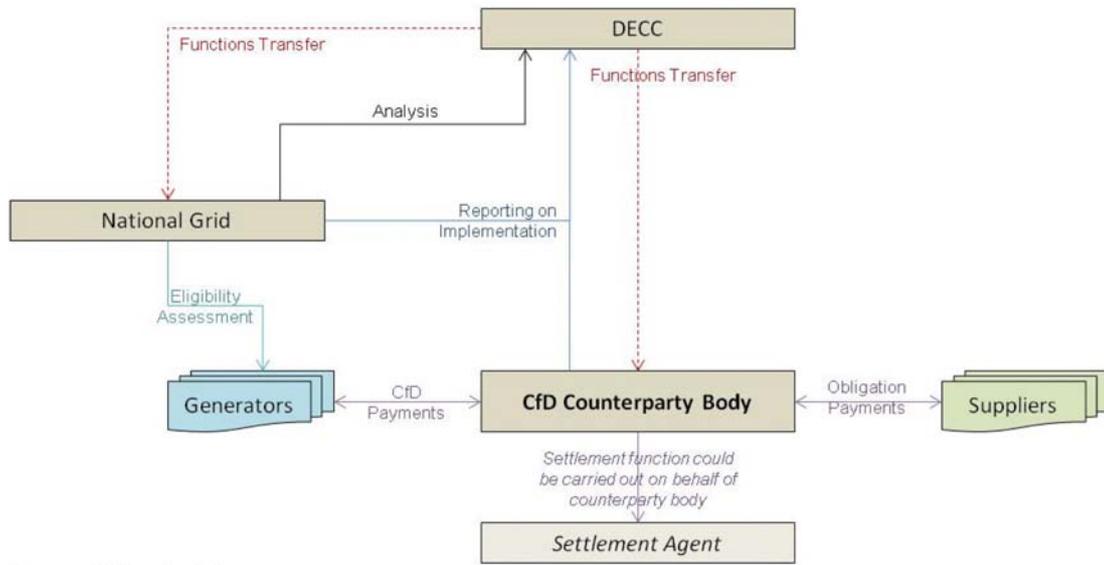
The "strike" price (SP) will be set at GBP 92.50 per MWh in 2012 nominal prices.

If an investment decision to build the Sizewell C new nuclear power station is taken, using the same design and allowing for the opportunity to share some costs for the HPC reactors, the SP will be changed to GBP 89.50 per MWh, again in 2012 nominal terms.

The SP will be fully indexed to the Consumer Price Index ('CPI') and the CPI adjustment will be annual with a base date of November 2011.

The CfD will have as ultimate starting date the Target Commissioning Window for each reactor.

**Figure 1 – Roles and responsibilities in the operation of the CfD**



In Figure 1 DECC is now BEIS. The Settlement Agent demands contributions from the Suppliers, depending on their electricity market share, which are passed to the Counterparty, which in turn passes sufficient funds taken from the Suppliers to meet the difference between the “strike” price and the settlement price.

The government has formed the Low Carbon Contracts Company Limited and its sister the Electricity Settlements Company Limited with powers to levy the Suppliers for money for the Counterparty to have sufficient funds to make CfD generator payments. Each supplier would be liable for these and LCCC/ESC’s costs, depending on its market share defined by metered electricity use.

By 2026 when HPC may be commissioned, the “strike” price being subject to inflation will be around £105/MWh. But its magnitude was based on the HPC construction cost of then £16 billion. The cost is now estimated at £23 billion on completion, so to provide a return on capital the strike price should be raised by 23/16 to around £150/MWh.

With the withdrawal of coal-fired generation and with an increased recourse to natural gas the regulated wholesale electricity price will be forced to increase. As the situation in 2026 is liable to increase in severity, the Suppliers will be unable to pass funds to the Counterparty and the government will have to provide the difference.

It is therefore unsurprising that a different financial system for Sizewell C is sought. Heathrow and Tideway are regulated by the CAA and by OfWat respectively and are cited by BEIS as models for a Regulatory Asset Base advanced payment system for the financing of Sizewell C. Electricity supply is regulated by OfGem.

### **Infrastructure Debt Financing**

Infrastructure in the UK is mainly owned overseas, with minimal equity and with capital spending financed by debt. The interest on the debt is set against the operating profits with little or no corporation tax paid. Bonds are issued overseas in tax havens avoiding withholding tax on the interest payments. The sector is in need of reform possibly by restricting the offsetting of profits by the interest payments on borrowings and other financial costs to say 20% to 40%.

## Heathrow (FGP Topco Limited)

FGP Topco Limited - is Heathrow's owner.

British Airports Authority was privatised in 1987 as BAA plc. In 2006 it succumbed to a hostile takeover bid and was acquired by a consortium led by Spanish Ferrovial (62%) as FGP Topco Limited, the current owner of Heathrow. The sale price of £10.1 billion was raised by FGP Topco's borrowings of £2,865m before and £8710m after the acquisition of BAA plc..

By the end of December 2006 FGP Topco had debts of £11,712m, while at the end of December 2007 this had risen to £13,634m, both including the £10.6 billion borrowed for the acquisition of BAA plc, thus getting it for free. It then owned seven major UK airports, until when by 2014 those other than Heathrow were sold, raising over £4 billion. Ferrovial's stake is now reduced to 25% as one of the 90% foreign shareholders.

FGP Topco's financial statements were signed off by Ferrovial's Jorge Gil Villen, but he has been replaced as CEO by Luke Erik Bugeja.

FGP Topco's borrowings had risen to £16,863m by the end of 2019, but with Covid had risen to £20,135m by the end of 2020. See Figure 2.

FGP Topco		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Totals
Revenue	£m	1090	2247	2590	2263	2312	2524	2362	2652	2691	2767	2809	2884	2970	3070	1175	36406
Operating costs	£m	823	1670	1570	1821	1530	1712	1697	1618	1902	1608	1798	1818	1879	1925	1998	-25369
Dividends	£m	140						240	555	1075	300	325	525	500	500	100	-4260
Borrowings	£m	11712	13634	12973	12652	12675	12794	12818	12577	11574	11891	14342	14214	14569	16863	20135	
Interest	£m		811	813	501	457	444	487	589	597	631	608	563	533	742	562	-8338
Financial costs	£m		24	-241	-81	-41	-31	71	-69	-78	138	-479	203	-570	-39	-353	-1546

As the "top company" in which the accounts of it and the other 12 major subsidiaries are consolidated, FGP Topco owns Heathrow Airport Limited (number 12 in the chain) which is licensed to operate and be regulated by CAA. BAA plc was delisted as BAA Limited and renamed Heathrow Airport Holdings Limited (number 4 in the chain).

FGP Topco has 4 finance companies. ADI Finance 1 and 2, (2 and 3 in the chain), Heathrow Finance plc (8 in the chain) and Heathrow Funding in Jersey (joint 10 with Heathrow (AH) Limited). FGP Topco's borrowings are raised by issuing bonds, 20% in the UK by Heathrow Finance plc and 80% offshore by Heathrow Funding Limited. In the prospectuses it states that withholding tax on interest payments will not be payable and if it is the bondholder will be compensated.

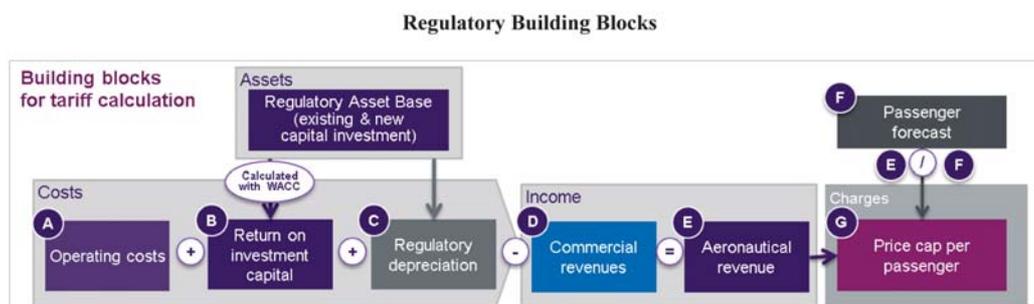
Over 2007 –2020 it has set its financial costs against its operating profits, paying no net corporation tax,. It has paid its bondholders around £8+ billion in interest, saving them perhaps £1.6 billion in withholding tax (20%?). It paid its shareholders (90% foreign owned) £4,260m in dividends, some taken from its £4+ billion in non-Heathrow airport sales, but mostly adding to FGP Topco's borrowings.

FGP Topco's shareholders paid up shares total only £13.1 million for which investment they have acquired £4.26 billion in dividends.

## CAA's regulation

The CAA regulator sets its allowable airport charges at a "price cap" in accordance with 7 Regulatory Asset Base (RAB) "building blocks" including capital invested.

Figure 3



The Aeronautical revenue is divided by the passenger forecast numbers to establish the price cap for airport charges. The operating costs include the financial costs arising from the debt, the weighted average cost of capital (WACC) and the size of the RAB are determinants in the allowed total revenues, from which the commercial revenues are subtracted to calculate the allowed aeronautical revenues. The continuing rise of airport charges have allowed the interest charges on the borrowing to be covered and obviated the need for real investment. As the top company runs at a loss the dividends are borrowed, add to the debt and the size of the RAB. The airlines are critical of the regulator as from 2007 to 2020 the airport charges have risen from £8 to £22, bringing them up to 65% more than those of competitive hubs in Europe.

The CAA refused to allow additional airport charges to fund the airport expansion DCO, but added \$300 million to the Regulatory Asset Base (RAB) to offset the losses caused by the reduction of traffic by Covid. Heathrow asked for a 90% increase in airport charges to cover the debt cover reduced by the loss of 75% of its revenue, but this is currently refused, but subject to consultation over the next regulation period. An interim settlement is for a 37% increase to now around £30.

With the net losses, net corporation tax is paid, so that the dividends are paid from borrowings. The tax avoidance, both of corporation tax and bond interest withholding tax, means that the Treasury receives only the VAT from the commercial revenues - as by international agreement air industries are tax free.

Relieving the UK's huge Covid debt burden will mean that the tax avoidance, resulting from the current practice of financing by debt, with the financial costs therefrom set against operating profits, performed by the majority of the UK infrastructure companies cannot be allowed to continue.

## Kemble Water Holdings Limited and Bazalgette Equity Limited

Kemble Water Holdings Limited is the parent company of the Group owning Thames Water Utilities Limited (TWUL).

Bazalgette Equity Limited is the parent company of the Group owning Bazalgette Tunnel Limited (BTL), trading as Tideway

Thames Water Utilities Limited and Bazalgette Tunnel Limited are regulated by OfWat

Kemble Water Holdings Limited is owned by 16 international shareholders including some United Kingdom members. It has paid up shares of £1991.6m and at 31 March 2021 had borrowings of £13,536.5m with a loss that year of £500.9m.

Bazalgette Equity Limited is owned by 5 shareholders, with around half UK pension funds. It had paid up shares of £507.4m at 31 March 2021 and borrowings of £2,782m. There were £720.4m loans from the shareholders paying a 8% fixed rate as income in lieu of dividends.

Bazalgette Ventures Limited is the vehicle to organise shareholder loans financing.

TWUL has appointed Bazalgette Tunnel Limited (BTL or Tideway) for the construction of the tunnels, shafts and associated works under the Thames.

Tideway has appointed 10 construction companies, organised into five sections, a programme manager, West, Central and East Contract joint ventures consisting of 3, 2 and 3 member constructors respectively and a systems integrator.

BTL has appointed its own board directors remunerated as in the following table extracted from its successive annual reports up to 31 March 2021. See Figure 4.

### Tideway directors remuneration £1000s

	2016	2017	2018	2019	2020	2021	Totals
Andy Mitchell	484	729	720	729	1633	863	5158
Mark Corben	303	484	470	1964			3221
Mark Sneesby	285	459	470	478	1094	549	3335
Mathew Duncan				124	384	546	1054
Sir Neville Simms	166	275	275	275	279	285	1555
Richard Morse	56	90	90	90	97	100	523
Mike Putnam					64	70	134
John Holland-Kaye			39	54	61	64	218
Ann Baldock	33	54	54	54	18		213
Mark Fairbairn	33	54	54				141
Michael Queen	33	54	54	54	61	64	320
Baroness Ruby McGregor-Smith					48	64	112
Annual totals	1393	2199	2226	3822	3739	2605	
		3592	5818	9640	13379	15984	

The salaries are augmented by bonuses and amounted to around £16 million by 31 March 2021. Of interest is the remuneration of Mark Corben CFO of £3.221 million with just four years in service, including a deferred bonus of £1.5 million in 2019. He afterwards joined BEIS to advise it of the RAB financing of Sizewell C.

### OfWat's regulation

TWUL's waste treatment consumers are charged an advanced payment for Tideway which up until 31 March 2021 amounted to £218.425m revenue paid to Tideway. TWUL's liability will be to pay a proportion of the revenue collected from its wastewater customers to BTL on a monthly basis. The charges will be included in TWUL's customers' bills and there will be no separate bills for the Tideway's portion.

The allowed annual revenue payments from TWUL to BTL are regulated by OfWat and are based on annual Regulatory Accounting Statements published in Tideway's annual reports.

The Regulatory Asset Base (RAB) is the basis of CAA's Heathrow airport charges price cap. The OfWat equivalent of it is the regulated capital value (RCV), one of the building blocks from which Tideway's annual charge on TWUL is calculated and agreed by OfWat.

There are Regulatory Accounting Guidelines (RAG) published by OfWat in document RAG-3.12. This lists the data tables to be completed (and statements to made) from which the RCV is calculated. This and other building blocks sets the allowed level of annual revenue payments TWUL makes to BTL. The definitions of the terms used in the tables are laid down in another document RAG-4.09

Tideway has published the completed tables (from which the allowed revenue in 2021-2022 will be calculated in pages 160-170 of its 2020-2021 annual report. Tideway has certified the accuracy of the data in the tables and published the required statements in pages 171 –180. Tideway then submits an allowed revenue statement to OfWat for approval.

Figure 5

**Updated Revised Revenue Statement - 2021/22 Allowed Revenue**  
Submitted to Ofwat on 18 December 2020

<i>£, nominal</i>	Year preceding Prior Charging Year 2018/19	Prior Charging Year 2019/20	Current Charging Year 2020/21	Forthcoming Charging Year 2021/22
Allowed Revenue	49,235,940	63,431,062	76,465,429	87,029,095
Amounts received from TWUL	38,387,688	57,610,001		

The annual revenue, TWUL –BTL, covers the operational costs, interest on borrowings and on the 8% interest on shareholder loans, eventually paid as income to Bazalgette Equity Limited. However, it does not reduce the project borrowing which continues to add to Tideway's debt.

The revenue statement shows that it will increase to cover increasing costs and interest payments under the first regulatory framework until this ends in 2030. The second regulatory framework will commence from 2030.

See the delivery model extracted from Tideway 2020-2021 annual report.  
In Figure 6

## **THE DELIVERY MODEL**

The Thames Tideway Tunnel has an innovative delivery model, which was established to attract private sector capital to finance infrastructure and deliver value for money to customers.

It includes a bespoke regulatory framework, with a contingent Government Support Package, which recognises the unique nature of Tideway's business. This framework provides a revenue stream during both the construction and operational periods. Revenues are billed and collected on our behalf by Thames Water from its wastewater customers and passed to Tideway.

For the period until 2030, our revenues are calculated according to the framework set out in our Licence, which is primarily based on a percentage return (2.497 per cent) on the regulatory value of our company (Regulatory Capital Value or RCV). From 2030, we expect to be regulated in line with the rest of the water industry.

Tideway in its 2020-2021 annual report Page 18 gives a Timeline, which is a schedule for the delivery of the project. See an extract as Figure 7

- **Construction**

This includes excavating deep shafts at the three drive sites and each CSO interception site, followed by tunnelling, tunnel secondary lining, installing mechanical and electronic equipment, and architectural and landscaping works.

- **Commissioning**

All the worksites and tunnels will be connected to the London Tideway Tunnels (LTT) system and tested. Once this is complete, the MWCs hand over the Thames Tideway Tunnel (TTT) Works to Tideway. At this stage, the MWCs' activities will be complete, and the contractors will be demobilised.

- **System Acceptance period**

This will be an 18 to 36 month proving period. The LTT will be operated across a variety of storm conditions, to demonstrate that it fulfils the project requirements. Once this is complete, Thames Water will become responsible for maintaining the near-ground structures and assets. Tideway will retain responsibility for the shafts and tunnel structures and ensure the TTT is available to allow flow to pass to the Lee Tunnel. This involves inspecting the deep tunnels and shafts, which we expect to do on a ten-yearly cycle, performing any maintenance as required.

In the Tideway Investor Report published in August 2021 is a list of issued bonds. See an extract as Figure 8

### Debt Portfolio – March 2021

Drawn Debt Portfolio - March 2021

Facility	Drawn amount	Type	Drawdown date	Maturity (CY)
£75m CPI + 0.628%	75	Green Bond	Aug-17	2047
£300m 2.86%	300	USPP Loan Note	Sep-17	2032
£250m 2.375%	250	Green Bond	Nov-17	2027
£200m CPI + 0.74%	200	Green Bond	Nov-17	2042
£100m RPI + 0.688%	100	Green Bond	Jun-18	2050
£80m Tranche 1	80	EIB	Jul-18	2051
£100m RPI + 0.249%	100	Green Bond	Dec-18	2040
£80m Tranche 2	80	EIB	Jan-19	2051
£100m RPI + 0.755%	100	Green Bond	Jun-19	2051
£80m Tranche 3	80	EIB	Jul-19	2051
£125m RPI + 0.192%	133	Green Bond	Jul-19	2049
£100m RPI + 0.01%	100	Loan	Sep-19	2049
£80m Tranche 4	80	EIB	Jan-20	2051
£25m RPI + 1.035%	25	Green Bond	Jun-20	2048
£50m RPI + 0.787%	50	Green Bond	Jun-20	2052
£25m RPI + 0.951%	25	Green Bond	Jun-20	2054
£80m Tranche 5	80	EIB	Jul-20	2051
£80m Tranche 6	80	EIB	Jan-21	2051
£80m Tranche 7	80	EIB	Mar-21	2051
<b>Subtotal</b>	<b>2,018</b>			

Committed and Undrawn Debt Portfolio - March 2021

Facility	Nominal amount	Type	Drawdown date	Maturity (CY)
RCF	160	Revolver	N/A	2025
EIB	140	Loan	Various 2021-2022	2051
£25m RPI + 1.042%	25	Bond	Jun-21	2048
£25m RPI + 0.954%	25	Bond	Jun-21	2054
£75m RPI + 0.01%*	75	Green Bond	Aug-21	2036
£75m 2.418%	75	Green USPP Loan Note	Sep-21	2041
£150m RPI + 0.01%**	150	Green Bond	Apr-22	2032
£75m CPI + 0.949%	75	Green Bond	May-22	2052
£50m RPI + 0.074%	50	Green Bond	May-22	2049
£50m RPI + 0.174%	50	Green Bond	May-23	2049
<b>Subtotal</b>	<b>825</b>			

(\* ) re-offer price of 112.157% reflecting negative yield of -0.754%

(\*\*) re-offer price of 100.24% reflecting negative yield of -0.014%

Bazalgette Finance plc's debt portfolio shows that it has a Green Bond maturing in 2052.

## **Bazalgette Equity Limited**

Bazalgette Equity Limited is to exist as water company from 2030, perhaps for the anticipated 120 years' life of the tunnel. Bazalgette Equity Limited will have retained its debt, so the interest on which and other financial costs will continue to be paid by TWUL's waste treatment consumers. It will be able to set these against its operating profit for corporation tax avoidance.

Its subsidiary, Bazalgette Finance plc in its prospectus has stated that it will not deduct withholding tax from its payments to bondholders, unless ordered by tax authorities. Its longest maturity bond will demand payment of interest until 2052, unless it is "callable" and can be paid off early.

As the final costs of the works are likely to rise to around £5 billion (from the current estimate of £4.6 billion), it will exceed the original project cost of (£3.144bn in 2014/2015 prices) by the stipulated 130%. The government support fund will be liable to an equity payment, 60% to TWUL's waste treatment customers and 40% to Bazalgette Equity Limited. This could be used to reduce Tideway's debt on completion, but might simply be paid to shareholders as a dividend, leaving the debt as a device to avoid tax.

The fixed rate of return until 2030 will be 2,497%.

TWUL's investment in the connecting works and sewage plant upgrades will cost an amount of ca. £1 billion and will be added to its regulatory RCV and processed by OfWat in its 5 year determination of wastewater collection charges.

Bazalgette Tunnel Limited (Tideway) will continue to maintain the tunnels and shafts, with inspections on a ten-year cycle.

### **Tideway's handover to TWUL**

The handover is described in Bazalgette Finance plc's 2019 prospectus on Page 11.

*Once completed, the above-ground assets, structures and equipment of the Thames Tideway Tunnel (TTT) will be transferred to Thames Water Utilities Limited (TWUL), leaving the main tunnel, connection tunnels and shafts under the Bazalgette Tunnel Limited (BTL)'s ownership. Thames Water will operate the TTT, while Tideway will maintain and make available the deep tunnels and shafts.*

BTL will operate and maintain the civil structures of the Tideway project, being the tunnels and shafts) in such manner as to keep them free from sediment and allow flows to pass along the tunnel up to the connection with the Lee Tunnel whilst maintaining the total storage volume in the tunnel and shafts. The principal maintenance activity undertaken by BTL will be the inspection of the Tideway project (anticipated to be on a 10-year cycle).

If in extreme circumstances, sewage continues to flow into the Thames, it will be difficult to attribute responsibility to which (or to both) of the companies involved. However, fines levied by OfWat will fall only on TWUL and if tunnel flows are blocked or attenuated there will be disputation.

Normally, the issuing of a handover certificate by a Vendor to a Supplier is the trigger for the contractual means of payment, but it appears that TWUL will in effect be leasing the handed over of the below ground listed works from Tideway, rather than paying for them. Presumably the advance payments by TWUL's waste treatment consumers would end, to be replaced with annual payments by TWUL, the prices of which being determined by OfWat.

The best way to settle this unique, business arrangement would be for Kemble Water Holdings Limited (KWHL) to takeover Bazalgette Equity Limited and its subsidiaries into its group. The assets and debt of BTL would then be consolidated into the top company's accounts.

There could then be a reorganisation of the KWHL multiple subsidiaries into a simpler structure, more open to audit and for regulation as one entity by OfWat. The multiple boards of directors could be merged and reduced in numbers.

## **Sizewell C**

*EdF and CGN signed the Sizewell C Project equity documents on 29 September 2016 alongside the HPC contracts, for the development, building and operation of two EPR reactors (3.2 GW) at Sizewell in Suffolk.*

*During development phase prior to final investment decision, EDF Energy's share of the project is 80% and CGN's is 20%. EdF has planned to pre-finance the development up to its share of an initial budget of £458 million. Final investment decision is likely to be made by mid 2022.*

*This project is based on the assumption that third party investors will invest and become majority shareholders of the Project. EdF plans, at the date of the final investment decision, to become a minority shareholder with corresponding limited rights and to deconsolidate the project from the Group's financial statements (At this stage, it is not certain that the Group will achieve this objective.)*

*This financing model has never been implemented for projects of that scale before and therefore would be one of the largest ever equity issuance and project financing on the European scene. Securing the appropriate risk-sharing mechanism and ultimately the corresponding financing structure ahead of the Final Investment Decision is therefore key for the project, the UK Government and the current shareholders.*

*EdF's ability to make a final investment decision on Sizewell C and to participate in the financing of this project beyond the development phase could depend on the operational control of the Hinkley Point C project, on the existence of an appropriate regulatory and financing framework, and on the availability of sufficient investors and financiers.*

From EdF Energy Holdings Limited annual report 2020.

## **RAB financing for SZC (as the Cambridge EPRG Working Party Model)**

If applied to Sizewell C (SZC), the shareholders of a newly formed development company would issue shares of 30% of the estimated construction cost, i.e. £6 billion of the current cost of £20 billion, which would be paid up in annual instalments of £600 million over the 10 years of construction. If the date of commissioning was extended and the costs were increasing, further shares valued at 30% of the increased costs would be issued and paid up annually. Debt would be raised annually to cover the 70% of the increasing construction costs and would cover 70% of the additional costs accruing after the 10 years construction period.

During the construction period and up until SZC became operational, the 27 million householder consumers would pay the Weighted Average Cost of Capital (the WACC) on the 70% of the costs, which would be added to the electricity consumers' bills.

Once SZC is in operation, the “strike” price paid by the suppliers to the then owners of SZC would be a combination of the WACC for the 70% of the capital costs plus the running costs. Presumably in the negotiations with the formation of the development company a level of profit on the £6 billion equity, (plus the equity paid for the 30% of any increased construction costs) would also be included in the “strike” price.

The electricity suppliers would add these to their electricity payments to the development company, via a Counterparty. It is assumed that the “strike” price will be met by a contract for difference (CfD) and as for Hinkley Point C the Counterparty will need government subsidy.

The model envisages that OfGem’s regulatory period would continue over the 60 years of operation.

## Comments

In citing the Heathrow and Tideway’s RAB as models for financing Sizewell C, BEIS has failed to take into account their current low equity, high debt financing enabling tax avoidance together with the passing of dividends paid out of borrowings to foreign shareholders.

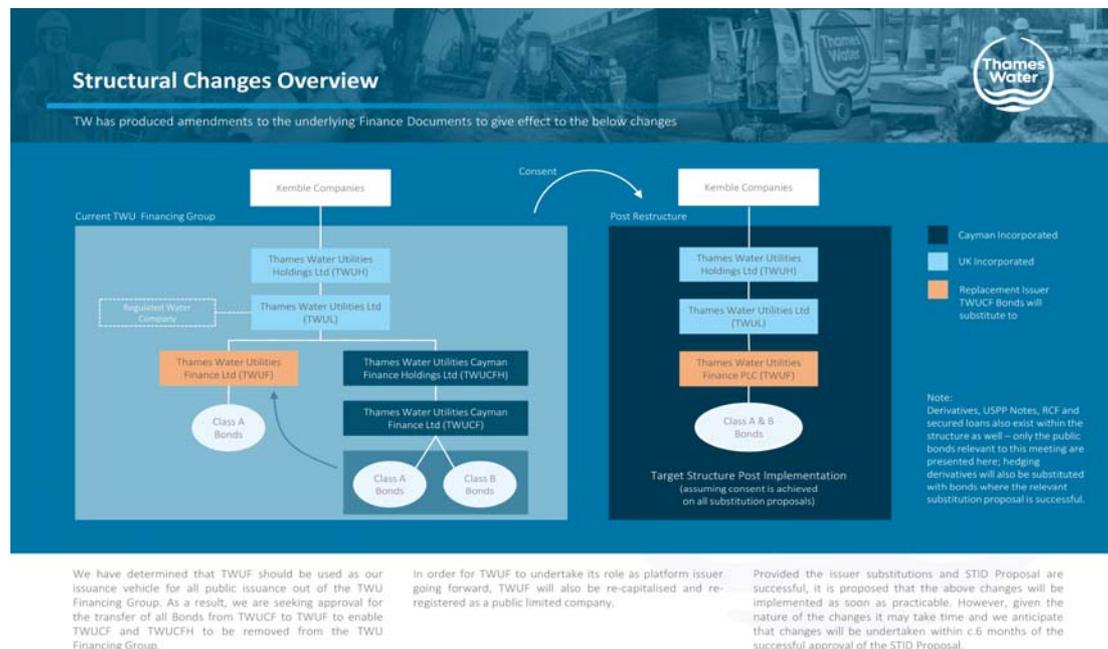
**Heathrow** is not the worst example of this scenario, but its initial paid up share capital of £13.1 million for a return totalling £8+ billion has evaded scrutiny by CAA and the Transport Select Committee. FRC and FCA have refused to adjudicate.

The Transport Committee hearing on 5 February 2017 failed to question the CEO of Heathrow’s owner FGP Topco Limited’s CEO Jorge Gil Villen on its financial practises, while its *modus operandi* was fully ventilated at a session of the APPG Heathrow in Portcullis House on 24 January 2018, but which had no impact on the later decisions on the third runway.

As an interim measure CAA has allowed Heathrow’s airport charges to be increased by 37%, but it will still be unable to service its huge debt following Covid’s traffic attenuation. Kroll’s subsidiary Lucid Trustee Services Limited has a charge on FGP Topco Limited’s first subsidiary ADI Finance 1 Limited. If this rescue attempt fails to raise an equity input, FGP Topco Limited could be put in administration by its creditors. Its subsidiaries Heathrow Airport Limited and Heathrow Express Operating Company Limited might then be taken over by the official receiver and continue to run the airport and its supporting auxiliaries.

**Tideway** had borrowed £2,757m by 31 March 2021, while revenue payments made by TWUL’s waste management customers and passed to Tideway by then totalled just £218.4m. On handover of the above ground works to TWUL, those below will remain in Tideway’s bailiwick, but the interest on the continued borrowings will continue to be paid.

In 2019 Kemble Water Holdings Limited engaged in a reform of its tax haven bond issuers, see an extract from Thames Water Utilities Limited 2018 as Figure 8.



## Cayman Islands companies

There were two Kemble companies registered in the Cayman Islands, viz, Thames Water Utilities Cayman Finance Holding Limited (TWUCFH) owning Thames Water Utilities Cayman Finance Limited (TWUCF).

In 2019 the issued bonds from Thames Water Utilities Cayman Finance Limited were transferred to Thames Water Utilities Finance Limited (TWUF) re-capitalised as a plc.

TWUCF and TWUCFH were then removed from the TWU financing group. The annual reports of TWUCF were published which included a list of issued bonds, but TWUCFH is an exempted company with no need to publish accounts, so its function and holdings are unknown.

Although bonds from TWUCF have been moved to TWUF, both companies may still be in existence.

## **Sizewell C**

SZC's massive, reinforced concrete, civil construction is due to safety considerations following incidents at Three Mile Island Unit 2 in the USA and Fukushima Units 1-4 in Japan. To make the EPR safer, the containment's reinforced concrete walls have been doubled to hold an hydrogen explosion pressure. So, with this and the increase in the reactor vessel size and ancillary equipment, the doubling of its standby generators and the addition of spent fuel casking and storage on site it has resulted in its vastly increased costs.

Its current cost estimate of £20 billion is likely to rise, as has HPC's £16 billion to £23 billion and SZC may end at £25 billion.

### **SZC's financing**

The Heathrow RAB and Tideway RCV/RAG are cited respectively as models for the financing of Sizewell C by advance payments to the development company during construction and by CfDs when in operation, added to the bills of its 27 million consumers, but not shown separately.

The proposed RAB advanced payments by consumers will cover the interest on the borrowing for progress payments, but payments will continue for the interest on the remaining debt, on depreciation and operational costs until SZC's operation ends and the spent fuel leaves its pond and it is in dry casks. There is, anyway, a levy on the MWh generation for waste management.

The BEIS's Low Carbon Contracts Company and Electricity Settlements Company levy the Suppliers for funds for its Counterparty. This currently pays Contracts for Difference (CfDs) to 73 projects including wind, biomass, solar PV and Energy from Waste. It plans to administer the payment of CfDs to its projects for operational periods of 15 years, but Hinkley Point will have an operational period of 35 years.

The estimated CfD costs of its current projects over their 15 year operational periods will be £37 billion, while Hinkley Point C's CfDs over its 35 years' period will total £52 billion. The burden on the suppliers for the 73 LCCC projects (excluding HPC) will be ca. £7.5 billion a year, while HPC will add another £1.5 billion a year. If this cannot be recovered from the Suppliers, in part or in full, a subsidy will have to be added to the LCCC Counterparty's funds by the government.

## **Sizewell C**

Sizewell C at 3.2 GW is too big for grid stability, as all the nuclear power plants will be on base load and there will be no equivalent standby if it drops out while HPC is under going a fuel change.

Its supplies of its fuel are subject to extraction cost rises as uranium ores reduce in concentration. World uranium production peaked in 2016, while production has since reduced by a quarter and is now lower than the anticipated consumption.

Nuclear power is unaffordable in the short term, but with the proposed advanced payments to cover loan interest costs during the construction period and if the excess capital costs reflected in its “strike” price were to be subsidised by the taxpayer **and if** SZC lasts its 60 years’ anticipated life it may be affordable in the long term. But then it is faced with 20 years of cost for its closure procedures without revenue. Its fuel supplies’ costs will rise (and may run out), its components are subject to corrosion, its controls will need to be regularly updated and it may be subject to a cyber attack.

A pressure water reactor will not survive a continuing station blackout, so it needs a secure supply of diesel for its standby generators to be available in an SBO and at the end of this century to maintain the cooling of the spent fuel ponds. It will also need a source of energy to manufacture dry casks of concrete and metal, to produce inert gas, for cranes to handle the spent fuel into the casks and for the ultimate building of a repository. It may be that the station battery storage could be increased, but some form of motive power will be needed post generation.

Moreover, it will leave a waste management legacy for the next century that will elicit a curse laid by our descendents on our generation.

### **SZC Development Company**

EdF SA took over Areva the EPR nuclear power designer and constructor, while its partner CGN has overseen the building and commissioning of two EPRs in China. Although the first two EPRs in Finland and in France are yet to be commissioned, the knowledge and expertise of the consortium currently engaged in building the HPC EPRs is incomparable.

EdF SA has borrowings of around £67 billion, so that if it had taken a majority share in SZC’s building of 80% it would have added £16 billion to its borrowings, or 24% extra. As this is at risk as equity and the average interest on its issued bonds is around 5%, it must have been deemed too much for a majority government-owned enterprise to find political support for another countries infrastructure.

With two EPRs, one with a supply contract signed in 2003 and one in 2007, still to be commissioned, there cannot be a certainty in ending with a successful, profitable project. If the Flamanville EPR is to be shortly generating, there may be excess electricity in France to sell to the UK through the inter-connector.

If investors can be attracted by the Cambridge University model of RAB financing, they will have to be ready to down pay the £6 billion equity in 10 yearly instalments of £600 million, perhaps extended over further annual payments with inflationary construction costs, with no return. The UK government may have to sign up to a subsidy by augmenting the Supplier payments to a Counterparty to make up to a “strike” price. It may be that the “strike” price will be raised to provide a profit on the £6 billion equity paid up by the development company (under the Cambridge Working Party study).

Although the advance payments by consumers may alleviate the rising costs, even the small additional costs of them will be resisted. TWUL’s wastewater consumers will not welcome the inclusion of the advance payments in their bills - without the advising of the additional part of the bills. Anti-nuclear electricity consumers will object to paying extra on their current bills, perhaps over the 10 years or so of he build years of SZC.

Basically, the EPR capital costs are too much to produce affordable electricity, while with the world uranium production reducing, nuclear fuel costs are rising. Finding a developer to risk a £6+ billion equity down payment with, or without, government guarantees may prove to be an elusive pursuit and the government may have to provide the equity as the French and Chinese governments have done for HPC.

### **Regulatory financing**

The CAA regulates Heathrow Airport Limited, a twelfth subsidiary of FGP Topco Limited, of which the shareholders have so far paid no equity **into** it, just taken **out** dividends from it, thus allowing it to burgeon its debt to more than £20 billion. It has allowed the cap of airport charges to progressively rise in spite of the hostility of the airlines to it. As interest charges are one of the building blocks of the RAB, increasing its borrowing for capital spending has allowed the RAB to increase in size and with it the cap on airport charges.

Around 80% of FGP Topco's borrowing is offshore in Jersey, but even the other 20% of bonds issued in the UK are also free of withholding tax, while its financial costs are set against its operating profits to reduce corporation tax.

OfWat is content to regulate Tideway as a separate construction and operating company in a duality with TWUL, a subsidiary of its partly foreign owner, currently loaded with £14+ billion debt, which will continue indefinitely. Capital charges will be eased by advanced payments by the wastewater treatment consumers, while interest charges on debt and running costs will continue after commissioning.

The duality of facilities ownership will mean the continuing costs of two administrations and scope for disputation over responsibility for illegal discharges. So, the merging of Kemble Water Holdings and Bazalgette Equity Limited is recommended.

BEIS has commended Heathrow's RAB and OfWat's RCV financing as models for SZC's financing, but their application to SZC's financing is questionable.

### **Office of Nuclear Regulation**

ONRs regulation is technical and operational and it may not be willing to license a subsidiary of a development company as the prime investor. The development company could be wholly or partially owned overseas and deny the operator of adequate funding for solving future problems.

Figure 1

Extracted from European Commission decision on HPC State Aid 8 October 2014

Figure 2

Table of figures compiled from successive FGP Topco Limited annual reports.

Figure 3

Regulatory building blocks diagram extracted from Heathrow Finance plc prospectus.

Figure 4

Table of directors' salaries formed from successive Tideway annual reports

Figure 5

Table of revenue passed from TWUL to BTL extracted from Tideway annual report 2020-2021

Figure 6

Tideway's delivery model extracted from Tideway annual report 2020-2021

Figure 7

Timeline, Commissioning and System Acceptance period from Page 18 Tideway 2020-2021 annual report

Figure 8

Kemble Water Holdings Limited debt restructuring

Sizewell C

Statement of EdF/CNG's withdrawal from full control of Sizewell C extracted from Page 22 of EdF Energy Holdings Limited annual report 2021

RAB financing model

Cambridge EPRG Working Paper 1926

Financing Low-Carbon Generation in the UK: The hybrid RAB Model

David Newbery, Michael Pollitt, David Reiner and Simon Taylor

LCCC Annual report to March 2021

## STRATEGIC REPORT (continued)

Decommissioning Programme); no protection exists against Brexit risks, but the project has not, to date, identified any significant impacts.

There is no explicit volume guarantee in the CfD, nor is there a ceiling; however, the contract is protected against change in law risk and any curtailment on the export of electricity so that the project is put back in the same position it would have been had the change in law or curtailment event not occurred. HPC project is protected against power market price changes during the CfD period.

### *Funded Decommissioning Programme (FDP)*

Contracts for the Funded Decommissioning Programme (FDP) were signed on 29 September 2016. There is a statutory requirement for nuclear operators to have a FDP, under which an independent Fund Company will collect contributions and manage the money built up to pay for decommissioning of the nuclear reactor at the end of the generation.

The Nuclear Decommissioning Fund Company (FundCo) was set up in compliance with the Energy Act 2008 as its purpose is to provide costs of decommissioning by implementing the FDP.

The overall objective of the FDP is to ensure that operators make provision for:

- The full costs of decommissioning their installations;
- Their full share of the costs of safely and securely managing and disposing of their waste (including long term storage); in doing so, the risk of recourse to public funds is remote.

### **Sizewell C**

EDF and CGN signed the Sizewell C Project equity documents on 29 September 2016 alongside the HPC contracts, for the development, building and operation of two EPR reactors (3.2GW) at Sizewell in Suffolk.

During development phase prior to final investment decision, EDF Energy's share of the project is 80% and CGN's is 20%. EDF has planned to pre-finance the development up to its share of an initial budget of £458 million.

Final investment decision is likely to be made by mid 2022. If it is postponed, an agreement would be sought on the financing of the additional costs incurred.

This project is based on the assumption that third party investors will invest and become majority shareholders of the Project. EDF plans, at the date of the final investment decision, to become a minority shareholder with corresponding limited rights and to deconsolidate the project from the Group's financial statements (including in the calculation of economic indebtedness by the rating agencies). At this stage, it is not certain that the Group will achieve this objective.

This financing model has never been implemented for projects of that scale before and therefore would be one of the largest ever equity issuance and project financing on the European scene. Securing the appropriate risk-sharing mechanism and ultimately the corresponding financing structure ahead of the Final Investment Decision is therefore key for the project, the UK Government and the current shareholders. EDF's ability to make a final investment decision on Sizewell C and to participate in the financing of this project beyond the development phase could depend on the operational control of the Hinkley Point C project, on the existence of an appropriate regulatory and financing framework, and on the availability of sufficient investors and financiers. None of these conditions are guaranteed at this time.

Failure to obtain the appropriate financing framework and appropriate regulation could lead the Group not to take the investment decision or to take a decision under less than optimal conditions.

Project development is based on a replication strategy from HPC which should enable efficiencies driven by a decrease in construction costs combined with lower risks. The Sizewell C nuclear power station would therefore also be based on the EPR technology used at HPC. EDF, being in charge of the replication of the design, would benefit from feedback and experience from HPC.

The development of the Sizewell C project achieved major steps in 2020. In June, Planning Inspectorate accepted the application for the Sizewell C development consent order for examination. The examination process is expected to start in April 2021, meaning the Secretary of State should make their decision on the planning permission by April 2022. The development consent order document includes an estimated and non-binding target of savings on construction costs to take into consideration the fact that Sizewell C

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection Sizewell C.  
**Date:** 21 May 2022 12:53:25

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Dear sirs

I read today that Hinkley Point Nuclear station was going to be delayed again and cost in excess of 3 billion more. How can Sizewell C be justified with so many unanswered questions for this project and unsatisfactory responses to Suffolk's East Coast population? In the light of the ongoing difficulties at Hinkley, the public need to be informed as to projection of true costs over years construction in this ever unstable climate that everyone is struggling with. We are ones that will pay towards this in more ways than one.

The idea of a desalination plant has had little foresight given to the reality and the effect Sizewell C site will have on the land in such a desperately tight area, would impact the area for decades. Too late to repent once started, if Hinkley cannot run smoothly and lessons learnt, how on earth in a smaller compromised area of outstanding relevance and importance to the world as we know it, go ahead. The alternative to bring in hundreds of litres of water daily is also catastrophic to the environment. The network of roads involved, the park and ride so naively gambled with and the plans nowhere near fruition.

Do you realise how privileged I feel and millions who have visited this area over time, feel. To walk through Minsmere, be aware of protected, endangered wildlife that already lives on a knife edge and see a child's delight at spotting a Darford Warbler, marsh harrier or an otter thriving in such a safe controlled environment. During lockdown the wildlife blossomed in those quiet times the lapwings, curlews, swifts, cuckoos and so many more, all returned faithfully this year their land thrives again.

This would all stop with construction and the chaos Sizewell C would bring, it has taken conservationists, RSPB hundreds of years to achieve this biodiversity and without foresight, honesty and realisation it will be lost forever, there has to be a better alternative.

Yours faithfully  
Chris Collie

[REDACTED]

Sent from my Galaxy

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Further Opposition to Sizewell C  
**Date:** 21 May 2022 12:58:15

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Dear Planning Inspectorate

Interested party no: 20025666

Hello, it's me again, interested party no: 20025666, writing once more to register my opposition to EDF's application to build a third (and fourth) nuclear power plant on the fragile and fast-eroding Suffolk Coastline at Sizewell and to join the many voices doing the same - including now the RSPB who have until this time consciously resisted putting their name to any other protest but feel compelled to do so with regards the impact this project will have on Minsmere. A reason they give, among others, that, as Minsmere enjoys the most rigorous planning and developmental protection that our government offers, if they are not safe - and if such protective measures count for nothing - then nowhere is...

I would like you to know that my heart goes out to you because I imagine you get a great many people writing to you absolutely at the end of their tether with this proposal and, because it is not possible to bang certain politicians' heads together in order to help them see the many ways in which this project simply makes no sense, we let off steam to you instead. I will try not to do this! I will however briefly list my main concerns below:

The EPR model proposed by EDF simply does not work reliably. It is hard to believe the government have failed to understand this. Every other one has failed to work as intended and has gone way beyond both its projected build time and its budget. We only have to consider Hinkley Point which is now £8 billion over its initial estimated cost and has just announced another delay to its projected completion date...

I am also very unhappy about the funding model for this project (chosen, it seems likely, because the majority of the big investors know better than to get involved) which places a significant and ongoing burden on the tax payer.

The potable water situation is also a huge cause for concern not least because, having been advised back in 2010 that this would be an issue, EDF only submitted a water desalination plant planning request (a deeply un-ecological solution and where will it fit?!!) very recently. It does not give me much faith in their forward thinking and, oh my golly, this is nuclear power we are talking about - their processes should be without fault!

It is also deeply disappointing, and shameful, to have had to listen to the government's recent public announcements of support for this project before it has been given planning permission. It is both rude to you and so deeply disrespectful to the rest of us. It would be funny if it wasn't so embarrassing and frightening that the man who once suggested building an airport in the Thames Estuary and a bridge from Scotland to Ireland is now running our country and that when he says he would like see a nuclear power station built every year for eight no one now seems able to tell him what nonsense this is.... Oops, sorry, I will stop now!

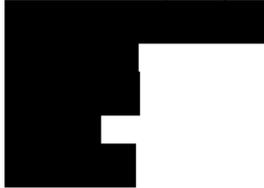
Then there is the continuing - and unsolved - problem of nuclear waste, light pollution, the devastation of the local tourist industry, the inadequacy of the infrastructure - but perhaps I will let someone else write about these...

Thank you so much for allowing me to share these worries with you, it cannot be much fun receiving all these letters.

Here's trusting that you will make an informed decision based on these and many more mitigating arguments and that - even if down the line it may be decided that SMRs should get the go-ahead, Sizewell C will not be given the green light. Green it is NOT.

Yours sincerely

Amanda Taylor (on behalf of our children, grandchildren and any future generations)

A large black rectangular redaction box covering the signature of Amanda Taylor.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Application by NNB Generation Company (SZC) Limited for an Order granting Development Consent for the proposed Sizewell C Nuclear Power Station  
**Date:** 21 May 2022 20:16:57  
**Attachments:** [Dear Secretary of State.pdf](#)

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Kind regards  
Laura Bonnett

Dear Secretary of State,

Re: SZC

I was born and raised in [REDACTED] and moved to [REDACTED] over twenty years ago. I recall naively fantasising, as I swam in the sea at Sizewell in 2001, that Sizewell A could one day be repurposed as *Tate East Anglia*; this redundant shell of brutalist concrete could find a new life showcasing the vibrant art talent from this part of England, drawing new visitors to the area from far and wide. I was so wrong. And here lies the issue: **decommissioned nuclear power stations cannot be repurposed** and this is just one of many ways in which this technology asks too much of us as a species and as stewards of all life on the planet.

Why do we accept nuclear energy's demands to colonise our British coastline for over a hundred years with no reparation?

Future generations will surely look on us and curse us for bequeathing them the burden of decommissioning nuclear plants, having littered their fragile British coastline with these outrageously expensive, hazardous carbuncles (when alternative solutions were clearly in development in 2022) and making Britain 100% dependent on procuring nuclear fuel rods from overseas suppliers in order to keep the monstrosity fed and operational. And how long before those supplies of uranium deplete making the whole industry come to an embarrassing halt?

As we know, the simple definition of technology is *tools that humans develop to make human life simpler*. We often also extend the definition to include *that help to make human life safer, more affordable and sustainable* too. There is nothing in the plans for Sizewell C that meets this definition.

**Is there any other technology on the planet that requires such a long, expensive, disruptive build and has such time-limited benefits for humans?** Does SZC make life more affordable? No. Safer? Certainly not. Green? Not with these levels of pollutions (air, water, light and noise) and the amount of water, concrete and energy required on both the build site - and the surrounding area if we factor in the total relandscaping of Suffolk in order to establish the required build infrastructure: roads, rail lines, marine jetty, workforce accommodation and desalination plant. Meanwhile, Suffolk will be trying to raise children, care for its old and sick, get to work, have a life...

There seems to be no end to the level of disruption that SZC is proposing to our community and EDF have offered far from adequate mitigation plans. On a personal note, I am moving out of Theberton at a great personal cost and financial risk to escape what could be the immediate horror proposed for our village if SZC is approved. Yet, I still fear the impact of SZC on our ability to travel by road, train and bicycle to work, education and leisure throughout the build years to and from my proposed new address in East Suffolk if SZC obtains the widely dreaded go ahead from you.

I think we, as a nation, could do better than SZC and in my heart of hearts think the British government do, too. The SZC plan is not radical enough to meet our energy needs. It asks too much: too much upheaval taking too long to build with too many repercussions for nature at too higher cost for too little green electricity to be supplied for too shorter time.

Kind regards,

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 21 May 2022 21:20:45

---

Dear Sir Or Madam,

I wish to object most vehemently about the proposed development of Sizewell C that is going to be extremely expensive in the construction, the running and even more unknown, the decommissioning . The destruction of the local environment will be huge and the impact on crucial resources such as Minsmere will be devastating. The energy provided will not be “Green “ when the carbon impact of the construction is calculated and the environmental legacy of disposing of the radioactive waste that is bequeathed to future generations has an immorality that will be looked at in horror comparable to how we now regard the slave trade.

Yours

Dr A Eastaugh  
Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C - Nuclear Disaster  
**Date:** 21 May 2022 21:51:49

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Dear Sir/Madam

As an interested party - ref 20025999. My view regarding Sizewell C has never changed. It's wrong on so many levels. It will create chaos for the whole of east Suffolk and beyond. This will affect every single household with the RAB. With energy prices rises to unaffordable rates, you are expecting a nuclear tax to be added.

The early stages are a worrying concern, the roads will be chaos and traffic will come to a standstill. We do not have the infrastructure to cope with all this extra traffic. The only major road being the A12 and in parts are very narrow.

Areas of outstanding natural beauty are called this for an obvious reason and EDF want to spoil this, the picturesque landscape and the amazing wildlife here, they have no voice and need protection and to be safe. Come and live here and see what a beautiful place this is.

After years of supposedly planning this, EDF still do not have funding and why is this, it's because the unreliability of their models .. not one in Europe is actually working yet! Setbacks on top of setbacks , surely warning bells should be ringing! And wouldn't you have thought the water situation would have been the first things to sort.

The energy crisis needs to be sorted but nuclear is not a quick fix especially when EDF has anything to do with it, we need the problem dealt with now not in 10 or 12 year's time(if we're lucky).

East Suffolk does not want this and I believe that this will never be finished. It will ruin a wonderful place, that once damaged , will never be the same again.

Yours faithfully  
Alison Youngman

Get [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** Urgent stop your plans  
**Date:** 22 May 2022 09:47:48

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Please Please think again about the expansion of Sizewell. It will be a complete white elephant as the technology is already outdated and will be even more so by 2034, Please invest in renewable energy instead. If you go ahead with this expansion you will ruin for ever an area of outstanding beauty for no gain. You will leave the spent fuel for hundreds of years for future generations to have to deal with and all for nothing. Please do not do this to your children and grandchildren. Also you are buying uranium from Russia which is misguided and the tech you are investing in from France is not 100% efficient. Change your minds on this decision for the sake of this country and future generations

Regards

Cindy Shelley

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Development of a nuclear reactor near Minsmere  
**Date:** 22 May 2022 11:10:13

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Dear Secretary of State,

I am most distressed by EDF's plan to build a giant nuclear reactor near Minsmere. Not only the bittern but many other forms of endangered wildlife would be threatened by the project.

While appreciating that in Britain today we must develop our own independent sources of energy it is supremely important to locate these where the threat to nature is minimal.

Once extinct, species cannot be reinvented.

I would appreciate your assurance that Minsmere will be fully protected.

Yours sincerely,

Gill Hancock  
(Lady Hancock)

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 22 May 2022 14:16:35

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I live in [REDACTED] and I am growing weary of explaining over last 7 years of the reasons why Sizewell C should not go ahead. But to reiterate:

Too near Minsmere which cannot help be affected by the sheer size of the building site and the light and noise pollution.

The transport links are completely unsuitable, small roads and rail links and unsuitable for water transport.

This is a rural area, most people live or visit here because it is unspoilt and special and protected for its landscape and wildlife.

I could go on about storage of nuclear waste, water supplies, local job market, cost and length of build, uncertain funding, etc etc.

I hope the planning process is correctly observed and not ridden roughshod over by the government in search of quick fixes.

Yours sincerely  
Joan Steel

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Stop Sizewell  
**Date:** 22 May 2022 18:46:32

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I am an [REDACTED], Suffolk resident and I wish to add my strongest objection to the plans to build Sizewell C. Nuclear energy is unsafe, ecologically damaging to a huge degree; and the legacy of having radioactive waste to store for hundreds of years with all the potential threats of social unrest, terrorism and the unknown but highly likely coastal erosion and other serious issues that will certainly be caused by climate change, this plan makes no sense at all.

The recent negative safety and operational issues of EDF nuclear power stations throughout the world makes this plan even more insane.

And to top it all, to undertake this massive, damaging building project in an area of outstanding natural beauty is an act of enormous cultural vandalism.

You must cancel this plan.

--

Philip Shelley

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Say NO to Sizewell C  
**Date:** 22 May 2022 20:04:18

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Dear Sir

My wife and I live in the parish of [REDACTED] and the B1122 goes through this parish from the A12 in Yoxford through Middleton Moor then to Theberton and on to Leiston.

If EDF do not build the new *SLR* before they start work on Sizewell C, I can see the *SLR* will never be built and the B1122 will take all the traffic, and residents of Middleton cum Fordley and Theberton will have to suffer with all the noise, vibration and fumes from the 1000 vehicles a day predicted travelling along this "B" road.

There are four roads in and out of Middleton village, Rectory Road that joins the B1125 Reckford Road, Title Road, Mill Street and The Causeway that becomes Moor Road at Middleton Moor. Out of the four roads only Rectory Road is two lane, the other three roads are single track roads and Title Road and Mill Street where they join the B1122 have limited visibility due to bends and undulations of the road surface. If Sizewell C is passed and the *SLR* is not built before construction starts, I can see there will be many accidents on the B1122 and if this happens this road could be closed and it's a long way round to get to Sizewell by any other means, that is if vehicles can find somewhere to turn around.

Besides the A12 from Ipswich to Lowestoft and the A1094 from the A12 to Aldeburgh, there are no more "A" roads between the A12 and the East Coast in this part of Suffolk, only "B" roads or none classified roads.

If the *SLR* is built, numerous unclassified roads in this area that are used every day will become no through roads, which mean motorists will have to drive further to get to their destination. The new link road from Middleton Moor where it meets the new *SLR* will be turn left only, so of no use if traffic wants to get to the A12.

The *SLR* once Sizewell C is completed is of no use to EDF, the local communities, even Suffolk County Council say it has no legacy, only future cost in the long term, so it should be removed as it will ruin the rural landscape that people love about this part of Suffolk.

If EDF had gone for the other proposed relief road further south on the A12 at least it could have been used by Scottish Power wind farm at Friston which was passed recently and National Grid Ventures Nautilus if it passes planning consent.

No materials that are required to build Sizewell C are to be found in this part of Suffolk and in some cases even in England, so to transport all the materials to site there will be congestion on all roads in this part of Suffolk. There is no infrastructure in this part of Suffolk to accommodate this amount of traffic planned by EDF.

EDF say thousands of local people will get jobs at Sizewell, but that will only be lower grade jobs like cleaners etc. Higher skill jobs will be brought in from Hinkley Point C where they are they have already been trained or from elsewhere in the country, which is why EDF want to concrete over fields for accommodation blocks.

There are three major planning applications, EDF, Scottish Power and National Grid, in this very small area of the East Coast of Suffolk, all happening at the same time. If passed the roads will be grid locked in this area, there will be noise and light pollution for 24 hours a day for over ten years and will the area will be deprived of valuable tourist trade. People go on holiday for peace and quiet, lovely scenery and a gentle pace of life, so let's face it, who would want to come to the East Coast of Suffolk?

As this government doesn't want China involved in Sizewell C and because the war in Ukraine they don't want any dealings with Russia, so where is the uranium ore or yellow cake coming from to power the two reactors at Sizewell C or even Hinkley Point C? Russia has just under half the world's supply and Chinese companies have agreements with mine owners around the world for most of the other. The UK has no uranium or yellow cake of it's own and has to rely on other countries to provide this mineral, but as recent events have shown this can be very unreliable. So nuclear is not sustainable 24/7 power like we are told by EDF and this government.

Nuclear power is not completely green energy. When you take into account the mining of materials around the world needed for a nuclear power stations, over 10 years of construction to build it, transport to move materials around the country and even the world, decommissioning at the end of it's life and then encasing it in concrete for another generation to pay to make it safe, this is not green! When all this co2 is taken into account, Sizewell C will have to run for well over 10 years before this government can say nuclear is green!

If this project goes ahead, it will show that this government has no interest in AONB, SSSI, Flora, Fauna and Wildlife as all these will be seriously affected by this project. All these protected sites around the country will be meaningless if Sizewell C gets the go-ahead.

Don't let EDF ruin our local nature. RSPB Minsmere was founded in 1947 and has been a Ramsar site since 1976, EDF think they can start a new nature reserve now to compensate for loss of wildlife and flora and fauna, they can't! EDF also think they can replicate millions of years of marsh and bog over night, this is impossible!

Even the protected Marsh Harrier is protesting against Sizewell C and the loss of it's habitat by building it's nest this year for the first time on land that EDF want to build on.

EDF has still not answered the question on how it's going to tell the local wildlife that they have to pack their bags and move from the East Coast of Suffolk to Pakenham in the West of Suffolk, some 40 miles away.

EDF has known for ten years that there is not enough potable water in this part of Suffolk to build and maintain Sizewell C through it's construction and for it's life time and now they are panicking saying they need a temporary fix which could become permanent desalination plant to run 24 hours a day 7 days a week pumping out fumes like carbon monoxide (CO2), nitrogen Oxides (NO), Nitrogen Dioxide (NO2) and sulphur dioxide (SO2) and other harmful particles into the atmosphere and polluting the sea with chemicals like copper and chlorine and the water will be 1.6 times more salty than natural seawater and could potentially end up in our food and swallowed by swimmers along the coast. This action will affect people, wildlife flora and fauna on land, sea and in the air. EDF during the examination period said desalination was not an appropriate solution and now they say it's the only solution. The ten years of EDF doing nothing, Northumbrian Water Ltd could have been laying water pipes from Barsham 28Km to Sizewell C.

I hope EDF sea wall defences have been designed to last during it's lifetime and beyond until it is radioactive safe, otherwise if the sea wall is breached due to rising sea levels as predicted, the sea and the surrounding area will become radioactive, due to contamination with the radioactive cool ponds that are planned for the site. What a legacy to leave for our future generations!

Whilst writing this email it has come to my notice that on the 19 May, EDF stated the cost of Hinkley Point C has gone up yet again from the original £18bn to £26bn and it will now not be supplying power to the grid until June 2027. Therefore has Sizewell C also gone up from it's estimated cost of £20bn to £26bn? If so, if and when Sizewell C is ever built, what will be it's final cost and when will it ever be generating power to the grid? I dread to think!

Energy bills are rising and householders are struggling to pay their bills, and now this government wants every householder to pay for the construction of Sizewell C, which will cost a minimum of £20bn and construction will run for over 10 years.

All in all, Sizewell C nuclear power is not the answer to the current power crisis, it's the wrong project in the wrong place, at the wrong time. Wind, solar and wave power are all cheaper forms of green power and can be online working in a fraction of the time. I therefore urge you most emphatically, not to allow this project to EVER be passed.

Yours faithfully  
Stephen Chamberlain

A large black rectangular redaction box covering the signature area.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 22 May 2022 20:15:31

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Dear Secretary of State,

I wish to raise my concerns about the proposed developments at Sizewell nuclear power plant:

As you already know, the Suffolk coast and heaths make up an area with an important, unique and diverse variety of wildlife and wildlife habitats. This is especially to be seen at the RSPB Minsmere Reserve. This reserve and the surrounding area has the protection of SSSI- SAC-SPA and Ramsar site conservation status. This protection should be honoured and cherished. The reed beds, lowland wet grassland, shingle heath and lowland heath are to be found, not just at Minsmere, but also beyond in the surrounding areas. The Sizewell Site is, literally, on its border. Current activities at the nuclear power plant are just about manageable, but were this to change with the proposed Sizewell C development, the area and its wildlife would be directly threatened and the important and wonderful work at Minsmere and the Suffolk Wildlife Trust reserves would be compromised. A smaller, Rolls-Royce type of development, on the existing site, might be a solution. Protection must be continued for today's population and also for future generations. Sizewell C, as it is currently being proposed would be a shameful ecological disaster.

My other concerns relate to the massive water use that Sizewell C would require and which, potentially, threaten the supply of the local population and the supply required by the nature reserves.

Road development, as required by the proposals would completely alter a quiet rural area and impact upon the local population. Road traffic works would last, literally, for years.

I urge you to look again at the current proposals and consider the spiralling costs- both monetary and environmental.

Yours faithfully,

Mrs. Angela Cosstick.

SSSI conservation designation denoting a protected area in the UK and Isle of Man.

SAC Special area of conservation

SPA A special protection area

Ramsar Ramsar sites are wetlands of international importance.

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 22 May 2022 20:52:16

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I am writing to voice my deep concerns regarding this project

At a practical level EDF's plans for stabilising the ground may involve excessive undue risk with concerning implications leading to the issue of further and unpredictable impacts on the surrounding environment disrupting the fragile geology

At a human level there is the issue of increased danger for the construction workers digging into potentially shifting ground

Above all the question of sourcing water for the project is very problematical - requiring impossible levels of desalination as the natural local water levels are insufficient for purpose

Finally, this type and scale of this nuclear project will be obsolescent by the time of its completion

Considerations of multiple small scale nuclear power stations are the smarter choice

This coastal area where the rich diversity of its ecology has been preserved and thrives is unique in its richness and its tranquillity

It offers an irreplaceable resource both for local inhabitants and visitors. The cost to the local wildlife and to the benefits to people are beyond material quantification

In the hope that this proposed project can be re-considered

Yours sincerely  
Joan Gernand

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Interested Person  
**Date:** 22 May 2022 21:21:46

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Kimberley Hall

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

To The Secretary of State

As a registered Interested Person, I am writing to you with my concerns about the proposal by EDF to build Sizewell C.

I am very concerned about several aspects of EDF's proposal;

1. **Environmental act of 2021 and Habitat regulations**

The specific requirements of the act are not being met by EDF, and they are not providing interested bodies such as the RSPB with adequate information.

2. **Coastal Erosion and Safety**

There has been considerable loss of shingle and change to the shape of the beach at Sizewell and Minsmere this year, local people are very aware of the radical changes in the beach here as an indicator of coastal instability and erosion. EDF have not yet tested their proposed coastal defence.

3. **Lack of Potable water**

There is no potable water supply and no space for a desalination plant.

4. **Flood risk**

The defences are insufficient and EDF's plans only go up to 2140. Another flood on the East coast as in 1953 would be catastrophic for a nuclear power plant built right next to an eroding beach.

5. **Traffic and congestion on the B1122 and A12**

EDF's lack of a plan for the B1122 will result in a huge volume of lorries passing through the little villages such as Middleton, causing chaos and road blockages.  
The A12 too will be over burdened causing traffic jams for everyone in east Suffolk.

6. **Pollution from dust, noise, light and traffic fumes**

The pollution will be unbearable for both people and wildlife. People in Suffolk would prefer that the government policy be concerned with insulating peoples homes and investing in renewable green sources of generating electricity.

Yours Sincerely,

Peta-Jane Whiting

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Queries over Traffic and Water  
**Date:** 22 May 2022 21:54:15

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Traffic and Transportation Mitigation.

I'm very concerned should construction begin on Sizewell C, that for at least six months the narrow and meandering B1122 would be subject to 600 plus heavy goods vehicles, plus numerous cars travelling to and from the site. I gather that after this period, a new road would be built from the A12 at Saxmundham, thereby destroying more precious countryside. To anyone who knows the B1122 and the small hamlets and villages it passes through, this is absolutely nightmarish. It's a winding country road. Life would be intolerable for those of us who live alongside it and those who use it regularly. This part of Suffolk is quiet and peaceful and I'm horrified that this could all change. People enjoy coming here for peace and tranquillity and to enjoy our beautiful countryside.

Water.

Another concern, amongst many, is the availability of water, both for construction and for the lifetime running of the reactors. As you must know, Suffolk is the driest part of the country and there is a shortage of potable water. I gather Suffolk CC has ruled out the Waveney and there are bizarre schemes for a permanent desalination plant on site, even though there's nowhere to put it.

I could go on and on and I hope those who are more eloquent than I am will do just that. But I can't help thinking the cons far outweigh the pros regarding this prohibitively expensive project.

Thank you for reading this.

Sally Barley, lifelong inhabitant of [REDACTED].

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Health provision and Sizewell C  
**Date:** 22 May 2022 21:56:03

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Dear Planning Inspectors,

As a resident of [REDACTED], I realise that I am lucky to live in an environment that contributes much to my wellbeing, but I am also aware that this area is a wonderful resource for a great number of people who visit from elsewhere. At a time when so many are suffering from stress and poor mental health, it is invaluable to retain places where we can walk, and experience quiet and fresh air.

I am a retired health professional, and am also very concerned about the proposed billeting of up to six thousand workers, mainly single men away from home for months at a time. We are no longer in the nineteenth century when gangs built railways and canals and drowned their sorrows in pubs: conscious of the impact on mental health of such arrangements, we would expect to provide services to alleviate the inevitable stresses suffered. EDF's promises of drug testing and curfew are not reassuring. Norfolk and Suffolk mental health Trust is already in special measures and unable to meet the challenge.

The proposed plan for building Sizewell C is excessive in scale for this area, blasting through farmland and nature alike and causing destruction which will never be restored. I am writing to urge that you recommend protection of our precious coast and marshes, and the well-being of residents and visitors alike, by rejecting development of this magnitude.

Many thanks,

Hazel Collins

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C - interested party No.20026469  
**Date:** 22 May 2022 22:17:58

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Sir

I respectfully remind you that Pierre Moscovici's report for France's Audit Office concluded - "There is still uncertainty on the ability of the French Nuclear industry to build new nuclear reactors within a time frame or costs that remain acceptable". Events at Hinkley C during the past week have confirmed the truth of this.

This proposed development cannot deliver the required electricity in time or at an acceptable cost

Andrew Freese

[REDACTED]

**From:** [REDACTED]  
**To:** [Sizewell C](#)  
**Subject:** Sizewell C  
**Date:** 22 May 2022 23:07:02

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Dear Sir,

I am writing to comment on EDF's proposal to build a new nuclear power station at Sizewell in Suffolk.

I feel sad for this country that our government seems set on spending money on this project, despite their bitter experience at Hinkley Point where the EPR nuclear power station is being built. This project - way over budget, and much delayed - is proposing to use technology that has yet to be shown to work effectively. Why is it even being considered for Sizewell C?

The rapid rate of Climate Change, with the resulting weather disruption, means that we urgently need to change the whole system of generation and use of energy - increased efficiency, better insulated houses, development of battery storage, and incentives for the construction industry to include locally generated electricity as standard for building projects: Solar pv on every roof, attractive domestic wind turbines (see [REDACTED]).

Plans to build massive nuclear power stations anywhere in this country (pumping gigatonnes of carbon dioxide into the atmosphere during their construction) which will not produce any electricity for at least a decade ahead, will exacerbate the climate change problem without any promise of energy security for the future.

We are fortunate in this country to have numerous alternative ways of generating electricity, which are costing less and less to develop each year. If Sizewell C were to be built it is clear that the electricity it produced would cost more to the consumer - who would have already had costs added to electricity bills to help pay for the building of the power station. Does this make sense?

I live in Westleton, which is not far from Sizewell, and obviously my life would be considerably affected by such a massive construction project taking place in rural Suffolk. I would be happy to suffer inconvenience if it were in a good cause, however I consider the idea that future energy security will be ensured by investing in nuclear energy is clearly misplaced.

To finish on a positive note I would like to point out that while wind and solar power generation is intermittent, if the money proposed to be spent on a nuclear power station at Sizewell was instead invested in the use of the consistent tidal power off shore, I (and I'm sure others) would be more than happy to accept a certain amount of inconvenience, while infrastructure to build the necessary turbines and bring the power ashore were constructed.

Yours faithfully,

Juliet Bullimore

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 22 May 2022 23:15:27

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[REDACTED]

Dear people at the planning inspectorate

I am writing to ask you not to give permission for the building of Sizewell C .

This fragile eroding coastline is not a suitable site for this project.

However much cement is poured into and onto the Coraline Crag it will not stop the sea encroaching..especially with the predicted sea level rise.

I believe that the highly enriched spent uranium will be stored in cooling ponds which would also be vulnerable to flooding.

How many decades or even centuries will these ponds need protection ?

Is this the legacy you want to leave your children and grandchildren even great grandchildren .

Then there is the destruction of the RSPB Minsmere, the AONBs and SSSIs

no wildlife will endure the continual noise and light pollution for an estimated 10 years.

The tourist industry, on which this area is dependent, will likewise suffer.

With all the new advances in green technology it is a crime against Nature and Humanity to go ahead with this costly Monster.

10 years or more in the building.. how many years to mitigate that carbon footprint ?

How can anyone truly believe this the right project in the right place.

Nuclear power is too Costly, Outdated, and too Dangerous

I ask you please consider your responsibilities

Yours sincerely  
Virginia Storey

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 09:12:23

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Dear Inspectorate,

Where is the water going to come from to build and service the reactor? Heads are buried in shifting sands. Come on, it is not going to work. There is a global crisis. Please don't fuel it anymore .

Sincerely,

Bruce Gernand

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#); [REDACTED]  
**Subject:** Sizewell C - a view from the future  
**Date:** 23 May 2022 11:48:04

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Dear Secretary of State, the Planning Inspectorate

I write as an [REDACTED] resident, Chair of Suffolk Wildlife Trust and a former Trustee of RSPB to register my strong objection to the Sizewell C Project.

You know well the detail of the economic, legal, technical, planning and other arguments both for and against Sizewell C, so I will not rehearse them.

Instead I write *from the future*, with reference to our context today.

*Recognising both the climate and nature crises, the UK Government committed to net zero 2050 and to reversing the loss of biodiversity, and its abundance, by 2030. The same was true of Suffolk County Council.*

*Sizewell C proved a pivotal decision point for the UK's commitment to these twin objectives. Faced with a pressing cost of living crisis and with the need to drive a flagging economy and accelerate levelling up in the poorer regions, the apparent easy choice for the Secretary of State would have been to give the go-ahead.*

*Instead true leadership prevailed. The decision to stop Sizewell C was taken by the Secretary of State, against the will of others in Government. The true cost of the development was fully recognised for what it was. It signalled no longer being willing to sacrifice nature on the apparent illusory altar of short-term economic progress. It recognised that the economic cost of large nuclear, including construction and disposal, would have been an additional burden on society for decades to come. It understood that investment in battery storage, on- and off-shore wind and the development of smaller more flexible nuclear sites was indeed the pragmatic route, for energy security, the UK's economy and for the restoration of nature within a generation.*

I urge you to consider what decision you will be proud to have made when, one day, you reflect back on the difference to the world you made in your lifetime.

I wish you the very best

James

**James Alexander**

[REDACTED]

[REDACTED]

This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual to whom they are addressed

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [info@sizewellc.org](mailto:info@sizewellc.org)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 12:45:45

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To: The Rt Hon **Priti Patel** MP

Dear Secretary of State,

I am writing to you to register my opposition to the planned construction of Sizewell C Power Station.

As a supposed protected area of outstanding natural beauty, it is hard to imagine a more inappropriate place to site the proposed project. The upheaval that would be inflicted to the area is incalculable. With RSPB Minsmere next door to the site, with its incredibly sensitive landscape and vast array of rare fauna and flora it seems incomprehensible that such a project could even be contemplated in the vicinity.

I know EDF have tried to convince people that all work would be carried out with the minimum disruption to wildlife and they would re plant trees etc, but they could never compensate for the irreversible damage that would certainly be done to the area.

The fact that it would take an estimated ten to twelve years to build is hard to contemplate, with the associated disruption on local roads and traffic, not to mention the pollution caused. It would be a nightmare for people living anywhere on route to and from the site and in the local villages and towns for miles around.

Tourism, such an important part of Suffolk's income would be devastated. Who would want to holiday anywhere on or near our beautiful coastline with all that going on?

The cost of the project is estimated to be around £20 billion! These costs are always underestimated and could easily spiral way above that figure, as with Hinckley Point C. On top of that, it is thought by many that the whole project could even be rendered obsolete by the time it is completed! Other deep concerns are that it would be built in a place where coastal erosion is advancing at a record pace, coupled with ever rising sea levels.

I urge you to take great care in your consideration of this project and really hope that it will never go ahead, for the sake of all the wildlife and the people who are privileged to live in this beautiful part of Suffolk.

Yours sincerely,

John Daniels.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 14:48:17

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Hello

I am very concerned about the plans to build Sizewell C for the following reasons:

1. It will take years and create a huge local impact with carbon creation
2. It will destroy an area of outstanding natural beauty that has some unique habitats - why build a brand new nature reserve in Somerset and destroy one here? This seems mindless
3. The Suffolk coast is eroding. If the erosion continues (and look at the history of Dunwich for evidence of a couple of big storms completely changing the coastline), are we going to end up with another Fukushima?
4. The 'new jobs' will be specialist and few in the long run. This won't benefit locals who can't afford housing here anyway. What will the real benefit be to locals?
5. Although nuclear is carbon low compared to fossil fuels, it is not carbon neutral. I'm concerned that it is being sold as a 'green' solution when in reality, taking into account all the above and the amount of carbon (30 years worth??) taken in building the new Sizewell, this is seriously misleading.
6. Is it really only going to provide power for 6m homes? This seems very small for the huge investment and environmental impact.

I would appreciate acknowledgement of my concerns.

Thank you  
Carolyn Tyrrell-Sheppard



**From:** [REDACTED]  
**To:** [SizewellC](#); [REDACTED]  
**Subject:** Objections to the Sizewell C power station  
**Date:** 23 May 2022 15:01:48

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Dear Sirs,

IP 20026078

My objections are:

1. The costs of the build and the electricity produced will be prohibitive when there is a global economic crisis.
2. The EPRs are unproven and represent old 20th century technology which will soon be obsolescent.
3. The coast and hinterland are unsuited to facilitating the project. The former is eroding fast and the latter too small and narrow for heavy traffic.
4. The coastal wildlife and tourism will be ruined
5. Future energy needs will be met by renewables which are cost-effective and leave no toxic waste.
6. There is not enough fresh water available to build it in spite of the proposed desalination plant etc.

Finally, the coastal processes will be undermined and the Sizewell SSSIs and the world famous nature reserve at Minsmere seriously disturbed,

Michael Laschet

[REDACTED]

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C preplanning  
**Date:** 23 May 2022 15:28:38

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Dear Mr. Kwartang,

Please don't approve SizewellC, it really is the wrong place and the wrong idea.

I'm not anti-nuclear per se and understand the reasons why having an independent energy source for the UK is so important. But.

1. This is an unreliable nuclear system, proven by global and national issues with the same type of reactor.
  2. It's ruinously expensive and half the profits from it will be drained into foreign coffers.
  3. Other solutions exist: Better battery energy storage, Insulation programmes, Fusion, Hydrogen, RollsRoyce's small power plants.
  4. The carbon release of construction, next to one of our most valuable bird sanctuaries, will be impactful and harm a unique coast line.
  5. Nuclear is not green, however it's taxonomically dressed-up. This will be a legacy to the profligacy of government, to be cleared physically and financially up by our children's, children's, children's ... etc.
  6. It's not just Sizewell C that the people living in the area have to worry about. The planned onshoring of the electricity from the North Sea and the continent is also due to cause massive infrastructural issues in exactly the same 2 or 3 miles of coastline and hinterland. This is too much for people to bear and a completely unfair amount of disruption for such a tiny area that has a thriving tourist business which will obviously be heavily compromised, if not ruined by these plans.
  7. The common perception is that Scottish Power couldn't land the electricity at Sizewell to be sent down the pylons because of cable proximity problems, but how are they going to disseminate power from Sizewell without either jumping on to the existing cables/pylons or building new ones? Clashing corporate culture between EDF and Scottish Power is causing massive and unnecessary disruption to an area of Outstanding Natural Beauty.
- The best solution, to me, is to land the electricity at Sizewell C, build the requisite infrastructure there and move the nuclear plans elsewhere.
8. Go level up somewhere else that, unlike this part of the Suffolk coastline, really needs it.
  9. The majority of local people, unlike the local council do NOT want this to happen.

Thank you for reading.

Antony Easton

**From:** [REDACTED]  
**To:** [Sizewell](#)  
**Cc:** [REDACTED]  
**Subject:** Planning objections to proposed development of Sizewell C - Registration identification number 20025553  
**Date:** 23 May 2022 15:30:12

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ATT: Secretary of State,

### **Planning objections to proposed development of Sizewell C**

*Registration identification number 20025553*

As a resident of Yoxford in Suffolk, and in response to EDF's planning submission for Sizewell C, I would like to register my opposition to the scheme.

In addition to the host of compelling arguments about cost, relative value to the taxpayer, timelines and security, none of which compare favourably to alternative schemes for renewable energy, or even small modular nuclear reactors, there are many areas under which Planning should absolutely reject the development of Sizewell C

#### **Transport & Safety**

In a rural area with an economy largely based on agriculture and tourism, it is of the utmost importance that those requirements are balanced with the transportation needs of such a large infrastructure project.

The Sizewell C Link road which EDF has proposed, will remove some local traffic from the B1122 but is not the best solution for local residents or tourists.

- The Route W (D2) favoured by Suffolk County Council and other parties is an option which would provide the best transport outcome and also provide a legacy for the local area.
- The Link road will not be operational in advance of work starting and will therefore penalise local residents with a huge influx of polluting heavy goods traffic affecting air quality and noise levels.

There are also serious **safety concerns** for residents. The current road proposal does not adequately provide for safe, fast evacuation plans in the event of any accident or emergency at Sizewell.

According to NHS England data, in December 2021 Suffolk had an average response time for ambulances of 61 minutes. The government target is to respond in an average of 18 minutes and to respond to 90% of them within 40 minutes.

EDF's proposal for Sizewell C will substantially increase road traffic, and significantly exacerbate this risk for residents.

#### **Disposal of Waste**

There is no adequate current or even long-term strategy for the safe storage and removal of nuclear waste at a national level. This project only serves to increase that risk.

An assessment by the Nuclear Decommissioning Authority (NDA) says spent fuel from new nuclear reactors will be of such high temperatures it would need to stay on site for 140 years before it could be removed to a GDF.

The UK already 'stores' 700,00 cubic metres of toxic nuclear waste. Almost 50 years ago, a (GDF) deep geological disposal facility was proposed. Decades later, the UK is no nearer to building one.

Additionally the cost of decommissioning and disposing of the country's radioactive waste has risen to **£131bn**

[REDACTED]

Compounding the problem, by creating an even bigger stock pile of dangerous nuclear waste in Suffolk is completely reckless.

#### **Pollution/Emissions:**

EDF's proposal estimates increased road traffic at between 450-750 HGV's per day.

Heavy goods vehicles (HGVs) are estimated to account for around 17% of UK greenhouse gas (GHG) emissions from road transport and around 21% of road transport NO<sub>x</sub> emissions, while making up just 5% of vehicle miles. The

Government has stated that meeting our climate change targets will require GHG emissions reductions across all sectors of the economy, including road freight.

The government has a stated commitment to improving UK air quality and has published increasing evidence that air quality has an important effect on public health, the economy, and the environment. According to Public Health England, poor air quality is the largest environmental risk to public health in the UK1. Evidence from the World Health Organization (WHO) shows that older people, children, people with pre-existing lung and heart conditions, and people on lower incomes may be most at risk.

EDF's proposals do not adequately prescribe the emissions standards of either freight vehicles, or local supplementary supplier traffic.

What is in no doubt, is the inevitable negative impact on the health of local people due to traffic pollution.

### **Water Supply**

Very late in the day, EDF have realised that there is a major problem with obtaining enough water to supply the project.

The proposed nuclear plant will need up to 2.8 million litres of water a day when operating, mainly for cooling, a figure which has increased since plans were first drawn up. Essex and Suffolk Water (ESW) has long said there is not enough water in the area with the nearest river, the Blyth, being too small.

Instead it planned to pump water from the River Waveney at Barsham to Sizewell to make up for the shortfall. The Environment Agency (EA) has told ESW that it will have to reduce the amount of water it lets it take from the Waveney, because of pressure on the river. Modelling shows the cut could be up to 60pc, which would mean Sizewell C cannot be supplied from the Waveney.

The Met Office categorises East Anglia as one of the driest areas of the country with an average rainfall of below 700mm per year. They also describe the area as follows:

***'Farming is an important activity in East Anglia and Lincolnshire and it is the chief cereal growing area of the UK, the main crops being barley, wheat and sugar beet.'***

Given the current world issues with food supply and the rising cost of living, it is imperative that Suffolk protects the food supply generated in the county by ensuring that farmers have access to the water they need for food production.

### **Coastal environment and Ecological impact**

Suffolk Wildlife Trust has emphasised that the proposed power station's location in "such a wildlife rich, fragile" area on the Suffolk coast would be "catastrophic for UK nature".

As part of the 30 by 30 pledge, the Government announced greater protections for England's iconic landscapes, promising to designate more AONB's and protect and restore the 'natural environment and diverse ecosystems.' Sizewell C would cut through the Suffolk Coast and Heaths AONB, damage the RSPB Minsmere site and cause irreversible damage. We will not be able to solve the climate crisis if we continue to destroy natural habitats that lock up carbon. Sizewell is not the right location for a new nuclear reactor.

Additionally, there should be very serious consideration given to the fact that coastal erosion in Suffolk is a huge issue of concern, making it a very valid to ask:

**Should you build a critical infrastructure project on some of the fastest eroding coast in Western Europe?**

<https://www.eastsuffolk.gov.uk/environment/coastal-management/>

**'We have many miles of beautiful coastline to explore and enjoy but it is also some of the fastest eroding coast in western Europe.'**

Thank you for your time.

Regards,

Erica Rae -

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 15:36:56

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Wondering if you have experienced the roads in this part of Suffolk, we are not going to be able to sustain the traffic that will be required in the building of this outdated form of energy. I am also concerned about the impact on our coastline which is already eroding and the damage to Minsmere which is a protected site. This needs to be stopped before it has begun, the estimated costs keep rising and local people are going to be paying for this

Jean Short  
Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Date:** 23 May 2022 15:54:31

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Although there will be local people who will benefit from a new power station there will also be a lot of losers. For example The vulcan arms we have spent the last 22yrs building a good reputation serving locals and visitors alike. But I can't see many people wanting to visit or stay on our campsite. Because nobody wants to work all year for a holiday in a building site or for a day trip come to that. My parents will probably lose their home and we all lose our lively hood and no compensation has been offered. Just the prospect of hundreds of lorries rumbling past every day 24/7 . That's not mentioned the outstanding cost to the public or environment. And nobody has ever explained how radioactive exposure will work with more outages

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C Planning Application  
**Date:** 23 May 2022 16:01:36

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Dear Sir/Madam

I am writing to object to the building of Sizewell C on the Suffolk Coast. My objections are:

- The coast is eroding and therefore the wrong place for a nuclear power station-EDF still haven't completed a geological study
- The area is an Area of Outstanding Natural Beauty and another nuclear power station will destroy much that people love about the area
- Minsmere a reserve with an international reputation will see the destruction of habitats and lighting and noise from construction will reduce wildlife
- The tourist industry, that supplies many of the local jobs, will be negatively impacted
- The infrastructure, roads and rail cannot cope with the number of vehicles needed if construction is approved
- EDF have failed to consult meaningfully with local people
- Decommissioning of nuclear power stations runs into billions of pounds, takes many years and no suitable sites have been found. Adding more nuclear power stations will simply add to this enormous problem.
- Nuclear power is not green or renewable, but it is the most expensive alternative energy to replace fossil fuels.
- The jobs created will be very few for local people as most will be recruited from Hinkley
- EDF can't source the water needed and this is the driest part of the UK
- The government should not have committed tax payers money to the Sizewell Project before the Planning Inspectorate had made their decision. The government is therefore pre-determined and as such should have no say in the Planning Inspectorate's final decision.

I trust you will listen to the many informed objectors and refuse planning approval

Kind regards

Wendy Brooks

[REDACTED]  
[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell c  
**Date:** 23 May 2022 16:07:12

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- I object to the plans because the site would ruin an AONB site, damage RSPB Minsmere and is a panic solution to a problem that has other answers.
- Big nuclear is too expensive, dangerous, has appalling long-term waste disposal issues.
- Let's have a small Rolls-Royce reactor
- The surrounding roads are inadequate
- The coastal defence is too vulnerable
- Leaf Kalfayan, [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 16:09:27

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Dear Planning Inspectorate,

I would like to voice my concerns about the advantages and disadvantages that I think exist.

These range from geopolitical to environmental subjects, and this in turn affects the price we pay for our electricity.

Sizewell C would bring jobs, economic prosperity and lower energy costs to millions of people around the world. However, the disadvantages would be that vast amounts of natural habitat is destroyed, and the cost of infrastructure decommissioning would be astronomical. The whole life cycle of the system needs to be included. I do not think that leaving our children, grandchildren and great grandchildren to clear up what we have done is the responsible thing to do.

There are political issues, too, with our latest government clearly being uneducated about the long term effects on the environment, but then again, the only thing the government appears to be concerned with is indeed winning the next general election, not the livelihoods of the people in the vicinity.

I would urge you to put local issues before national political issues, as we all know that successive governments have their own agendas and these differ from the last, quite considerably. But the people living in the vicinity do not change, and it's them we really need to listen to.

I do not support the construction of a new nuclear site at Sizewell C, because there have been many objections to it, stating that in principle, nature is more precious to our existence than that of even ourselves. Nature was here before us, and therefore, I believe that in order to protect our world and climate, we have to make sacrifices, and not using natural resources to our own ends is indeed what we must do.

Kind regards,

Alastair Carr

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 16:11:50

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Dear planning inspectorate,

Please don't allow Sizewell C to be built. I grew up [REDACTED] and now I live in [REDACTED]. I know that more people will move into the area and it will temporarily boost jobs, but this will not be long lasting and the people of Leiston, and the surrounding area will not benefit - exactly as happened with Sizewell B.

The blight that building Sizewell C would cause to the lives of all of us in the area, the loss of tourism, the loss of tourism jobs, the loss of wildlife habitats and the danger to wildlife in the SSSI, the loss of wildlife conservation jobs and opportunities, and for such a long time is just not going to be worth it. The mental health of all of those who would be disadvantaged by the construction of the project would be devastating and expensive.

Setting a major piece of the national energy infrastructure on an eroding coastline in a time of rising sea levels is madness itself.

As I understand it, the construction of Sizewell C itself will not be able to be started without huge upheaval and an unbearable burden for the roads and local people - the water that is going to need be brought to the site is just one thing that will be unbearable and untenable.

Surely a solar farm and battery storage system would be a better use of the space? Less intrusive, still creating jobs and electricity...

Thank you for considering my voice,

Sarah Rogers

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Not in the interests of the country.  
**Date:** 23 May 2022 16:47:22

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Dear sirs,

I have so many objections to this project that I would be unable to go into them in an email.

Suffice to say that I believe this to be against the interests of all the people of this country and the planet.

Hopefully the folly which is this project will be stopped.

Yours N B

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Serious concerns regarding potential Sizewell C development  
**Date:** 23 May 2022 16:48:42

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To whom it may concern,

I am writing to you to express my deep concerns as a suffolk resident about the plan to build Sizewell C.

Aside from the enormous increase of traffic in an area often already under pressure at times and the potential loss of tourism revenue which our beautiful area depends on (and the jobs that come along with it) I cannot believe that in 2022 with the UK's already catastrophic loss of wildlife that this build could be allowed to go ahead.

Sites of Special Scientific Interest are the most protected environments by law and it should be inconceivable to even think of building on or next to them.

As I'm sure many suffolk residents, along with the experts, have already told you, Sizewell beach, Sizewell marsh and RSPB Minsmere support a vast array of species (6000 in Minsmere's case, including red-listed Marsh Harriers, as well as red throated divers, bitterns and adders) that require precise conditions to exist and thrive.

I cannot fathom how Grayling butterflies (a biodiversity action plan listed species in decline) can just have their habitat buried under concrete. It is time to assist our wildlife not destroy it.

EDF say other sites will make up for this loss but I doubt they will be as extensive or in the perfect coastal spot as the one where our wildlife currently lives. Again they do not state definite plans. We cannot commit to what we don't have answers too!

The threat of the flooding of Minsmere alone should have been enough to halt this plan. EDF seem to only pay lip service to our concerns and never give definitive plans to mitigate these issues. I have NO faith that they will come up with effective solutions.

We are lucky enough to live in this spectacular part of the world and the thought of it buried under concrete, flooded by tidal defences around the plant and bombarded with 24 hour lights, pollution, noise and traffic is unbearable.

Especially not when there are renewable, greener alternatives to the planned ridiculously expensive and quite frankly unsafe EPR that EDF propose. This plan was created when there were fewer alternatives and plans should change with the times. This project is wrong for our area, an area at serious threat of erosion, and quite honestly wrong anywhere.

Last of all the people of Britain cannot be asked to pay for it. Things are hard enough. If we are going to be crippled by energy costs, let it be to move toward well insulated homes run on green energy owned by all, not to line EDF pockets.

Yours sincerely

Mrs Calee Fitches

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell  
**Date:** 23 May 2022 17:21:08

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To whom it may concern

We are emailing you to lodge our strong objections to the proposals for Sizewell, due to our grave concerns.

The uncosted plans are totally inappropriate for this precious and much protected site, as shown so clearly by the RSPB very recently.

The coastal defences are not yet proved to be sufficient with consequent potential flood risk; there is not space for the proposed site for desalination and the rewilding proposed is not equal to the loss of Coronation Wood (how ironic in this Platinum year).

Previously quiet villages and inadequate roads will be fundamentally changed for the worse due to traffic, pollution, noise and consequent dangers.

The storage, removal and decommissioning of the nuclear/radioactive waste is of ever-continuing concern, increased by the recent attack on Chernobyl, bringing home the everlasting dangers of nuclear power.

We beg you to listen to these heartfelt concerns of us and many, many others.

Yours faithfully,  
Graham and Janet Staveley-Dick  
[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** STOP SIZEWELL C  
**Date:** 23 May 2022 17:45:19

---

Dear Sir

I've never written a letter or email like this before but am moved to do so now!

I live in Suffolk. A beautiful county with huge natural diversity that I and so many others enjoy year after year.

SIZEWELL C will ruin all that inspite of any reassurances...

EDF have a terrible reputation of not finishing projects, over spending and failing in their duty of care to the areas where they build.

EDF have been arrogant to say the least in their assumption that we'll roll over and allow this project to go ahead.

Traffic will become even more appalling along the coast with HGVs and worse ruining the lives of locals and holidaymakers alike.

Villages and livelihoods will be wrecked.

AONBs will be destroyed.

The so called benefits of this project will not be reaped for decades!

Please don't go ahead with this!!!

There are other ways that must be investigated. We are an island and have so many natural resources to harness. We have brilliant scientists who are creative and can think outside the box LISTEN TO THEM!

Please don't scrimp for the sake of a relatively few pounds when long term investment well placed will secure energy and our beautiful landscapes for the future!

For the sake of all that we love about Suffolk and the East Coast please do not go ahead with SIZEWELL C.

I look forward to hearing more so please include me in any updates and add me to your mailing list.

Yours faithfully  
Maria Boyle

Maria Boyle  
[REDACTED]

**From:**   
**To:** [Sizewell C](#)  
**Subject:** Sizewell C Proposed Development  
**Date:** 23 May 2022 17:46:38

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Attention: The Secretary of State,

### **Planning objections to proposed development of Sizewell C**

*Registration identification number 20026473.*

I am resident in Yoxford in Suffolk, and in response to EDF's planning submission for Sizewell C, I would like to register my opposition to the scheme.

As well as all of the compelling arguments about cost, relative value to the taxpayer, timelines and security, none of which compare favourably to alternative schemes for supplying energy, especially forthcoming small modular nuclear reactors, there are many other areas under which Planning should reject the development of Sizewell C.

### **Water Supply**

Very late in the day, EDF have realised that there is a major problem with obtaining enough water to supply the project.

They project that the proposed nuclear plant will consume up to 2.8 million litres of water per day when operating, mainly for cooling, a figure which has increased since plans were first drawn up. Essex and Suffolk Water (ESW) has always been clear that there is not enough water in the area with the nearest river, the Blyth, being too small to supply the amount needed.

Instead it planned to pump water from the River Waveney at Barsham to make up for the shortfall. The Environment Agency (EA) has told ESW that it will have to reduce the amount of water it lets it take from the Waveney, because of pressure on the river. Modelling shows the cut could be up to 60%, which would mean Sizewell C cannot be supplied from the Waveney.

The Met Office categorises East Anglia as one of the driest areas of the country with an average rainfall of below 700mm per year. They also describe the area as follows:

'Farming is an important activity in East Anglia and Lincolnshire and it is the chief cereal growing area of the UK, the main crops being barley, wheat and sugar beet.'

Given the current world issues with food supply and the rising cost of living, it is imperative we protect the food generated in the county, and indeed look to grow more to enable a greater degree of self sufficiency for the whole country, by ensuring that farmers have access to the water they need for food production.

### **Disposal of Waste**

There is no adequate current or long term strategy for the safe storage and removal of nuclear waste at a national level. This project only serves to increase that risk.

An assessment by the Nuclear Decommissioning Authority (NDA) says spent fuel from new nuclear reactors will be of such high temperatures it would need to stay on site for 140 years before it could be removed to a GDF.

The UK already 'stores' 700,00 cubic metres of toxic nuclear waste. Almost 50 years ago, a (GDF) deep geological disposal facility was proposed. Decades later, the UK is no nearer to building one.

Additionally the cost of decommissioning and disposing of the country's radioactive waste has risen to £131bn

Compounding the problem, by creating another stockpile of dangerous nuclear waste in Suffolk is undeniably short-sighted at the very least.

### **Pollution/Emissions:**

EDF's proposal estimates increased road traffic at between 450-750 HGV's per day.

Heavy goods vehicles (HGVs) are estimated to account for around 17% of UK greenhouse gas (GHG) emissions from road transport and around 21% of road transport NO<sub>x</sub> emissions, while making up just 5% of vehicle miles. The Government has stated that meeting our climate change targets will require GHG emissions reductions across all sectors of the economy, including road freight.

The government has a stated commitment to improving UK air quality and has published increasing evidence that air quality has an important effect on public health, the economy, and the environment. According to Public Health England, poor air quality is the largest environmental risk to public health in the UK<sup>1</sup>. Evidence from the World Health Organization (WHO) shows that older people, children, people with pre-existing lung and heart conditions, and people on lower incomes may be most at

EDF's proposals do not adequately prescribe the emissions standards of either freight vehicles, or local supplementary supplier traffic.

What is in no doubt, is the inevitable negative impact on the health of local people due to traffic pollution.

### **Transport & Safety**

In a rural area with an economy largely based on agriculture and tourism, it is of the utmost importance that those requirements are balanced with the transportation needs of such a large infrastructure project.

The Sizewell C Link road which EDF has proposed, will remove some local traffic from the B1122 but is not the best solution for local residents or tourists.

- The Route W (D2) favoured by Suffolk County Council and other parties is an option which would provide the best transport outcome and also provide a legacy for the local area.

- The Link road will not be operational in advance of work starting and will therefore penalise local residents with a huge influx of polluting heavy goods traffic affecting air quality and noise levels.

There are also serious safety concerns for residents. The current road proposal does not adequately provide for

safe, fast evacuation plans in the event of any accident or emergency at Sizewell.

According to NHS England data, in December 2021 Suffolk had an average response time for ambulances of 61 minutes. The government target is to respond in an average of 18 minutes and to respond to 90% of them within 40 minutes.

EDF's proposal for Sizewell C will substantially increase road traffic, and significantly exacerbate this risk for residents.

### **Coastal environment and Ecological impact**

Suffolk Wildlife Trust has emphasised that the proposed power station's location in "such a wildlife rich, fragile" area on the Suffolk coast would be "catastrophic for UK nature".

As part of the 30 by 30 pledge, the Government announced greater protections for England's iconic landscapes, promising to designate more AONB's and protect and restore the 'natural environment and diverse ecosystems.' Sizewell C would cut through the Suffolk Coast and Heaths AONB, damage the RSPB Minsmere site and cause irreversible damage. We will not be able to solve the climate crisis if we continue to destroy natural habitats that lock up carbon. Sizewell is not the right location for a new nuclear reactor.

Additionally, there should be very serious consideration given to the fact that coastal erosion in Suffolk is a huge issue of concern, making it a very valid to ask:

Should you build a critical infrastructure project on some of the fastest eroding coast in Western Europe?

[REDACTED]

Yours sincerely

Charlie Sayle, [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to planning for Sizewell C  
**Date:** 23 May 2022 17:46:53

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Dear Sir/madam

I am writing to object to the plans for sizewell c. In particular there are many areas in the plans which have not been addressed satisfactorily namely:

- the lack of fresh water to supply the plant
- the lack of link road to mitigate impact on local communities

Both of these issues will have a huge impact on my parents who live on the road to size well.

I have grave concerns about the impact of the eroding coastline on the site and any waste product store there - which is surely will be with no concrete plans for removal.

The impact on the wildlife in the area will be catastrophic from minsmere to the size well site of special scientific interest. And all in the name of ludicrously expensive white elephant which will be obsolete years before it's completed. New technology in nuclear for smaller reactors and more importantly renewable energy technologies need our investment not this plan which will undoubtedly make the Uk even poorer.

Regards

Gill Parnaby

[REDACTED]

Sent from my iPhone

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Stop Sizewell C and D - it's too expensive and takes too long  
**Date:** 23 May 2022 18:02:13

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Wait and see if Hinckley ever delivers?

Renewables will be much faster and alternative energy technology can be sold to individuals by British companies. EDF is French and will be largely reaping the profits forever.

There is a problem in providing enough water for Sizewell, with no desalination plant built in time.

Nuclear power stations make our country a sitting target for Putin who we cannot trust.

Margaret Douglas

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** Sizewell C & Thermal Pollution of the North Sea  
**Date:** 23 May 2022 18:10:11  
**Attachments:** [Sizewell Planning.docx](#)

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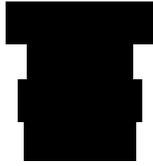
To The Planning Inspector for the ***Development Consent Order*** for the proposed Construction of Sizewell C Power Station.

Please find the attached letter explaining why, after much consideration I conclude that;

1. The plant's construction would result in immediate damage to the local coastal environment;
2. It would be warming the North Sea;
3. It would be in direct conflict with efforts of people and governments who trying to comply with the IPCC's dire warnings about global warming.

John Tomlinson,

[REDACTED]  
[REDACTED]



21<sup>st</sup> May 2022

The Planning Inspector,  
Sizewell 'C' Planning Enquiry,

Dear Planning Inspector,

### **Sizewell 'C' & Thermal Pollution of the North Sea.**

I write to express my concern about the new Power Station (SZC) proposed by EdF and their Chinese partner CGN. I have worked as electrical engineer/technician in the nuclear industry for many years including Hinkley Point with the CEGB in the 1980's. Now retired, I continue to take a close interest in future developments as a climate-conscious consumer.

The *Department of Business Energy and Industrial Strategy (BEIS)* say they are ***not responsible*** for ***climate and environmental issues***, and that any potential environmental impact of the proposed plant would ***be a matter for consideration at this Planning Enquiry***.

Not until very recently have people been unduly worried about scientist's warnings of global warming. We have been blissfully unaware that we have been warming the world throughout the 19<sup>th</sup>/20<sup>th</sup> centuries. Only now are we waking up to notice that polar ice and glaciers are melting. The thermal capacity of the deep oceans and the latent heat capacity of melting ice have been storing the excess heat created by humanity over the past 200 years, while deceptively showing only a degree or so rise in average ocean temperatures. The recent occurrences of extreme climatic events have impelled me to look into lesser-known facts about nuclear power generation, and its contribution to global warming.

The plant under consideration will have an electrical power output of 3 Gigawatts and a designed life of 60 years. The reactors produce an enormous amount of heat to raise steam to drive the turbines. For the turbines to work, the heat in their exhaust steam has to be removed by condensing. Coastal power plants use cold seawater instead of river water and cooling towers needed for inland plants. Hinkley C, (of which SZC is a copy), extracts 120 tonnes of cold water per second, and discharges it into the Bristol Channel about 12C warmer. This equates to a heating power of over 6,000 Megawatts; *double* the electrical power generated. As far as I know, ***Sizewell C will use the same method of direct cooling as HPC***, and would be directly releasing huge quantities of heat to the North Sea for all the time it is operating, which could be as long as 60 years.

The German environmental monitoring station on Heligoland has reported that average temperatures in the North Sea had risen by 1.7 C during the past 45 years, and was expected to reach 3 C by the end of the century. (This should not be surprising when one considers emissions from plants on rivers of all countries surrounding the North Sea; particularly from industries on the Rhine). Only last week, a report by the Met Office said that temperatures in Arctic regions are rising three times faster than ocean temperatures and will therefore have much earlier effect on ice melting. Warm surface water tends to drift north-eastward around Norway into the Arctic region.

The consequences of continued polar ice melting would surely lead to accelerated solar heating, which would lead to increased permafrost melting, and the release of trapped methane gas into the atmosphere, causing unstoppable thermal-runaway with devastating effect.

Warming sea around our coast may not be a worry for most people alive today, and some will welcome a warmer climate. However, it will undoubtedly be a serious problem for our grand-children and children yet unborn. The government, it seems, does not have a consistent plan for the country's energy supplies, and allows the free market, (which is largely foreign-owned), and random events to determine outcomes. A critical decision soon to be made will have consequences for the future of our people, not just for a lifetime, but permanently. It is up to wise councils to advise our government on the importance of thought-out policies for getting a **level balance between current energy demands and consequences for the climate.**

There are a many draw-backs to Edf's proposed design, which collectively, I think would justify its abandonment, and I have addressed these in some detail to a number of government officials in positions of influence. I have suggested that **small modular reactors, (SMRs)** would be better suited for this location, and for diverse adoption in the UK generally to satisfy base-load requirements.

But the fundamental failing of the proposed plant is the sheer scale of it. The volume of its thermal emissions runs counter to all the other efforts being made by millions of people trying to keep the world's temperature below the critical 1.5C set by the IPCC.

***Unless EdF can produce some concrete evidence that they can effectively counteract or mitigate the damaging effect of thermal emissions, this plant should not be given approval.***

I would urge the Planning Authority to severely question the **Environmental Agency** about this problem, as they appear to have been non-committal about thermal emissions to international waters. It would be the height of absurdity to allow plants of this scale to be warming the shallow waters of the North Sea for the next sixty years while the nearby Danish wind-turbines are generating **electricity coolly and sustainably, directly** from natural forces!

Yours faithfully,  
John Tomlinson



**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Response to the proposal for Sizewell C & D developments  
**Date:** 23 May 2022 18:26:52

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To the Secretary of State:

I am an ordinary resident, not a scientist or someone with technical knowledge or having had long-term discussions with experts. This response is from my own heart and knowledge I have acquired over the years of being a local resident. I live in [REDACTED] and used to live in [REDACTED] and have a total of 22 years residency.

You have received numerous responses from local individuals and expert teams who've in-depth argument and cases against every aspect of your proposal. So I don't intend to copy any of these or repeat their cases. I am speaking for myself, my family, my future generations and only about how this proposal impacts on me and my community as I experience it.

For ease of explaining my main points, I've listed three main ones:

**Transport:** so, the small lanes and roads already causing congestion from peak time and holiday periods to our roads, will be filled even more so by the traffic bringing workers and materials into and out of Sizewell. The roads just can't take this pressure - pitted tarmac, nose-to-tail queues all the way back from where the A12 becomes a single lane each way will put enormous pressure and increase pollution here. Many locals depend on tourism, the congestion will certainly put tourists off visiting. Even now, a small incident on the A12 requiring traffic to bypass via the village is a huge issue. These problems were definitely here during the construction of reactors A and B, and this proposed development is massively larger.

**Dangerous materials:** this proposal locks-in spent nuclear rods for many years, already the spent rods from the A and B sites are at risk due to longer term erosion and sea flooding. These will all be a risk and danger for many years. Adding more to this tiny coastal area seems reckless and for local people, feels like the Government is targeting our communities. I mean, not only is the development proposal of Sizewell C and D design already out of date and possibly causing problems for similar designed reactors in France and at Hinkley Point, there seems absolutely no argument that can justify this? Alternative sources of energy and even the recent smaller Rolls Royce nuclear power stations are more forward-looking, environmentally friendly and less risky. Why and how can the Government deliberately put our community at risk?

**Water supply:** I have read that there is a need for the supply of fresh water. Since already the whole area is dry, the only solution is to build a whole desalination plant to supply Sizewell. This is incredible! It wasn't first considered as a vital addition to the building of the reactors, but only last minute! What else has been not thought about? There are so many complex issues attached to building on this site, it is unbelievable that it is still something that might be given serious consideration.

**Biodiversity and wildlife:** well, I don't need to add to the in-depth arguments and cases brought by RSPB and Suffolk Wildlife Trust. I am someone who has enjoyed the beauty of that special landscape over many years. My parents (who lived in Norfolk) brought me to RSPB Minsmere since 1970s and I've moved into the area in my retirement to continue to enjoy seeing the growth of biodiversity and wildlife in the area. Re-introduction of species, increased purchase of land to have a succession plan as the coast here is so vulnerable to

erosion. Yet here we have a plan that will be so disruptive to wildlife we may lose all the years of work already taken to expand it. Creating areas such as I've seen opposite the recycle centre at Leiston and making out that this is some sort of compensation for the whole heath land and marshland around Sizewell is nothing less than an insult to the experts that have been working here on securing the future of its special area for wildlife and biodiversity.

I have not got more to say other than I am so utterly depressed by the prospect of this development, it is having an affect on my well-being. There is nothing I've read from you that comes through my door, or been explained to me in consultation meetings I've been to, that makes me feel I have any confidence in this plan. It is just a dreadful imposition and a backward-looking proposal. I am sad, shocked and dismayed that it is still being given ministerial time and public funding when it clearly should have been taken off the table. It's not too late. Don't let it become something that goes so far, you're unable to withdraw it.

I think that's all I can say. I am an interested party, although I don't think I have a number. I hope you read this and actually take in the deep feelings I have and lack of confidence in ministerial decisions.

Yours sincerely,  
Ann Follows  
Ms Ann Follows



**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Soaring cost of Sizewell C and D  
**Date:** 23 May 2022 18:27:12

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Based on Hinckley where costs are spiralling and no sign of completion, look to British solutions.

Smaller faster built technology will solve the problem. British companies can sell heat pumps, solar panels, wind power / all achievable before the now forecast 17 years to build Sizewell.

Profit for British companies or a French National industry?

The chaos caused by the scale of this will depress the Suffolk economy. The skilled workers will not be local people who will lost all the current jobs in the tourist and hospitality industries which are thriving.

M. Douglas

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to proposed Sizewell C nuclear power reactors  
**Date:** 23 May 2022 18:47:16

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I have been a resident of [REDACTED] for some years, living in [REDACTED] and more recently [REDACTED]. Both my wife and I work locally. In my opinion the proposal for Sizewell C has blighted the area for years. The site is not large enough for the proposed double reactors. It is right next to RSPB Minsmere and will devastate the reserve with the disruption through construction noise, 24 hour light pollution. There is insufficient road infrastructure and the thousands of vehicle journeys will clog our roads and devastate communities between the A12 and the construction site. Our housing stock is I'll equipped to cope with the demand contractors will make for houses of multiple occupation. The proposed construction of the campus will destroy the small hamlet of Eastbridge.

Costal erosion will undoubtedly impact on the site or from the site. Big defences around the site will speed up erosion elsewhere along the coast.

All in all the massive reactor and its construction is in the wrong place.

If none of this persuades you. The eye watering costs that will surely escalate out of control and if EDF's management at their other reactor sites will run on for years. The construction takes too long to be an answer to the crisis we face in our spiralling energy costs

I strongly urge you not to proceed with this project.

Regards  
Andrew Jones

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 19:32:47

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**Dear Mr. Secretary,**

I am writing to raise a series of questions about the plan for Sizewell C. Each question signifies a serious concern so, overall, the ten questions indicate that I object strongly to the plan.

I have tried to understand the rationale behind proceeding with the Sizewell C project but have found no convincing arguments. Rather, there appear to be a huge number of arguments against this solution to the energy and climate crisis our country faces.

As I understand it, the arguments in favour appear to be that:

### **Argument Pro 1**

#### **Sizewell C is an essential stop-gap in light of a current and increasing energy shortage/crisis**

Sizewell C is clearly not up to this challenge: it is demonstrably neither the most economic nor the most efficient option. Crucially, it will not be on stream before other options could be and is likely to be more expensive and more unreliable than alternative energy sources.

The technology it uses has been shown to be flawed. Building will take more than ten years, producing energy efficiently will take even longer and there are **grave** doubts, given the situation with the reactor in China (out of commission for nearly a year), about whether, due to the serious design flaw that has been identified, which cannot at present be rectified, it will ever function effectively.

#### **Question 1**

**Given these problems, how can Sizewell C possibly be a sensible stop-gap option?**

### **Argument Pro 2**

#### **Surveys have shown that local people, by and large, are in favour of it**

This is blatantly untrue. No survey (some have been flawed both in design and interpretation) has shown majority support for Sizewell C. The majority of people are against it. More importantly, a lot of people who are against it have given up objecting because they feel it's a 'done deal', a stitch-up with hidden benefits for politicians in power but with absolutely no benefits for anyone else or for the environment.

#### **Question 2**

**Where is the evidence of local support for the construction of Sizewell C?**

#### **Question 3**

**What are the hidden benefits to politicians?**

#### **Question 4**

**What has happened to democracy under the Tories?**

### **Argument Pro 3**

#### **It will bring much-needed jobs and skills to local people**

This, again, is not true. It will damage the local economy, especially the tourist industry on which many people in Suffolk depend. The jobs available to local people, like those available during the construction of Sizewell B, are unlikely to be well-paid. There is no evidence that sufficient training for better paid jobs will be given to local people.

#### **Question 5**

**Has a rigorous cost-benefit analysis been carried out to prove that the benefits are greater**

**than the losses to local workers? Without this, what justification can there be for proceeding with Sizewell C?**

#### **Argument Pro 4**

##### **It is the cleanest greenest and most economic solution to the current energy crisis**

Again, this is not the case. Nuclear power is not a clean solution. It generates lethal amounts of waste that will be a danger for hundreds of years to come. Nuclear power is not a green solution. It requires huge amounts of fossil fuel to construct and to maintain. Nuclear power may have appeared to be a sound economic investment back in the last century. Now there are many more efficient, less costly, less dangerous, more eco-friendly options that are far more worthy of investment than the out-dated reactor being considered.

#### **Question 6**

**What justification can there be for going down the nuclear route when so many less costly and more eco-friendly solutions are available**

#### **Argument Pro 5**

##### **Any damage to the SSI sites or the AONB areas will be offset by creation of new habitats**

There is no convincing evidence that the extent of damage and disruption in the area around Sizewell through the decade+++ that it will take to build Sizewell, combined with rising sea levels, will be anything less than disastrous to wild life. This part of Suffolk has always been a quiet and relatively inaccessible area, if anything a bit behind the times. It is because it is relatively untouched that unique habitats have survived.

Sizewell C will create an ugly agricultural waste-land. Roads and villages for miles around will be polluted by heavy fossil fuel driven lorries and other traffic. Idyllic seaside resorts will be ruined. All forms of wild life will be affected.

#### **Question 7**

**What justification can there be for this degree of destruction in an area that should be being protected not further threatened?**

#### **Argument Pro 6**

##### **Sizewell C offers a home-grown solution to the current energy crisis**

This is clearly not the case. This technology is not designed in Britain. Many components are not built in the UK. It requires plutonium to run. Plutonium is not available in this country.

#### **Question 8/9**

**Will Russian plutonium be used and, if so, is this an ethical option at this present time?**

#### **Argument Pro 7**

##### **Progress on Hinckley Point C has proved that the commitment to a series of nuclear power stations is OK**

This is the least tenable argument. Hinckley Point C has been developed despite countless questions about the democratic basis for decision-making and its complete failure to meet promised timetable schedules or to stay anywhere near the proposed budget. It is now far behind schedule and more than 50% over its budget and cannot in any way, given how quickly and far alternative technologies have advanced, be seen as a sound or sensible use of **public not government money**.

Already, Sizewell C is going over budget in the same crazy way. How could the need for a desalination plant have been overlooked?

It is the public who have to foot the bill for Sizewell C and the bill is going to be MASSIVELY

MORE than that for alternatives. What's more, putting more money into this now outdated technology means there is less available for more eco-friendly solutions.

**Question 10**

**How can this Government justify a project that is clearly not financially viable?**

Going ahead with Sizewell C will show how little this Government cares about public opinion - another step towards disempowerment of ordinary people. Admitting that Sizewell C and the EPR is not the right way to go would demonstrate considerable moral courage and honesty. We wouldn't have got to where we are with the pandemic if the Government had not listened at least a bit to the scientists. The energy and climate crises need to be solved with reference to sound evidence. More respect needs to be paid to the sound scientific arguments.

These old-style nuclear reactors are just not viable! Other solutions **ARE** available - wind power, solar power, wave power - if we pay more attention to the problem of storing energy and focus less on destroying our precious island, surely this would be a better way to go? Sizewell C is not the right solution.

I urge you, please, to respectfully consider these objections.

**Yours sincerely,**

**Dr. Helen Barrett**

A solid black rectangular redaction box covering the signature area.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 20:04:57  
**Importance:** High

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As a resident of [REDACTED] I have become increasingly concerned about this planning application from EDF in relation to the building of Sizewell C

The road structure that needs to support Sizewell C is far in excess of the are currently road system which is inadequate. The small villages that exist between the A12 and Sizewell will be severely impacted by the constant and heavy traffic that would be required to build such a power station. There would also be considerable negative aspect to the heavy traffic such as noise disruption and pollution to both local residents and visitors to the area. As a regular cyclist who currently uses these roads I know that should Sizewell C be built I would not be able to use these roads as they would be unsafe to cyclists.

I am a RSPB and National Trust member of many years and I have increasing concerns about the habitat around Minsmere and all along the coast from the current Sizewell B to Dunwich. The amount of rare habitat and the fragile environment that currently exists there will be damaged beyond existence if this project is approved. As a SSSI Minsmere offers considerable benefits to all of its surroundings, the heathland, marshland and sea. The area is unique in so many ways both fauna and flora and supports a huge amount of birdlife, insects, butterflies, bees and other animals. In addition it brings significant benefits in terms of tourism and income as well as employment to the area. It attracts people from all over the country to this special place.

I do not believe that EDF have considered the negative impact that building such a power station in this SSSI area and have failed to consider the consequences this would bring if it was built.

Finally I believe that far more has been achieved in recent years in terms of energy security and that both wind and solar offer far more in terms of cleaner energy. We need to consider all of these issues before we commit to building a huge nuclear power station that is beyond the nations budget that will not deliver for decades to come. EDF cannot afford it with our government funding - or our tax payers funding and the sooner government recognises this the better it will be for the whole nation.

April Lawlor  
[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to sizewellc  
**Date:** 23 May 2022 20:23:53

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Too little, too late and too expensive.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 20:28:56

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Dear Mr Kwateng,

I wish to let you know that I strongly oppose another power station being built at Sizewell. I live around 40 minutes away from the proposed development.

The area is an area of natural beauty, with wildlife in abundance. The negative impact on the biodiversity and visual beauty of the site, access and a large chunk of our heritage coast will be huge.

Aside from the safety concerns of such a project, (potential nuclear waste issues, sabotage etc) I implore you to say NO to this development.

Yours sincerely, Emily Mills

Get [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for The Sizewell C Project  
**Date:** 23 May 2022 20:43:55  
**Attachments:** [2022-05-23 nb to PINS writrep.docx](#)

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Dear Sir/Madam

Please find attached my objection to the above application.

Despite his statement suggesting he regards this as a done deal, and his blatant disregard for due process, I would like the Secretary of State to read this please.

Kind regards

Nick Burfield

[REDACTED]

## By on-line submission to PINS



Unique Reference: 20025887

23 May 2022

### **Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for The Sizewell C Project**

I understand that I have one more opportunity to comment on the above application before the Secretary of State makes his final determination (although he is already speaking of that as a done deal so I must hope that he will read this with an open mind despite his blatant disregard for due process).

There are many reasons why I still object to the application, not least: the inadequate plans for providing the necessary road and other infrastructure in advance of starting work; the negative net impact it would make on local economic and business development through disinvestment and displacement; poor planning with regard to coastal erosion and its mitigation; an unrealistic end date for the removal of all spent fuel and decommissioning; enduring and significant site flood risk; the lack of a potable water supply plan for the operational phase of Sizewell C; fallacious claims with regard to biodiversity net gain; inevitable and massive biodiversity damage; and inadequate assessment of the capacity of the geological strata beneath the proposed construction site to underpin the main nuclear platform.

Down the road there would of course also be the impossibility of securing private sector investment despite the Government's willingness to squander public money (not Government's money; public money!) by way of a 'softener'. And all the time it is prepared to waste time, when the full potential of renewables, a comprehensive plan for energy conservation and the like, could deliver for the UK immediately had Government the will or the wit.

To reprise my previously-notified objections and to confirm the detail of my continuing objections they are that were it to proceed the project would:

- Desecrate the Suffolk Coast and physically divide the remainder of the AONB;
- Have a hugely negative impact on internationally-protected habitats including RSPB Minsmere (designated SSSI, SPA, SAC, Ramsar), the Sizewell Belts and Dunwich Heath;
- Cause immense harm to significant populations of rare birds, animals and plants (for example marsh harrier, bittern, bearded tit, otter);

- Drastically reduce our natural capital;
- Permanently damage Suffolk's very significant and thriving tourism sector;
- Hollow out and destroy, for limited and short term benefits, any local businesses unable to pay competitive wages;
- Reduce and deflect other business stability and investment otherwise attracted to remain or locate in the area for the high quality of life;
- Completely overload the A12 and the local road system with catastrophic environmental, social and economic consequences;
- Position new nuclear operational capacity and the long-term storage of waste on an unstable and insecure site;
- Divert public and private investment to support a technology and industry that is failing elsewhere and is in decline;
- Fail to deliver significantly on local jobs, despite EDF's claims;
- Undermine the Government's policies to level up the UK economy; and
- Rely on significant public financial support through the introduction of the Regulated Asset Base funding model, in straightened economic times: a "nuclear tax" on bills that would be disproportionately felt by those on low incomes which Minister Kwarteng has said could not bypass the government's balance sheet and would be looked at or scored as government debt.

Finally I want you to hear exactly what this application, were it to succeed, would mean to me and to many businesses and individuals like me.

In the middle of last year I chanced upon an elderly lady, along with her daughter and granddaughter, at RSPB Minsmere where I am a volunteer guide. They were looking for 'grandad's tree' and it soon became apparent that they were trying to relocate the spot where, a couple of years previously, they had scattered grandad's ashes.

We spoke for a little while about the man, his wish for his last resting place to be Minsmere and the family's feelings about the importance of choosing somewhere so unique and special for remembrance. I understood those feelings well enough because my late wife's ashes are also scattered at Minsmere in a spot that was special to her and remains so to me and to our children.

But beyond such intense personal connections to the place, how do we attribute a value to Minsmere and the wider AONB?

I have been a regular visitor at Minsmere for around 45 years; it was the most special of places during my 30 year marriage and my children spent large chunks of their young lives there; they still visit whenever possible.

But over that same period I enjoyed a 40 year career, in Suffolk, in economic development with a clear focus on securing investment for business growth, employment creation and skills development. I worked for many years for the county council and the chamber of commerce, amongst others.

Alongside a love for the environment and wild places I therefore have a long-standing professional, and pragmatic, commitment to achieving a strong and sustainable economy that works for local businesses and individuals alike.

During my professional life I met and got to know a lot of local businesses, from all sectors and of all sizes. I came to understand very well the challenges that they face and the energy and investment that it takes for them to thrive. Businesses of course are owned, managed and staffed by individuals with their own values and interests and their own reasons for doing what they do and doing it where they do it. It became obvious to me that there is an overwhelming sense in the Suffolk business community of what a special place Suffolk is, with a wonderful and tranquil landscape underpinning an excellent quality of life. That is especially true in and close to the Suffolk Coast and Heaths AONB. This sense of Suffolk as a special place to start up or run a business underpins its entrepreneurial character and gives it deep roots.

This perception has been strongly reinforced since I began volunteering at RSPB Minsmere. As a regular guide over the past ten years I have met countless local business people in 'relaxation mode'. I have come to appreciate the value that they place on being able to balance their entrepreneurial drive and the demands of running their businesses with the need for a special place for rest, recuperation and good old-fashioned pleasure in wild places. These are *the same people* already driving what is a very diverse and successful local economy with good prospects for growth, low levels of unemployment and they are already having to wrestle with labour and skills shortages. Nonetheless the importance of the Suffolk environment – this special place - both roots businesses in the county and attracts them to it whether to establish a business or take up employment.

An unhelpful belief is that the only businesses likely to be adversely affected by the proposed Sizewell C project are those in the tourism and leisure sectors. Certainly those sectors, which are critical to the Suffolk economy, would be very negatively affected by Sizewell C should it go ahead but the impact on the wider business community would also be harshly felt. The proposed project would erode the characteristics and quality that make Suffolk special and would weaken business confidence in Suffolk as an attractive place to remain or in which to locate.

My own convictions are reinforced by the Suffolk local authority-led and New Anglia LEP-endorsed [REDACTED] which through Suffolk Chamber of Commerce hosts 100 prominent business ambassadors. Invest in Suffolk tells potential investors that "Suffolk is one of the most beautiful *and unspoilt* areas in the UK"...with..."a fantastic quality of life".

Likewise the New Anglia LEP [REDACTED] acknowledges that: "the *natural landscape* plays a unique role in creating the '*sense of place*' that makes the area a great place to live, work, learn, invest and do business in..."

The County Council's [REDACTED] similarly promotes the: "excellent quality of life that people can enjoy in Suffolk...*an attractive place for people to live and work*...our longstanding commitment to become the UK's "greenest county".

EDF has failed to take into account, as required by National Policy Statement EN-6, the potential negative impacts on local business retention and future investment by the proposed ruination of this special place. The volume and value of the economic and employment gains created through the proposed project would be more than offset by the very real losses resulting from irreparable disturbance and damage to our environment.

The SZC proposals that would desecrate the area as a special place for joy and remembrance would be equally disastrous for the economy and employment in Suffolk.

Nicholas Burfield

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Response to planning application from Lucia Daniels ref: 20026873  
**Date:** 23 May 2022 20:48:43

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Dear Planning Inspectorate,

It is appreciated that EDF have gone to great efforts with consultations and mitigations over recent months to make their planning application to build Sizewell C more acceptable. Nevertheless my concerns about the viability of their plans have only deepened as we learn more about ongoing issues, such as potable water supplies and coastal defences.

Many people with great expertise have submitted well thought out concerns and objections to the plans, so I won't go into detail here. Instead, just two words come to mind when I think about the implications of this project:  
TITANIC DISASTER

Why a titanic disaster?

Sizewell C is sinkable.

The intention is to create a huge and indestructible power station that will be safe from threat. Yet, like the Titanic, it relies on assumptions based on its size and safety features that cannot be guaranteed when it comes to excessive storm or tidal surges which have become more unstable due to changing climate conditions. Likewise, assumptions about the accessibility of potable water are hard to predict as we enter more frequent periods of drought which will limit the available supply of water from sources such as Northumbria Water. This could leave the site high and dry long before it has started to earn back its investment.

Furthermore, EDF's track record elsewhere for reliability and durability has been compromised, whilst their failure to fully consider the water supply issue at Sizewell until such a late date in the design of the project among other things, does not inspire confidence in this particular site.

If the sea doesn't breach it, the costs of shoring up the scheme and finding ways to complete the build may well sink the project mid-steam, leaving a very costly wreck.

Sizewell C will inundate the area

Like a liner trying to berth in a dock that is too small for it, Sizewell C's sheer size will cause massive damage to the area around it:

There is not the infrastructure to support the flow of traffic to and from the site, meaning that congestion will occur from numerous sources: haulage vehicles, deliveries catering for the workers on site and private cars of workers permitted to travel to the site will all flood the local roads, making it far harder for other local traffic to access essential services such as hospitals or to get to work etc.

The support services required to serve the site will scoop out available employees to serve other local businesses in tourism, farming, light industry, maintenance, care services, nature conservation. By the time the build is complete, many of these businesses may have been beached and it will take years to recover

Wildlife along the coast will also be decimated by the wave of building and disruption, including 24/7 arc lighting etc This is an area with relatively low unemployment and a higher rate of over sixties (28% of population over 60)

than other parts of the country. The juxtaposition of a hugely disruptive and lengthy project on their wellbeing and support services must be taken into account.

Why inundate an area that is not suited to a project of this size when there are other sites with better infrastructure and greater need for employment opportunities

Sizewell C is far too slow and lumbering

Yes we need power - but we need it fast. Not at the back end of the 2030s. Once upon a time, large power stations of this kind might have seemed the only option to providing nuclear energy. But times have changed. We are now seeing new designs for cleaner, cheaper power, including the faster build SMRs, in rapid development. These could be in operation long before the long lead-in time for Sizewell C, resulting in faster, cheaper power and a safer less costly legacy for generations to come. What is to stop us from extending the life of Sizewell B while we line up these other less costly and risky ducks?

For the above reasons, I strongly object to EDF's planning application.

Lucia Daniels



**reference no 20026873**

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Stop SizewellC !  
**Date:** 23 May 2022 21:16:06

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SizewellC is -

Totally unworkable  
Unnecessary  
Eyewateringly expensive  
Dangerous waste materials  
Disaster for east Suffolk and its nature !!

!!STOP !!

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Pro sizewell  
**Date:** 23 May 2022 21:23:02

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Please canvas the population, you will find the vast majority want this project.  
There is a minority that is given lots of air time to demonstrate their anti stance, it would be nice if the media reflected the true feeling.  
Please move this project forward ASAP.

Sent via BT Email App

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 21:40:26

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Dear Sir,

At the outset of the public inquiry, I contacted you to outline my opposition to the proposed new nuclear plant at Sizewell. Now, with the decision expected imminently, I am even more certain of its inappropriateness.

Wrong Location

1. The East Suffolk coastline is eroding .
2. The site will encroach on sensitive areas of coastline causing irreparable damage that cannot be satisfactorily mitigated.
3. It's immediate neighbour, Minsmere, will be severely compromised by the arrival of an enormous construction site that requires 24 hour lighting.
4. Lack of available potable water.
5. The proposed site is in an AONB which some people believe should be a national park (Labour Party manifesto 2019). This special status is completely at odds with a construction site of the scale of Sizewell C that will cause disruption to this tranquil part of the country for a decade or more to come.
6. During its operation, millions of gallons of water will be required to cool the reactors. This, inevitably, will have a huge impact on marine life that is sucked in. An environmental disaster.

For these reasons, I urge you not to grant planning permission.

Yours faithfully,

Richard Atkinson

John Richard Atkinson

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** This C does not size well  
**Date:** 23 May 2022 21:46:58  
**Attachments:** [dabhandsyellow.png](#)

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Twice the scale of A and B  
this C does not size well,  
the infrastructure cannot swell for the  
years and years it will take build...  
'We fully understand there are concerns  
on the length and nature of construction.'

Is this the future for job creation,  
dab hands for a white elephant?  
And to manage its waste when in operation.  
Then making safe, to decommission  
over countless years...

No matter how many pleasant faces appear  
in the name of consultation and public relations,  
delivered quarterly throughout the year  
clear is the burden for future generations.  
Managing waste for countless years...  
Is this the future of job creation?

GK 12/05/22

*This C does not size well*

*Twice the scale of A and B  
this C does not size well,  
the infrastructure cannot swell for the  
years and years it will take to build...  
'We fully understand there are concerns  
on the length and nature of construction.'*

*Is this the future for job creation,  
dab hands for a white elephant?  
And to manage its waste when in operation.  
Then making safe, to decommission  
over countless years...*

*No matter how many pleasant faces appear  
in the name of consultation and public relations,  
delivered quarterly throughout the year  
clear is the burden for future generations.  
Managing waste for countless years...  
Is this the future of job creation?*

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Just a bad idea.  
**Date:** 23 May 2022 22:15:16

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Hi there,

I am writing as one of many voices against the building of Sizewell C. I believe that it is an appalling waste of money with the potential of hugely damaging impacts. The destruction of natural habitats with inadequate compensation plans. The increase in traffic, noise and pollution to the local area. The loss of tourism to the local economy. Significant flood risk. Massive amounts of embodied CO2 in the production. The complete lack of an agreed potable water supply plan. Just to name a few major issues.

Please take my voice alongside many others into consideration and avoid embarrassment.

Sincerely,

Jenny Allwood, [REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 23 May 2022 22:20:13

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Everything that we hold close to our hearts in Suffolk is under threat.

It's a though our county is being used as a dumping ground for the most ungreen pseudo 'renewable' projects that are ill conceived, dangerous and deeply disrespectful and damaging to our quality of life, our livelihoods, the environment, our mental and physical health - our future.

Sizewell poses innumerable risks, flooding, the long term risk of erosion, degradation of environment including the development of Sizewell marsh not meeting 2021 requirements and it poses a direct danger to the hábitat of native animals and local and migrating birds. The huge increase of pollution for example from the heavy use of the B112 and the entire route, and impoverishment of peoples quality of life as a direct result from this are more reasons why this is a deeply destructive project for the long and short term. There is completely unrealistic dates for decommissioning, no viable potable water. The list of reasons why this should never happen are too innumerable for me to list.

This is deeply inhabited countryside surrounded by thriving towns that make their living from tourists who want to be in beauty, in a place that is protected and treasured. What is happening to our county is disgraceful. It goes against every aspect of respect and care for our patrimony, our environment. The plans for Sizewell C Will destroy the lives of locals, and our quality of life. The endangerment of animals flora and fauna to areas that are were listed as supposedly protected and of outstanding natural beauty are blatantly ignored and carved up without listening to the voices of the custodians of this cherished county. Clearly nothing is protected or sacred even when it clearly is. These projects will destroy us.

R. Adela and P Benney, [REDACTED]

Sent from my iPhone

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Please consider  
**Date:** 23 May 2022 22:29:09

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I am an Interested Party as I live on this planet and I beg you to stop Sizewell C nuclear installation.

It is becoming more expensive every moment which in these days is unacceptable. There has never been a satisfactory way to safely decommissioning a nuclear power station.

We are all aware that the only reason for opening new ones is as a supply for the arms industry.

It is far quicker and safer to more economical to install water and wind and sun methods for our energy needs.

The quicker we really get on with it the better.

Thank you for taking the time to read this email,

Mary Scott

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Response to NNB/Sizewell C Application  
**Date:** 23 May 2022 22:29:29  
**Importance:** High

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For the attention of the Secretary of State

The first part of this letter outlines our outstanding concerns regarding EDF's proposed Sizewell Link Road and Oakfield House.

The second part of this letter explains our overall concerns regarding the Sizewell C application.

1. The previously proposed D2/W remains the favoured link road route by Suffolk County Council, and many local Parish Council's and local communities. The D2/W route provides the most direct link road route to Sizewell C

EDF have failed to provide any valid reasons as to why they have not fully researched and addressed the preferred D2/W route which would offer a legacy.

EDF have admitted their failure to recognise the existence of Oakfield House when they submitted the plans for the current proposal for the Sizewell Link Road route. EDF have since categorised our position as the most affected key stakeholder's regarding the current proposed SLR route. If the current route proposal for the SLR goes ahead, we have at this late stage, significant and major unresolved concerns between ourselves and EDF, which include emissions, noise levels, rat running, road congestion and landscaping. Detailed mitigation and compensatory measures must be agreed, resolved, and included as a Deed of Obligation if the current proposal of the SLR goes ahead.

Middleton cum Fordley Parish Council and Suffolk County Council are in agreement that our concerns must be fully addressed and resolved.

2. Any new nuclear energy plant planning applications should be addressed in reverse order with nuclear waste being addressed first and foremost. After 50 years of research, safe nuclear waste disposal still remains a problem. Nuclear energy is not green and does not comply with current COP26 goals. Austria and Luxembourg recognise this and are prepared to take legal action over the plan to label nuclear investments as green. The EU's sustainable finance taxonomy was designed to provide a "gold standard" for green investing, by limiting which investments can be labelled climate-friendly to only those that truly

protect the planet. Although nuclear energy generation is CO<sub>2</sub>-free albeit only once up and running, radioactive waste will always prevent it from being green. Brussels are prepared to help EU countries end their reliance on Russian nuclear fuel. With France being the country most reliant on nuclear energy, EDF have for years used Russia for its uranium supplies. However, the UK government along with EDF can no longer quantify obtaining supplies of uranium from Russia for UK nuclear energy plants including Sizewell B and potentially Sizewell C. China's involvement with Sizewell C infrastructure remains a major security concern for the UK.

As we know, Hinkley Point C's build time and build cost is ever increasing, and with recent confirmation of a recent further cost increase of 3 billion. Industrial build costs are set to increase at an unprecedented rate for the unforeseeable future. The build cost for Sizewell C will be at an all-time high, and will experience ongoing supply chain issues, whilst incurring further costs and time overruns.

Consideration to address in detail the spiralling costs of construction related materials and labour, and in particular the impact this will have on the proposed budget for Sizewell C must be included within this application.

Consideration of delays and long lead times for construction materials along with the drastic impact this will have on the construction phase programme for Sizewell C must also be included within this application.

To pass costs on to the consumers, on a gamble to build an out of date problematic expensive nuclear power station which hasn't included the costs of nuclear waste disposal, is shocking.

With the above in mind, how can the UK government currently feel comfortable with their intention of utilising the RAB model, particularly during the current energy poverty crisis? And when green renewable energy is far more economical, flexible and reliable, with lower strike prices, the application for Sizewell C is utterly abhorrent.

Cement manufacturing alone, accounts for 8% of global emissions. The concrete that will be needed for Sizewell C will have a colossal carbon footprint. EDF will need a colossal amount of water for the concrete needed, which remains questionable why EDF are not in a position to confirm a permanent water supply needed for the build and for the running of Sizewell C? Sizewell C's water supply remains a major unanswered issue at this late stage of this application, deeming the application incomplete.

The UK government provided COP26 with strict aims of how to reach net

zero which includes increasing biodiversity, increasing wildlife and to focus on renewable clean energy. The UK government should be collaborating to reduce the cost of energy and carbon emissions now.

**To comply with COP26 commitments:**

**Respect and protect the special area's of East Suffolk, including, but which is not an exhaustive list:**

- RSPB Minsmere
- Suffolk's AONB and SSSI's
- East Suffolk's fast eroding coastline
- East Suffolk's land rich in biodiversity and wildlife.

**To conform to COP26 commitments and all future COP goals the UK government must adhere to their responsibilities now and confirm Sizewell C is not viable.**

**Please say NO TO SIZEWELL C and refuse this application**

Thank you

Mr & Mrs Lacey

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** EN010012 – The Sizewell C Project - objection to consent  
**Date:** 23 May 2022 22:37:56

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Unique Reference: 20026541

Dear Sirs

Thank you for the opportunity to object to the development of Sizewell C.

My first objection is to the claim this will mean job opportunities for local people. I was a university lecturer in engineering for 30 years so I am very well aware that it is not a career for everyone. I agree that we need to attract more young people into the profession, especially women, but the pool of talent is limited by ability to cope with this mathematically- and science-based subject. Suffolk and Norfolk are becoming very important for renewable energy industries, especially offshore wind, to the extent of being referred to as the Energy Coast. Those industries also need highly-skilled engineers and Sizewell C will be competing for those skills with them, creating skills shortages.

The fact that the plans include a "campus" for construction workers makes it obvious that it's recognised the demand for workers will be much greater than the local market can supply. The potential for disruption to local communities by an influx of transient workers has been commented on elsewhere. What would happen in reality is that workers from Hinkley Point would be redeployed here, that is if Hinkley Point ever gets finished, as the over-runs there continue to accumulate.

By the time Sizewell C would be generating electricity it would be far too late to make any impact on climate change, but its construction will have contributed to that change with the amount of materials being poured into it. Indeed, given the fragility of the Suffolk coast and rising sea levels it is quite likely that the ground underneath it will have become so unstable it will never be safe to operate it. In the meantime the consumer will have been paying extra on their current bills to fund this development.

Rather than creating local jobs, this construction will destroy them. This is a tourist area and there are many small businesses and in turn their employees who are dependent on tourism, from shops to laundry services for holiday accommodation.

The impact on the environment has been well-documented. It would be impossible to mitigate the effects of the construction on the internationally-important wildlife reserve at Minsmere.

Also well-documented is the impact on the A12 and the roads to the east of it. Less-mentioned is the A1120, which runs from the A14 near Stowmarket to the A12 at Yoxford. I live in Dennington, which is a village on that road. The A1120 is designated as a tourist route and there are notices along the A14 telling lorries to travel on to Ipswich and then join the A12. The A1120 is not a proper A road, having been cobbled together from three B-roads. It crosses the A140 at a dog-leg crossroads, there are two points along it where traffic on it has to give way at blind T-junctions, it is narrow and has a lot of bends. Even if the only Sizewell C traffic that came along it were cars, there would be an increase in traffic on this road with its bottlenecks and the chances of lorries not taking this tempting short-cut are nil, given we do already see heavy lorries along it. Our village

would effectively be cut in two. We are within commuting distance of Sizewell, demonstrated by the fact some members of our community work or have worked there so it could be that I would have some benefit from a nominal increase in the value of my house, but that would be of small consolation given I don't want to move but do want to live in an environment not polluted by heavy traffic along the local roads.

Various bodies have given factual evidence about the terrible impact this development would have on so many aspects of our local environment so I need not repeat them here. I will leave you with this thought - it is now almost 70 years since the then-chairman of the USA's Atomic Energy Commission assured the world that nuclear power would provide electricity "too cheap to meter". That promise is yet to be fulfilled and as costs rise and developers demand governments underwrite construction, it evidently never will be.

Yours faithfully

A large black rectangular redaction box covering the signature area.

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Kate Viscardi

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Application for Sizewell C and D Twin nuclear reactor  
**Date:** 23 May 2022 22:39:07

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Dear Sizewell C/D Planning Inspectorate,

I wish to object in the strongest terms to the development of two further nuclear power stations at Sizewell for the following reasons:

1. Such development is by no means “Green”. During the many years of construction (and nobody knows how long that will be) there will be unacceptable levels of pollution from the machinery on site, from thousands of heavy vehicle movements to and from site, from trains coming to the halt in Leiston. The majority of vehicles will be diesel/petrol powered. There are already hundreds of vehicle movements every day commuting to and from Sizewell A and B. Should the project ever start, there is no guarantee whatsoever that it will be finished within the proposed time for the intended (Imagined?) cost.
2. For example the building of Hinkley Point in Somerset and Flamanville in France are both running seriously behind projected completion dates and costs at Hinkley Point are spiralling with every day that passes. There is no guarantee that either will ever be completed or operate, being untried technology.
3. I object to the amount of pollution we will have to suffer as local residents for an unquantifiable time. Are all the people who live locally expendable?
4. We do not need such a development in East Suffolk. This is a tourist area and businesses are heavily involved in the tourism industry which has been steadily growing for decades and is now in a very strong position, having been energetically promoted, and is a year-round big earner for the district. Minsmere Bird Reserve is a precious jewel in Suffolk’s crown, attracts thousands of visitors, both feathered and human through every season of the year, and will be completely ruined if this ill-conceived nuclear development goes ahead. EDF are hoping to isolate their site from surrounding marshland with a massive diaphragm wall which will totally change the surrounding water levels, something which Minsmere relies upon for its success and biodiversity.
5. It is misleading to suggest that there will be an employment bonanza for local people and hundreds of opportunities for school leavers with many apprenticeships available in the nuclear industry at Sizewell. Where will the students come from and where will they study. We are told it is intended to transfer the workforce from the Hinkley Point development to work at Sizewell: this will surely impact on the employment opportunities for local people. However, if local tradesmen are employed at inflated pay, what chance will local people have of getting such trades people to work for them.
6. There is no plausible evacuation plan in case of nuclear incident/accident. Again, is the local population, including the workforce at Sizewell, expendable? There would be no chance at all of everyone escaping the area.
7. The East Anglian coastline is disappearing at a pace – there is nothing that can be done about it. Sizewell cannot be a sensible place to build two more power stations. The site will become an island in the fullness of time, maybe sooner than later: nobody can say for sure.
8. East Anglia is the driest part of the British Isles. Where are the millions of gallons of fresh potable water going to come from to operate two PWR’s and satisfy a huge increase in population as a result of the imported workforce. So far there is no satisfactory answer to

that big problem.

9. I object to the “illegal” fishing that occurs through the massive sea-inlet pipes into the power stations, to the inevitable scouring of the sea bed and complete waste of a valuable food source, which is going to take on even more significance with an ever-increasing population and pressure on food supplies. Coincidentally, recently a seal was trapped in the seawater intake, causing an emergency shutdown at Sizewell B. It was frightening and “covered up”. No one could find out what was going on and still have not been told the truth.
10. Sizewell Nuclear Power Stations are a prime target for terrorism and cyber attack. It could be just a matter of time.

Every effort should be made to find better, safer solutions to energy needs with new housing fitted with solar panels, factories generating their own needs from solar panels, onshore and offshore wind turbine development operating through an offshore hub, and best of all - energy from waves and tides, available 24/7, clean and safe, which Nuclear is definitely not.

Thank you.

Yours faithfully,  
Susan Seabrook

Sent from  for Windows

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Views on Sizewell C Project by EDF  
**Date:** 23 May 2022 23:01:54

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Dear Sir

## **EN010012 – The Sizewell C Project**

My interested party reference: 20026613

I am strongly opposed to yet another nuclear power station on the Suffolk Coast. I am far from convinced that EDF are able to provide the twin Reactor Plant that will be of remotely significant benefit to our energy supply for the cost, the land, resources required without maximum adverse impact on our region. Issues based on this view are:

- Truly inadequate plans for providing mitigation of every likely adverse effect in advance of any work starting on the main site, leading to very heavy use of the B1122 from Yoxford through Middleton Moor and Theberton, and the 11th hour late selection of the wholly inappropriate Sizewell Link Road route they were forced to make. The fact that EDF are even ignoring the preferred Route W (D2), favoured by Suffolk County Council and others must give Government great cause for concern that their whole approach to this massive project certainly dismisses the advice and preferences of the area's Local Government, never mind strong opposition from many local residents. I am in Cambridgeshire, but I have travelled through many of these very rural routes in past holidays in the area and it is just unthinkable that EDF should be remotely allowed to trash this beautiful area any further than they have to-date. Two past/present nuclear power stations on this coast is two too many already.
- Over-reliance on the Coastal Processes Monitoring and Mitigation Plan to resolve what could be significant and long-term erosion following the cessation of operations at Sizewell B, including exposure of the Hard Coastal Defence at its southern extremity – see [REP8-280](#). With ongoing global warming and sea-levels rising probably way beyond anything presently predicted just fills me with alarm that this plant too will not give us energy security but rather more terrifying future insecurity in the longer term.
- Unrealistic 2140 end date for removal of all spent fuel and decommissioning completion when statutory authorities and EN-6 legislation point to dates closer to or beyond 2190. The fact that there will be huge contamination by the toxic and dangerous elements that must be used to produce nuclear power means our nearest coastline cannot be returned to its original natural beauty at all. And more nuclear power plants will be needed to replace this one unless we wholly embrace green, clean and most importantly safe renewable energy technologies that are advancing all the time and will be far cheaper to install, decommission and return to what should remain a safe, natural environment everyone wants.
- Significant site flood risk beyond 2140 even according to the Applicant's own assessments. How can the Government allow such risky projects the go ahead?.
- If no potable water supply plan can be agreed for the operational phase of the Sizewell C reactors, what are we doing even considering this massive project going ahead at all? EDF's plans appear so flawed, and we've not seen one of their plants operate smoothly anywhere else as yet on a totally safe basis.
- EDF's unsupported biodiversity net gain claims must now sway the Government to allow their plans to go ahead. There will, no doubt, be significant biodiversity damage post construction both at the construction site and shingle/dune foreshore ([REP6-075](#)). This whole project is an unmitigated environmental disaster for the whole of our

beloved East Anglia. Hinckley Point C construction does nothing to quell opposition and our fears for this plan.

- Development of Sizewell Marsh Site of Special Scientific Interest with late and inadequate compensation plans just do not meet Environment Act 2021 requirements ([REP6-075](#)). Again, how can the Government remotely deem this unnecessary destruction of our unique areas as acceptable?
- If none of the above objections can persuade the Government and all officials involved in the final decision not to go ahead with Sizewell C, then the obscene financial costs, time lost because of all the many risks that must be resolved before the project can be allowed to go ahead, the fact that, at the end of it this massive plant will then only produce a maximum of a measly 7% of our energy needs, for me means this whole technology, the decades to even get it to full operation, means we will be way too late to reach our net zero pledges.
- Seeing how nuclear power plants in Ukraine are being used almost as target practice by Russia, still dismissing the huge dangers of any damage inflicted on them, what's to stop any foreign aggressive power targeting installations in this country at some point?
- If Rolls Royce could roll out mini installations quicker, far more safely and with far less impact than EDF will inflict on us with Sizewell C, I could be just about persuaded to accept these as a transition move until we can produce all our safe and secure energy needs in more clean and much greener forms of technology.
- I don't feel at all convinced EDF have resolved many of the questions about Habitat Regulations Assessments and other Environmental matters that RSPB, SWT and others have raised. My main objection is that these areas will be permanently blighted. At least solar and wind farms can be safely decommissioned and the land returned to their original habits and uses come the time they won't be as necessary in the future.

We need many forms and locations of secure energy production to provide for all of the UK's needs. It is time we consigned such massively risky forms of nuclear energy to the history books and provide many more onshore wind and solar farms to plug the gap left by coal, oil, gas and existing nuclear power stations that litter far to many coastal areas already. Those areas will never be able to be returned to what have been AONBs and SSI sites ever again.

Yours sincerely

Marguerite Ingle



**From:** [REDACTED]

**To:** SizewellC

**Subject:** Sizewell C concerns

**Date:** 23 May 2022 23:54:37

Dear Secretary of State

I write to express my concerns over the proposed construction of Sizewell C. With my husband, I run a fruit farm in Sudbourne. We supply a local market delivering our produce two or three times a week. We are open for Pick Your Own in the soft fruit season and have a holiday cottage.

Our main concern is over the considerable harm done to our local economy due to what will be a huge burden of increased road traffic during the construction of Sizewell C. We are troubled by EDF's proposal so late in the day to construct a relief road to the site at the same time construction of the new plant begins.

This will increase the already anticipated road traffic for the construction of Sizewell C and will be further worsened by the proposed construction of the Scottish Power Renewables power plant at Friston.

Our local roads are small and easily congested. The only major route northwards for us is the A12 which with a large volume of traffic will grind to a halt thus reducing if not stopping access to our retail outlets to the north of the farm. Southwards traffic congestion will also be a problem. The network of roads between communities along the A12 will become rat runs severely restricting our farm deliveries and making it less attractive for visitors to this area

who may not find the prospect of a holiday on the newly designated "Energy" coast and its heavily congested roads too attractive a proposition.

We urge to carefully assess the potential harm done to our local communities before granting development consent to this project.

Yours sincerely  
Suvi McCreadie

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Date:** 23 May 2022 23:55:27

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Dear Secretary of State

Regarding the forthcoming proposal for SizewellC in the interest of all of Suffolk do you not now think that this is a complete White Elephant with cost spiralling out of control before it has even been agreed (Hinkley) the amount of chaos that it will bring on the roads for years 600 lorries a day no thought to the Environment which should be your main focus and the lack of regard to the people who live here shame on you its a site of special interest and a very fragile coast line think twice don't destroy something

K wilkinson

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Fwd: Stop Sizewell C  
**Date:** 24 May 2022 00:00:04

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Sent from my iPhone

Begin forwarded message:

**From:** Lucy Cohen [REDACTED]  
**Date:** 23 May 2022 at 23:58:12 BST  
**To:** [sizewell@planninginspectorate.gov.uk](mailto:sizewell@planninginspectorate.gov.uk)  
**Subject:** Stop Sizewell C

To whom it may concern,

As Sizewell is an area close to my heart I feel that the construction of Sizewell C is truly catastrophic and erroneous. It is a vast undertaking with so many question marks hanging over its head let alone the financing of it all. The infrastructure around this outstanding and natural area of the Suffolk coastline is not geared up to ferry up to 600 lorries a day along the B1122. The link road has been a poor choice of roads, even Suffolk County Council felt this choice of roads will be more disruption to all those who live in the area. The impact of this transport deluge to start with will dramatically alter the nature of this area and will, by broad speculation, have a devastating toll of the birds and wildlife habitat around the Kenton woods area and the area around Dunwich beach. Noise and light pollution will undoubtedly affect much of the existing habitat, many species of which may very likely leave their homes for good, such as the rare Bitern, one such bird in short supply.

There have been many unanswered questions about the viability of this project which are, to date, of grave concern to those living in the area and others, like myself, who care about and love this unspoilt and scenic bit of the Suffolk coastline. Questions about cracks in the building of a similar Chinese power station have been raised and the issue of providing enough water to the plant seem very tricky ones to explain and resolve. No firm answers, timings or costings have been given to date.

There will likely be potential flood risks and inadequate compensation plans that do not meet with the Environmental requirements of 2021. Roads will become choked up with roadworks taking place which is predicted to last for several years and will alter the nature of this precious area, irreversibly. I am calling for much more transparency and to halt any further decisions about the future of Sizewell for, as we are told, this construction project would last for years by which time there will probably be a far better, cheaper and greener solution available.

Sizewell C is a precarious and unsuitable plan. There are other, smaller, more sustainable ways forward which so many of us believe is a far better way forward.

Thank you for your time and understanding.

Regards,  
Lucy Cohen

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Objection to Sizewell C  
**Date:** 24 May 2022 06:41:04

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Invest in wind power, not nuclear energy; proven to be cleaner, no waste, no danger and we have the wind on the east anglian coast and no countryside gets destroyed.

**Julie Bourne MBACP**

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell C  
**Date:** 24 May 2022 10:37:08

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In a perfectly safe world, unafflicted by conflict and unaffected by environmental dangers, there may be case for siting a new nuclear power station on the East Anglian coast. But both war and climate change are present dangers.

I live just a couple of miles from Sizewell and much of the land here is low-lying. A very small rise in sea level would create a Sizewell power station island, defended by its enormous wall but cut off from the mainland.

Years of construction would of course inflict terrible damage on wildlife reserves of national importance to both the north and south of Sizewell. All for a type of energy that is, in the long term, neither cheap nor safe. As yet, there is no cost effective nor safe way of disposing of nuclear waste. It will lie underground leaving a poisonous and astronomically costly legacy for future generations.

Our village of Aldringham will be significantly affected by the new Scottish Power offshore wind farm. Most of us, though admittedly not all, feel we must accept as a necessity the disruption and landscape-scarring that will result from the cable laying and building of a substation nearby. There will be a cost to wildlife, particularly at the point where the cables will cross the Hundred River but I feel we must take the hit, besides the damage will be on nothing like the scale of what will happen a mile or two to the north at Sizewell. It's a project that will produce cheap renewable energy.

The UK is well positioned to harness wind and wave power, and this is surely where long-term investment should be directed.

Christopher Douglas

[REDACTED]

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Size well c  
**Date:** 26 May 2022 20:36:18

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Dear Minister.

This would be a disaster for the whole country. We don't need nuclear energy we need to use electricity more efficiently and turn the lights off in office blocks and hotels etc..  
In another generation we will have better technology available to us and a legacy of nuclear waste and terrible expense. Please stop this stupidity.

Short and sweet message

Vicky Fehler

Sent from my iPad

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell c  
**Date:** 26 May 2022 22:31:12

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Hi, my thoughts from an Ipswich resident are that we irreversibly stand to lose in many ways as this project will massively overspend budget and take forever to complete hinkley is prime example and destroy much natural sacrosanct beauty . Our energy consumption needs to be tempered as well as upping suppl. I believe many smaller reactors can suffice spending less overall and bring in capacity online much sooner as needed thanks!

**From:** [REDACTED]  
**To:** [beiseip@beis.gov.uk](mailto:beiseip@beis.gov.uk); [SizewellC](#)  
**Subject:** Request to replace a document submitted to BEIS and the Planning Inspectorate on 19th June. Ref:Sizewell C - Response to the Applicant's document 'SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022' section FR4  
**Date:** 21 June 2022 16:31:32  
**Attachments:** [Rev.2 My response to ONR and Applicant ref docs published 17th June 2022.pdf](#)

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For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C.

From: Nick Scarr Interested Party number 20025524. 21 6 2022

Dear Gareth Leigh,

Ref: Response to the Applicant's document '*SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022*' section FR4 and the ONR's document '*Sizewell C: Final Recommendations from the Government of Austria - ONR Response to the Secretary of State June 2022 CM9 Ref. 2022/36295*' Section 2.4.

With specific reference to the Sizewell Dunwich Banks and marshland flood risk. Question FR4.

I have modified the last four paragraphs of the document (the Summary and one preceding paragraph) of the document that I submitted on the 19th June.

The revised document is Rev.2 enclosed.

I apologise for my errors and I would be grateful if BEIS were to replace the document I submitted on 19th June with the enclosed document Rev.2. enclosed.

Kind regards

Nick Scarr Interested Party number 20025524.  
21 6 2022

Rev.2. Responses offered to the Austrian Government by the ONR and the Applicant published on the PINS website 17/6/2022

Nick Scarr - Interested Party number 20025524. Modified 21/6/2022

Head of Energy Infrastructure Planning, Department for Business, Energy, & Industrial Strategy, [Sizewellc@planninginspectorate.gov.uk](mailto:Sizewellc@planninginspectorate.gov.uk)

Dear Gareth Leigh,

Ref: Response to the Applicant's document 'SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022' section FR4 and the ONR's document 'Sizewell C: Final Recommendations from the Government of Austria - ONR Response to the Secretary of State June 2022 CM9 Ref. 2022/36295' Section 2.4.

With specific reference to the Sizewell Dunwich Banks and marshland flood risk. Question FR4.

**NOTE:** I am grateful that the Applicant takes the trouble to reply to myself and others, however on inspection of its replies relevant to my area of interest I find them often self-referential and significantly compromised by contradictions and uncertainties. I note and accept that these contradictions and uncertainties do not stop the Environment Agency and the ONR from fully validating and supporting the Applicant. Even in the face of such compelling affirmation I am not satisfied with the evidence that the proposed Sizewell C, if built as currently proposed, will offer sufficient flood and erosion resilience into the end of the twenty-second century. Hence my need to respond once more, and finally, with this paper which, despite the position taken by the EA and the ONR, illustrates and substantiates my concerns.

## 1 Response from the ONR to question FR4:

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.*

### My response to the ONR statement:

- The flooding of the marshlands around Sizewell C is just an 'environmental/habitats matter'? Really?

## 2 Response from the Applicant to question FR4:

2.6 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.

*Applicant's response:*

2.6.1 Within the SDSR, coastal flooding studies for SZC take account of conservative assumptions around the evolution for the coastline/geomorphology and climate change in accordance with latest government guidance (UKCP18). This is fully inline with ONR and Environment Agency's expectations for these studies. As noted in the response to FR3, the RCP8.5 scenario used by SZC is the most precautionary scenario defined in UKCP18 and considers climate change where surface temperature exceeds the 1.5°C referred to (+4.3°C).

2.6.2 In relation to the Sizewell-Dunwich banks, flood risk assessments and coastal geomorphology assessments took the precautionary approach of modelling scenarios with the banks completely absent [see SZC Co response to Refs 3 – 8 in SZC Co's Response to SoS Request for Comments 25 April - Appendix 1]. In the response to Ref 5 in Appendix 1 SZC Co. specifically addresses potential loss of the banks via natural processes and explains that there is no identified scientific reason for the banks to be lost in the manner described. See SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022

#### My response to the Applicant part 2.6.1:

The SDSR (the Site Data Summary Report). This is not a DCO document however a draft SDSR has been obtained by TASC from the ONR under FOI202202052 and is quoted from below:

SDSR *“Future Geomorphology: “The rationale behind the definition and projection of a likely future shoreline baseline during the operational phase of SZC is set out in Reference [20].”* (SDSR 2.4.2)

- Reference [20] quoted by the SDSR is TR403, The Expert Geomorphological Assessment (EGA) for shoreline retreat. The EGA is a self-declared non-conservative assessment.
  - The EGA shoreline change assessment used RCP4.5, not RCP8.5. (See Beems TR403 section 3.1.3). The EGA assessment only considers sea level rise until 2070.
  - The EGA claims that there is *“no direct correlation between sea level rise and shoreline retreat...”* (see TR403 section 3.1.3.1). It is not clear what the IPCC would make of such a comment.

The SDSR continues:

*“...Shoreline change is driven by several factors whose importance and interaction **cannot be accurately predicted several decades into the future** either separately or in combination. **Moreover, there is no current computational modelling platform able to accurately integrate the numerous environmental processes that drive shoreline change (especially for mixed gravel/sand beaches), and there is no published evidence that shoreline change models can be reliably applied over the required multi-decadal timescale [Ref. 14].”** My bold text.*

- It is difficult, then, to correlate the Applicant's comments in its SDSR with its claim in 2.6.1: 2.6.1 claims it *‘take[s] account of conservative assumptions around the evolution for the coastline/geomorphology’* referring to the SDSR yet it states in the SDSR that shoreline change *‘cannot be accurately predicted’* there is *‘no current computational modelling’* and that the *‘rationale behind the definition and projection’* is based on the non-conservative EGA.

### My response to the Applicant part 2.6.2:

- The Applicant states above that it ‘took the precautionary approach of modelling scenarios with the banks completely absent’. This does not tally with the well-discussed Applicant’s statement that “...the Baseline scenario, i.e. with the Sizewell – Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal... for all scenarios and epochs as a conservative approach.” See [SZC Co’s Response to SoS Request for Comments 25 April - Appendix 1].
- The banks (The Sizewell Dunwich bank and the nearshore longshore bars, all wave energy relief features) were *present* in the main Flood Risk assessments, the Addendum Flood Risk assessment, and the Expert Geomorphological shoreline change Assessment (EGA) (TR403 3.1.6). The banks were absent in late TR reports which specifically relate to the Soft Coastal Defence Feature only, not the Greater Sizewell Bay as explained below:

The Applicant states in 2.6.2 that it “took the precautionary approach of modelling scenarios with the banks completely absent [see SZC Co response to Refs 3 – 8 in SZC Co’s Response to SoS Request for Comments 25 April - Appendix 1].”

- This is a reference to BEEMS TR544/545 ref above. BEEMS TR544 /TR545 relate only to the Soft Coastal Defence Feature and do not represent fully conservative modelling of the Greater Sizewell Bay. They also appear to be limited by the following:

The Applicant has stated in [SZC Co section 7 Response to SoS Request for Comments 25 April - Appendix 1] “..that it is based on numerical modelling without the Sizewell-Dunwich Bank present (see Section 2.2.1 of BEEMS Technical Report TR545 [REP9-020])”. However, in TR545 the ‘2017 Titan DEM’ appears to be otherwise retained suggesting the inclusion of the nearshore longshore bars as permanent wave relief features. This would be implausible in event of the loss of the Dunwich bank. TR545/44 uses RCP4.5 mid-range climate data. No significant storm surge was used in the BofE modelling (and only a very limited consideration in other modelling); this reflects a true condition of the BofE storm, I acknowledge this, but for a fully conservative exercise significant storm surge could have been considered.

It is difficult to comment as an external observer on how exactly how the modelling was undertaken but the above reflects best endeavour referencing responses by the Applicant. There is a later modelling exercise, TR553, that was “*not submitted as part of the DCO application or examination.*” See: BEEMS TR553, Appx 5 page 10. It appeared on the SzC portal on 11/4/22 almost two months after being made available to the Environment Agency.

TR553 is difficult to interpret without discussion with the creators however, it extends modelling to 2140, it addresses many concerns raised TR544/5 listed above. It shows the SCDF design to be seemingly functional within its remit **however, it is not at all clear in TR553 where the imagined shoreline of the Greater Sizewell Bay is between now and 2140. Is there any consideration given to a shoreline that has retreated inland across the Minsmere levels?**

TR553 illustrates therefore, in my view, the need to consider the Greater Sizewell Bay shoreline change analysis with the same parameters as TR553 and not those

used by the Expert Geomorphological Assessment in the DCO which relies fully on the *'natural energy dissipating effects'* of the Sizewell Dunwich and nearshore bars and only runs until 2070/87. The SCDF should not, in my view be treated as separate and distinct from the Greater Sizewell Bay.

- If there is *"no identified scientific reason for the banks to be lost in the manner described"* then there must be *'identified scientific reason for the banks to be maintained'*; the Applicant has made clear in its responses to me [see SZC Co's Response to SoS Request for Comments 25 April – Appendix 1] that:
  - *"There is good evidence to suggest that the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar"*
  - The EGA consensus also relies on this mechanism for *"maintenance of the bar system (and hence the nearshore wave impacts)..."* was that *"...sand supply would not be limiting"* see 4.3.4 Beems TR403.

This would be fine but the Applicant, however, in the same document section 2 states that: *"pebbles are confined to the system, but the sand is not."* The Marine Management Organisation has also made clear that *"...the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue."* See REF MMO below.

I therefore maintain the view that there is no plausible mechanism that could justify the assumption for the maintenance and preservation of the Sizewell-Dunwich banks over the next two 100-year episodes of coastal processes the uncertainties of which can only be increased by climate change sea-level rise.

- The SDSR states *"...One of the plausible scenarios in Reference [22] relates to depletion of the Dunwich-Sizewell bank, leading to a loss of natural sea defence. However, as coastal erosion is a slow process that will be monitored over the lifetime of the plant, it is not considered as a coastal flooding initiator (see Section 3.5.1.1).*
- My response. I disagree with this statement based on the Applicant's own research found in BEEMS pre-DCO. Loss of the Dunwich bank will result in an unknowable increase in shoreline erosional stress. Erosional events on the Suffolk coast can indeed be slow, however, they can also be sudden and severe. It would, therefore, in my view, be contrary to historical precedent to assume coastal erosion is necessarily a slow process.

## Summary

The Applicant's approach to the offshore geomorphology—its essential assumption of its stability and retention in wave limiting form could have led the Applicant to its limiting thesis that *'coastal erosion is a slow process'* and hence more easily manageable by a coastal management plan than it turns out to be.

In my view, the Applicant's reliance on the CPMMP is a high-risk strategy in that it lacks a fully conservative shoreline recession assessment (both rate and extent) for the Greater Sizewell Bay to define its remit and offers no 'Plan B' if it finds itself unable to manage an extreme event. Dunwich and Slaughden, approximately 6 km to the north and south respectively of the proposed Sizewell C

were lost to sudden storms, almost overnight. It is not clear that a CPMMP based approach to 'pebble recharge' could have withstood such a rate of change and destructive force.

In my view, Sizewell C may represent an unreasonable fiscal and environmental risk to future generations unless the sea defences clearly offer a plausible 'Plan B' if the CPMMP finds itself overwhelmed by a major event or series of events sometime between now and the end of the twenty-second century.

References:

Ref MMO:

The Marine Management Association states:

*"5.1.7 In relation to p.20.4.77 on the future shoreline baseline geomorphic elements, it is assumed that the future baseline will resemble the present day. As mentioned above, the lack of assessment of changes to the offshore wave climate to a NE domination is a gap in the analysis. For the nearshore climate, it assumes the bank system is stable. **However, the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue. This will affect the nearshore wave climate and should be included.**"*

MMO Reference: DCO/2013/00021 Planning Inspectorate Reference: EN010012 MMO Registration Identification Number: 20025459 Page 25 Deadline 2 submission.

Ref 2:

The accreted part of the Sizewell shoreline is discussed in my document REP2-393 Section 2. This paper also shows the clear linkage between the Sizewell Dunwich banks and the shoreline.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** Sizewell  
**Date:** 29 May 2022 07:50:12

---

Dear Sirs

I am very concerned about the proposed Sizewell C project for a number of reasons:

- 1) It is being built on an unstable, eroding, shifting coast line
- 2) There is a lack of potable water
- 3) EDF do not have a proven track record and their similar project is not running
- 4) In times of war, nuclear power stations can pose a threat to the entire world and, in these uncertain times with Russia, this must be a concern.
- 5) There are new technologies which must be considered such as the small modular reactors and the advances in tidal generators.

Thank you for considering my response.

Yours faithfully

Jenny Pinard

Jenny Pinard  
Pinard & Co Ltd  
01342 893136  
Sent from my iPhone

**From:** [REDACTED]  
**To:** [beiseip@beis.gov.uk](mailto:beiseip@beis.gov.uk); [SizewellC](#)  
**Subject:** RE: Sizewell C— Response to the Applicant’s document “SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18th March 2022 Section 5 ‘Coastal Considerations’”. Published on the planning website 25th May 2022.  
**Date:** 29 May 2022 13:33:11  
**Attachments:** [Sizewell C— Response to the Applicant’s document SZC Co.’s Response to Nick Scarr’s correspondence to BEIS.pdf](#)

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For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C.

From: Nick Scarr Interested Party number 20025524.

RE: Sizewell C— Response to the Applicant’s document *“SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 ‘Coastal Considerations’”*. Published on the planning website 25<sup>th</sup> May 2022.

I would be grateful if BEIS were to consider my response to the Applicant’s document referred to above.

Kind regards

Nick Scarr Interested Party number 20025524.

29/5/2022

Sizewell C— Response to the Applicant’s document “SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 ‘Coastal Considerations’”. Published on the planning website 25<sup>th</sup> May 2022.

Nick Scarr - Interested Party number 20025524. 29/5/2022

Head of Energy Infrastructure Planning, Department for Business, Energy, & Industrial Strategy, [Sizewellc@planninginspectorate.gov.uk](mailto:Sizewellc@planninginspectorate.gov.uk)

Dear Gareth Leigh,

Ref: Response to the Applicant’s document “SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 ‘Coastal Considerations’”.

I would like to thank the Applicant for its response named above and hope to clarify some points in the following text.

My studies are characterised by the correlation and assimilation of the Applicant’s own work, including that of Cefas, plus accredited academic research.

#### Reference point 2:

The Applicant states: “Mr Scarr does not provide any rationale in support of his view that the adjacent shoreline recession case is not ‘severely receded’. The severely eroded adjacent (to the SCDF) shoreline case is derived from the EIA evidence base (Section 7.7 of Appendix 20A, Volume 2 of the Environmental Statement [APP-312])”.

- I stated that the shoreline *cannot be regarded* as ‘severely receded’. I am suggesting that the Applicant’s claim to be representing “...severely receded shorelines” in TR544 (Sections 3.2.2 and 3.2.3, REP10-124 Page 44) is not necessarily fully substantiated. The Applicant’s shoreline recession as proposed by ‘App-312 section 7.7’ appears to be primarily based on the EGA (Expert Geomorphological Assessment). This assessment is non-conservative and therefore does not establish the credentials to claim a ‘severely receded’ shoreline recession case. I have subsequently requested of BEIS that it may be beneficial to ask the independent geomorphologists who prepared the EGA to explain the limitations placed on their exercise.

The applicant suggests I have ‘taken out of context’ the following: “Given the importance of particle size, the text preceding the quote in Nick Scarr’s point 4 “TR544 has a reliance on the idea that sediment and shingle is ‘...effectively confined to the system...’ is taken out of context. In full, the quote in TR544 states ‘(i) sand supply is expected to remain similar or increase (Brooks and Spencer, 2012), (ii) shingle is effectively confined to the system (and is also likely to increase once Dunwich Cliffs begin to erode)’ That is, the pebbles are confined to the system, but the sand is not.”

The applicant has not previously, nor subsequently, always been clear in its differentiation of ‘pebbles’ and sand in this manner. Section 7 of Appendix 20A, Volume 2 of the Environmental Statement [APP-312] the Applicant states:

- “Reductions in Dunwich Bank are not considered to be a worst-case scenario for Sizewell C as they would eventually lead to cliff erosion and increased sediment supply, minimising the chance or degree of exposure of the HCDF (or the amount of mitigation required to prevent this).” 7.2.2 page 135 of 167 of Appendix 20A, Vol 2.

The Applicant does not make clear that the sediment supply is limited to pebbles and not sand.

- Additionally, in 'Point 5' below the Applicant states the contradiction that *"..the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar"*.
- Note:  
The Applicant released an update to BEEMS TR544 (BEEMS TR553) which was published on the Sizewell C portal on the 11/4/22 almost two months after being made available to the Environment Agency. My responses to TR553 can be found in my document *"Sizewell C— Coastal Considerations and BEEMS TR553 26/4/2022"*.

#### Reference point 3:

The Applicant states: *"SZC Co. has always considered that the Sizewell – Dunwich Bank plays a role in reducing the inshore wave energy. This was demonstrated in various BEEMS reports (also synthesized in Volume 2, Appendix 20A of the ES [APP-312]) on the historical bank variability and in wave modelling."*

- On the basis that the Applicant acknowledges the wave reduction of inshore wave energy resulting from the banks how can it justify its position that:

*"...the Baseline scenario, i.e. with the Sizewell – Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal... for all scenarios and epochs as a conservative approach."*

- I suggest therefore that this adopted methodology is incorrect and represents a fundamental misstep as its validity is limited to extreme water levels in late epochs.

The Applicant states: *"...Closer to the DCO application, and in particular during the EGA, it became clear that the shoreline behaviour is incoherent and shows no clear linkage to the form of the bank."*

- This statement does not appear to be substantiated by the Applicant, and it does not correlate with accredited academic research and its own research pre-DCO. Shoreline behaviour in the Greater Sizewell Bay is controlled and defined by the offshore Sizewell Dunwich banks. **Shoreline behaviour has clear 'linkage' with the Sizewell Dunwich banks, a relationship that cannot be described as incoherent. I provide defining evidence of this, underpinned by historical precedent, in REP2-393 Section 2.**

#### Reference Point 4

The Applicant states *"Degradation of the Sizewell-Dunwich banks would not have an impact on extreme still water levels and therefore would not increase the risk of inundation to the landward side of the main development platform. In the event of shoreline recession to the north or south of the proposed Sizewell C site, wave overtopping of the existing coastal defences and further wave propagation behind the existing Sizewell A and Sizewell B stations would result in wave energy dissipation, and the wave action at the landward side of the main development platform would therefore not be significant."*

- The Sizewell-Dunwich banks do not affect still water levels. Agreed.
- Sea ingress from north of the station will arrive first at Sizewell C. I agree that there would be wave energy dissipation but should the main nuclear platform be exposed at 7.3m AOD it

might be considered modest defence to the uncertainties of the twenty-second century storm levels and climate change sea level rise.

#### Reference point 5:

The Applicant states: “...Dunwich Bank is made from sand, not shingle or mud. There is good evidence to suggest that the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar”

- I accept the Applicant’s comments that the Dunwich bank is sand. I had, however, been referring to the offshore survey undertaken by B J Lees for the Institute of Oceanographic Sciences where ‘Grab, Boxcore and Vibrocore’ samples were drawn from the seabed in the vicinity of the Dunwich bank. Core samples VC6, VC7 and VC16 show the sediment appears to be sand underlain by ‘blue/grey clay’ and ‘sand silts and clay’. (See: *Sizewell Dunwich Banks Field Study B J Lees Report no 88*, available from Elsevier).
- The Applicant is stating that ‘sand supply’ will be the mechanism that will result in a retained Dunwich bank. This is implausible if only ‘pebbles are confined to the system, sand is not’ as the Applicant previously states in point 2 above. This is also **not consistent with the Marine Management Association’s statement that: ‘the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue.’**
- The key point is that the Dunwich bank is unconsolidated material and can therefore significantly change within decadal timescales.

The Applicant states: “Numerical modelling, topography and analysis of bed sediments indicate that Dunwich Bank is fed sand from the coastal system via Thorpeness and Sizewell Bank. Brooks and Spencer (2012) showed that future sea level will increase cliff erosion and sand supply in the region, and therefore it is likely that the sediment supply will rise..”

- Again, the Applicant is now appearing to suggest that sand is retained within the system contrary to its previous assertion in Point 2.

#### Reference point 6 (some parts of point 6 are repeated in Point 15):

The Applicant states: “On the basis of the above, SZC Co. reiterates that at no point has the assessment set out in the MDS FRA relied on the assumed permanence of the Sizewell-Dunwich Bank, rather the assessment identified that the scenario with the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal and therefore was the approach adopted within the Flood Risk Assessment. The modelling set out in TR545 had a different purpose than for the assessment of flood risk and, therefore, was not provided by SZC Co. as justification for the approach adopted in the MDS FRA.”

- The assertion that the Sizewell-Dunwich banks in situ results in more conservative (worst-case) nearshore wave conditions for all epochs and scenarios is illogical and inconsistent with accredited academic research, the Applicant’s own research pre DCO and the Applicant’s methodology in BEEMS TR544 and TR553. It is further seemingly unusual to make the above statement that “...at no point has the assessment set out in the MDS FRA relied on the assumed permanence of the Sizewell-Dunwich Bank...” as the bank is indeed effectively regarded as permanent (i.e., in its 2017 DEM-(Digital Elevation Model) form) for all epochs and scenarios in the main Flood Risk Assessment and the Expert Geomorphological Assessment.

- I acknowledge, and have always acknowledged, (see my paper REP2-393 section 7.2) that in certain, specific, late epoch high water levels the Sizewell-Dunwich banks would have little or no effect in wave mitigation. This is expressed in BEEMS TR319 which states “.. *for extreme waves (1:1000 returns), when sea levels are also raised there is little difference in the near shore between the geoscenarios and the present bathymetry.*” I concur with this statement. However, BEEMS TR319 continues, “...*whereas present bathymetry has been accurately surveyed, it would therefore seem logical to focus the majority of subsequent work (e.g. wave run up studies) on the present bathymetry cases.*” **I do not concur with this statement – that ‘present bathymetry has accurately been surveyed’ has no relevance or validity for defining the remit of subsequent parameters.** The Applicant is then incorrect to state that “..*the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal and therefore was the approach adopted within the Flood Risk Assessment [for all scenarios and epochs]*”.  
The adoption of the above approach can lead to understated flood and erosion risk in all epochs and scenarios other than extreme high-water levels. Persistent and cumulative wave action in moderate storms and surges in the Greater Sizewell Bay may be underestimated (where and if considered) and the EGA’s adoption results in non-conservative shoreline change assessment.
- The Sizewell Dunwich banks are the arbiter of shoreline security, and they reduce the inshore wave climate. This has repeatedly been stated and most recently in BEEMS TR553, just released, which affirms the ‘*natural energy dissipating effects*’ of the banks. **The Sizewell-Dunwich banks in situ does not, therefore, represent a general, conservative consideration.**
- BEEMS TR544 and TR553 reverse this approach to an orthodox mandate of correctly treating the Sizewell Dunwich banks as wave reducing features and removing them for conservative modelling purposes. However, as stated earlier, this is limited to an SCDF study, as the Applicant makes clear, and not to the Greater Sizewell Bay in general. The main FRA and EGA remain, in my view, compromised and there is a requirement for a comprehensive, conservative study of shoreline retreat of the GSB.

The Applicant states in Point 6 that the EGA had a specific and limited remit relating to exposure of the HCDF only. I accept this; however, it does also appear to be allocated the more general remit of defining the ‘plausible future shoreline’ and hence applied to an overall assessment of general shoreline retreat with unspecified spatial limits:

*“The rationale behind the definition and projection of a likely future shoreline baseline during the operational phase of SZC is set out in Reference [20]. Its objectives were to determine:*

- *whether the shoreline is likely to erode and expose the hard coastal defence feature (a scenario without Additional Mitigation (also referred to as Secondary Mitigation));*
- *a plausible future shoreline baseline (without SZC); and*
- *a plausible future shoreline with SZC, highlighting the likely effects.”*

Sizewell C Project SIZEWELL C SITE DATA SUMMARY REPORT. Page 18/19.

- “Reference [20]” referred to above resolves on page 95 to BEEMS TR403, which is the Expert Geomorphological Assessment (EGA) of Sizewell’s Future Shoreline Position then carried forward into the DCO Geomorphology paper to Section 7 of Appendix 20A, Volume 2 of the Environmental Statement [APP-312].
- The Applicant states in ‘*Volume 1 Introduction to the Environmental Statement Chapter 6 EIA Methodology Appendix 6C - Responses to EIA Scoping Opinion Comments*’ that the “...future

*environmental baseline has been determined by Expert Geomorphological Assessment. Appendix 20A of Volume 2, section 7 provides more detail on the future shoreline baseline, as well as monitoring, mitigation and potential post-mitigation impacts.”* There is no clear mention that the EGA is specific to HCDF analysis.

- The Applicant again asserts that TR545,544 relates only to the Soft Coastal Defence Feature (SCDF).
- The SCDF and the HCDF are each being treated independently with opposing models of conservatism (one without the Sizewell Dunwich banks in situ and one with the banks in situ) and essentially without acknowledging the context of the Greater Sizewell Bay in which they will exist.

### Reference Point 13

The Applicant states: *“The above values, provided by Mr Scarr, were not presented in the MDS FRA or FRA Addendum. As such, no reference has been provided to clarify the origin of the values nor the base year of the extreme still water levels. Therefore, it is not possible to directly compare the values with those previously presented by SZC Co.”*

- The return values used and listed are from BEEMS TR252, page 10, Chainage point 4192 (Sizewell).

### Reference point 15:

The Applicant states: *“SZC Co.’s SCDF is not reliant on the presence of Dunwich Bank. Although it is not expected that the banks will remain unchanged over the lifetime of the station, it is considered unlikely that they (especially Sizewell Bank) would disappear (because sand supply is expected to rise with rising sea levels and regional cliff erosion, and there is no evidence to suggest a mechanism to break the sand transport pathway). Sea level rise may, however, outstrip bank growth arising from increased sand supply, resulting in deeper bank. As noted, the case without banks and erosion north of Sizewell C has already been considered in numerical modelling [REP9-020 and REP10-124] and shown that the SCDF remains and erosion is entirely manageable with SCDF recharge.”*

- Again, there seems to be an assumption of sand supply in apparent contradiction to earlier statements that sand is lost to the system.
- That SCDF control is manageable with recharge is noted but it does not carry the validity of being underpinned by conservative study of shoreline retreat of the GSB.
- The Applicant states: *“In terms of the potential for a breach to the north of the proposed SCDF and HCDF, this has been considered up to 2190, as discussed in Section 3.4 of the MDS FRA Addendum [AS-158], with the conclusion that the main platform and the SSSI crossing with levels set at 7.3m AOD are not at risk of flooding under the reasonably foreseeable scenario up to 2190. The SCDF [REP10-124] numerical modelling considered scenarios with lowered or no banks, and therefore did not assume little or no change to the offshore geomorphology as Mr Scarr states.*
- AS-158 and AS-157 do not appear to reference the Sizewell-Dunwich banks and how they were used in this modelling.
- I have accepted the SCDF modelling in TR553 TR545 consider lowered or no banks and have stated this clearly, BEEMS TR544 (REP10-124) does not appear to mention the Sizewell-Dunwich banks.
- The Main FRA and EGA assume no change to the Sizewell Dunwich banks. I was not commenting on TR544/545/553.

## Reference Point 18

The Applicant states *“Spent fuel cooling rates are specific to the type of fuel and the burn up of the individual assemblies, but it should be noted that no fuel will be sent from the SZC site until it meets the transport and Geological Disposal Facility (GDF) acceptance criteria.”*

- This is agreed but there does not appear to be a stated average burn-up rate and therefore decay heat and hence cooling times are unclear.
- The NDA (Nuclear Decommissioning Authority) and the ONR (Office for Nuclear Regulation) offer differing analyses for this period of onsite spent fuel cooling. The NDA on the 10/11/21 informed me that they were *“... not obliged under legislation FOIA or EIR to provide explanations, clarification, opinions etc...”* I asked the NDA that in view of its unwillingness to communicate with me could they please agree a conclusive analysis of fuel cooling requirements with the ONR. I did not receive a reply. **I think it imperative for BEIS to establish whether there is coherence regarding fuel cooling requirements between the NDA and the ONR.**

### Summary:

The analysis of shoreline change at Sizewell appears to concentrate on independent assessments: the Soft Coastal Defence feature (SCDF) now modelled conservatively by BEEMS TR545, TR544, TR553; the Hard Coastal Defence Feature (HCDF), assessed by the Expert Geomorphological Assessment (EGA) non-conservatively and neither appear to be adequately considered within the context and environment of the Greater Sizewell Bay.

The Greater Sizewell Bay has experienced both acute erosion and stability in recent centuries resulting from the control of the inshore wave climate by the protective Sizewell-Dunwich banks located approximately 1 Km offshore. Unfortunately, the Dunwich bank is now depleting and, according to the Marine Management Organisation, it is logical to assume that it will continue to do so. The loss of the Dunwich bank would allow unmitigated waves onto the Sizewell C nuclear foreshore (we must assume that the loss of the nearshore, longshore bars could be rapid) and according to the Institute of Oceanographic Sciences those waves may carry higher than normal energy:

- *“... [wave energy coefficients] suggest a concentration of energy in the Sizewell area, [offshore of the Sizewell-Dunwich banks] especially for wave headings between 230 and 300 degrees. Wave refraction calculations also suggest that, particularly with waves come from the direction of maximum fetch (210 degrees), **there are energy foci along the coast, notably between Sizewell and Thorpeness.**”* Institute of Oceanographic Sciences, Sizewell-Dunwich banks field study, Topic Report 6, Carr, King, Heathershaw and Leeds. Page 15

The Sizewell foreshore, at least the first 80m or so, *is recently accreted material* (1836-1920) and hence must be regarded as a particularly soft and erodible receptor to any increased wave climate resulting from the loss of the Dunwich bank.

The reliance on a Coastal Management plan—the CPMMP—is, in my view, a high-risk strategy in that it lacks a fully conservative shoreline recession assessment for the Greater Sizewell Bay to define its remit and offers no ‘Plan B’ if it finds itself unable to manage an extreme event. Dunwich and Slaughden, approximately 6 km to the north and south respectively of the proposed Sizewell C were lost to sudden storms, almost overnight. It is not clear that a CPMMP based approach to ‘pebble

recharge' could have withstood such a rate of change and destructive force. **Hence, Sizewell C may represent an unreasonable fiscal and environmental risk to future generations.**

If these concerns are anyway to be over-ridden by political factors, then I suggest the following:

- **It must be acknowledged that the Sizewell C site will not have the benefit of the better locations occupied by Sizewell A and Sizewell B.** If the project should continue as planned by building Sizewell C into the low-lying marshlands of the Bay, then it must be accepted in a conservative analysis that the site may become a promontory or headland in this century or next. It would therefore be a reasonable and precautionary measure for sea defences to fully surround the main nuclear platform and not just the seaward aspect defined by the current proposal.

**From:** [REDACTED]  
**To:** [beiseip@beis.gov.uk](mailto:beiseip@beis.gov.uk); SizewellC  
**Subject:** RE: Sizewell C— Rev.2. Response to the Applicant's document "SZC Co.'s Response to Nick Scarr's correspondence to BEIS regarding EN010012 18th March 2022 Section 5 'Coastal Considerations".  
**Date:** 14 June 2022 15:00:52  
**Attachments:** [Sizewell C— Rev.2 Response to the Applicant's document SZC Co.'s Response to Nick Scarr's correspondence to BEIS.pdf](#)

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**To:** Energy Infrastructure Planning <[beiseip@beis.gov.uk](mailto:beiseip@beis.gov.uk)>; SizewellC  
<[sizewellc@planninginspectorate.gov.uk](mailto:sizewellc@planninginspectorate.gov.uk)>

**Subject:** RE: Sizewell C— Rev.2. Response to the Applicant's document "SZC Co.'s Response to Nick Scarr's correspondence to BEIS regarding EN010012 18th March 2022 Section 5 'Coastal Considerations". Published on the planning website 25th May 2022.

For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C.

From: Nick Scarr Interested Party number 20025524.

I have revised my document below to Revision 2.

RE: Sizewell C— Rev.2. Response to the Applicant's document "*SZC Co.'s Response to Nick Scarr's correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 'Coastal Considerations'*". Published on the planning website 25<sup>th</sup> May 2022.

I would be grateful if BEIS were to consider my response to the Applicant's document referred to above.

Kind regards

Nick Scarr Interested Party number 20025524.

14 06 2022

Sizewell C— Rev.2 Response to the Applicant’s document “SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 ‘Coastal Considerations’”. Published on the planning website 25<sup>th</sup> May 2022.

Nick Scarr - Interested Party number 20025524. 14/6/2022

Head of Energy Infrastructure Planning, Department for Business, Energy, & Industrial Strategy, [Sizewellc@planninginspectorate.gov.uk](mailto:Sizewellc@planninginspectorate.gov.uk)

Dear Gareth Leigh,

Ref: Response to the Applicant’s document “SZC Co.’s Response to Nick Scarr’s correspondence to BEIS regarding EN010012 18<sup>th</sup> March 2022 Section 5 ‘Coastal Considerations’”.

I would like to thank the Applicant for its response named above and hope to clarify some points in the following text.

My studies are characterised by the correlation and assimilation of the Applicant’s own work, including that of Cefas, plus accredited academic research.

#### Reference point 2:

The Applicant states: “Mr Scarr does not provide any rationale in support of his view that the adjacent shoreline recession case is not ‘severely receded’. The severely eroded adjacent (to the SCDF) shoreline case is derived from the EIA evidence base (Section 7.7 of Appendix 20A, Volume 2 of the Environmental Statement [APP-312])”.

- I stated that the shoreline *cannot be regarded* as ‘severely receded’. I am suggesting that the Applicant’s claim to be representing “...severely receded shorelines” in TR544 (Sections 3.2.2 and 3.2.3, REP10-124 Page 44) is not necessarily fully substantiated. The Applicant’s shoreline recession as proposed by ‘App-312 section 7.7’ appears to be primarily based on the EGA (Expert Geomorphological Assessment). This assessment is non-conservative and therefore does not establish the credentials to claim a ‘severely receded’ shoreline recession case. I have subsequently requested of BEIS that it may be beneficial to ask the independent geomorphologists who prepared the EGA to explain the limitations placed on their exercise.

The applicant suggests I have ‘taken out of context’ the following: “Given the importance of particle size, the text preceding the quote in Nick Scarr’s point 4 “TR544 has a reliance on the idea that sediment and shingle is ‘...effectively confined to the system...’ is taken out of context. In full, the quote in TR544 states ‘(i) sand supply is expected to remain similar or increase (Brooks and Spencer, 2012), (ii) shingle is effectively confined to the system (and is also likely to increase once Dunwich Cliffs begin to erode)’ That is, the pebbles are confined to the system, but the sand is not.”

The applicant has not previously, nor subsequently, always been clear in its differentiation of ‘pebbles’ and sand in this manner. The Applicant contradicts itself within the same paper:

- In ‘Point 5’ below the Applicant states that “..the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar”.
- Note:

The Applicant released an update to BEEMS TR544 (BEEMS TR553) which was published on the Sizewell C portal on the 11/4/22 almost two months after being made available to the Environment Agency. My responses to TR553 can be found in my document “*Sizewell C— Coastal Considerations and BEEMS TR553 26/4/2022*”.

### Reference point 3:

The Applicant states: “*SZC Co. has always considered that the Sizewell – Dunwich Bank plays a role in reducing the inshore wave energy. This was demonstrated in various BEEMS reports (also synthesized in Volume 2, Appendix 20A of the ES [APP-312]) on the historical bank variability and in wave modelling.*”

- On the basis that the Applicant acknowledges the wave reduction of inshore wave energy resulting from the banks how can it justify its position that:

*“...the Baseline scenario, i.e. with the Sizewell – Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal... for all scenarios and epochs as a conservative approach.”*

- I suggest therefore that this adopted methodology is incorrect and represents a fundamental misstep as its validity is limited to extreme water levels in late epochs.

The Applicant states: “*...Closer to the DCO application, and in particular during the EGA, it became clear that the shoreline behaviour is incoherent and shows no clear linkage to the form of the bank.*”

- This statement does not appear to be substantiated by the Applicant, and it does not correlate with accredited academic research and its own research pre-DCO. Shoreline behaviour in the Greater Sizewell Bay is controlled and defined by the offshore Sizewell Dunwich banks. **Shoreline behaviour has clear ‘linkage’ with the Sizewell Dunwich banks, a relationship that cannot be described as incoherent. I provide defining evidence of this, underpinned by historical precedent, in REP2-393 Section 2.**

### Reference Point 4

The Applicant states “*Degradation of the Sizewell-Dunwich banks would not have an impact on extreme still water levels and therefore would not increase the risk of inundation to the landward side of the main development platform. In the event of shoreline recession to the north or south of the proposed Sizewell C site, wave overtopping of the existing coastal defences and further wave propagation behind the existing Sizewell A and Sizewell B stations would result in wave energy dissipation, and the wave action at the landward side of the main development platform would therefore not be significant.*”

- The Sizewell-Dunwich banks do not affect still water levels. Agreed.
- However, degradation of the Sizewell-Dunwich banks could well increase the risk of inundation to the landward side of the main platform because of the coastline stress (erosion and recession) in the Greater Sizewell Bay that would result from such a degradation.
- Sea ingress from north of the station will arrive first at Sizewell C. I agree that there would be wave energy dissipation but should the main nuclear platform be exposed at 7.3m AOD it might be considered modest defence to the uncertainties of the twenty-second century storm levels and climate change sea level rise.

#### Reference point 5:

The Applicant states: “...Dunwich Bank is made from sand, not shingle or mud. There is good evidence to suggest that the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar”

- I accept the Applicant’s comments that the Dunwich bank is sand. I had, however, been referring to the offshore survey undertaken by B J Lees for the Institute of Oceanographic Sciences where ‘Grab, Boxcore and Vibrocore’ samples were drawn from the seabed in the vicinity of the Dunwich bank. Core samples VC6, VC7 and VC16 show the sediment appears to be sand underlain by ‘blue/grey clay’ and ‘sand silts and clay’. (See: *Sizewell Dunwich Banks Field Study B J Lees Report no 88*, available from Elsevier).
- The Applicant is stating that ‘sand supply’ will be the mechanism that will result in a retained Dunwich bank. This is implausible if only ‘pebbles are confined to the system, sand is not’ as the Applicant previously states in point 2 above. This is also **not consistent with the Marine Management Association’s statement that: ‘the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue.’**
- The key point is that the Dunwich bank is unconsolidated material and can therefore significantly change within decadal timescales.

The Applicant states: “Numerical modelling, topography and analysis of bed sediments indicate that Dunwich Bank is fed sand from the coastal system via Thorpeness and Sizewell Bank. Brooks and Spencer (2012) showed that future sea level will increase cliff erosion and sand supply in the region, and therefore it is likely that the sediment supply will rise..”

- Again, the Applicant is now appearing to suggest that sand is retained within the system contrary to its previous assertion in Point 2.

#### Reference point 6 (some parts of point 6 are repeated in Point 15):

The Applicant states: “On the basis of the above, SZC Co. reiterates that at no point has the assessment set out in the MDS FRA relied on the assumed permanence of the Sizewell-Dunwich Bank, rather the assessment identified that the scenario with the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal and therefore was the approach adopted within the Flood Risk Assessment. The modelling set out in TR545 had a different purpose than for the assessment of flood risk and, therefore, was not provided by SZC Co. as justification for the approach adopted in the MDS FRA.”

- The assertion that the Sizewell-Dunwich banks in situ results in more conservative (worst-case) nearshore wave conditions for all epochs and scenarios is illogical and inconsistent with accredited academic research, the Applicant’s own research pre DCO and the Applicant’s methodology in BEEMS TR544 and TR553. It is further seemingly unusual to make the above statement that “...at no point has the assessment set out in the MDS FRA relied on the assumed permanence of the Sizewell-Dunwich Bank...” as the bank is indeed effectively regarded as permanent (i.e., in its 2017 DEM-(Digital Elevation Model) form) for all epochs and scenarios in the main Flood Risk Assessment and the Expert Geomorphological Assessment.
- I acknowledge, and have always acknowledged, (see my paper REP2-393 section 7.2) that in certain, specific, late epoch high water levels the Sizewell-Dunwich banks would have little or no effect in wave mitigation. This is expressed in BEEMS TR319 which states “.. for

extreme waves (1:1000 returns), when sea levels are also raised there is little difference in the near shore between the geoscenarios and the present bathymetry.” I concur with this statement. However, BEEMS TR319 continues, “...whereas present bathymetry has been accurately surveyed, it would therefore seem logical to focus the majority of subsequent work (e.g. wave run up studies) on the present bathymetry cases.” **I do not concur with this statement – that ‘present bathymetry has accurately been surveyed’ has no relevance or validity for defining the remit of subsequent parameters.** The Applicant is then incorrect to state that “...the Sizewell - Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal and therefore was the approach adopted within the Flood Risk Assessment [for all scenarios and epochs]”.

The adoption of the above approach can lead to understated flood and erosion risk in all epochs and scenarios other than extreme high-water levels. Persistent and cumulative wave action in moderate storms and surges in the Greater Sizewell Bay may be underestimated (where and if considered) and the EGA’s adoption results in non-conservative shoreline change assessment.

- The Sizewell Dunwich banks are the arbiter of shoreline security, and they reduce the inshore wave climate. This has repeatedly been stated and most recently in BEEMS TR553, just released, which affirms the ‘natural energy dissipating effects’ of the banks. **The Sizewell-Dunwich banks in situ does not, therefore, represent a general, conservative consideration.**
- BEEMS TR544 and TR553 reverse this approach to an orthodox mandate of correctly treating the Sizewell Dunwich banks as wave reducing features and removing them for conservative modelling purposes. However, as stated earlier, this is limited to an SCDF study, as the Applicant makes clear, and not to the Greater Sizewell Bay in general. The main FRA and EGA remain, in my view, compromised and there is a requirement for a comprehensive, conservative study of shoreline retreat of the GSB.

The Applicant states in Point 6 that the EGA had a specific and limited remit relating to exposure of the HCDF only.

- I accept this; however, the EGA is a non-conservative, non-precautionary assessment. Surely in order to study HCDF exposure a conservative assessment should have been undertaken.
- It also appears to be allocated the more general remit of defining the ‘plausible future shoreline’ and hence applied to an overall assessment of general shoreline retreat with unspecified spatial limits:

*“The rationale behind the definition and projection of a likely future shoreline baseline during the operational phase of SZC is set out in Reference [20]. Its objectives were to determine:*

- *whether the shoreline is likely to erode and expose the hard coastal defence feature (a scenario without Additional Mitigation (also referred to as Secondary Mitigation));*
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Sizewell C Project SIZEWELL C SITE DATA SUMMARY REPORT. Page 18/19.

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- The Applicant states in ‘Volume 1 Introduction to the Environmental Statement Chapter 6 EIA Methodology Appendix 6C - Responses to EIA Scoping Opinion Comments’ that the “...future environmental baseline has been determined by Expert Geomorphological Assessment. Appendix 20A of Volume 2, section 7 provides more detail on the future shoreline baseline, as well as monitoring, mitigation and potential post-mitigation impacts.” There is no clear mention that the EGA is specific to HCDF analysis.
- The Applicant again asserts that TR545,544 relates only to the Soft Coastal Defence Feature (SCDF).
- The SCDF and the HCDF are each being treated independently with opposing models of conservatism (one without the Sizewell Dunwich banks in situ and one with the banks in situ) and essentially without acknowledging the context of the Greater Sizewell Bay in which they will exist.

#### Reference Point 8:

My original comment:

- “... in the Applicant’s twenty-two DCO main Flood Risk Assessment and fourteen FRA Addendum documents the Sizewell-Dunwich banks are also not explicitly named. (‘Banks’ are mentioned in the Addendum of an Addendum without reference to which banks are being referred to). See REP2-393.”

SZC Response to this:

“SZC Co. noted in the response to ExQ2 CG.2.10 submitted at Deadline 7 [REP7-056] that Section 5.3 of Appendix A of the Coastal Modelling Report (Appendix 1 of the MDS FRA [APP-094]), summarised the assessment undertaken for the offshore sand banks. **Whilst, the Sizewell-Dunwich Bank was not named explicitly in this document, SZC Co. has been consistent throughout the Examination that, in this context, the assessment was referring to the Sizewell – Dunwich Bank.**”...“Furthermore, SZC Co. does not believe that any further clarification is required beyond that previously provided”.

Note: My bold text.

- In the twenty-two DCO main Flood Risk Assessment and fourteen FRA Addendum documents the Sizewell-Dunwich banks do not appear to be explicitly named as I stated and as the Applicant appears to agree. The Applicant claims however, that it makes consistent references to the Sizewell-Dunwich banks – the following illustrates that this may not be the case.
- The FRA document: ‘5.2 Revision: 1.0 Applicable Regulation: Regulation 5(2)(e) PINS Reference Number: EN010012 Main Development Site Flood Risk Assessment’ only obliquely refers to the Sizewell Dunwich banks using the term ‘sand bar’ but also creates further confusion by using the term ‘sand bars’ to refer to the nearshore bars in the immediately preceding paragraph:

“**5.3.16** As discussed in section 5.3.5 of this report, the presence of the sub-tidal longshore **sand bars** may contribute to dissipation of some of the wave energy nearshore. There is concern that the **sand bars** might erode in the future. That would most likely represent greater flood risk as it would result in the greater wave energy nearshore.”

“**5.3.17** An additional series of lowered **sand bar** scenarios were analysed in the wave transformation model by the lowering of the sand bank by 5m with assumption the sediment is lost from the system entirely. This was to test the effect of the sand bank on nearshore wave conditions. The derived

*nearshore wave conditions for the baseline (with sand bar) and lowered sand bar scenarios were compared showing that the baseline scenario predicted higher nearshore waves than the lowered bar scenario. Therefore, the baseline scenario was taken forward for wave overtopping assessment for the Sizewell C FRA, as it is more conservative.”*

- **In 5.3.16 ‘sand bars’ mean the nearshore longshore bars which is made clear.**
- **In 5.3.17 ‘sand bar’ now means the Sizewell Dunwich banks which is not made clear as it appears to be a continuum from 5.3.16.**
  
- **5.3.17 is the critical part of the Flood Risk Assessment** where the Applicant decided to treat the Sizewell-Dunwich banks (and its daughter geomorphology - the nearshore, longshore bars) as immutable **for all FRA (Flood Risk Assessment) and EGA (Expert Geomorphological Assessment for shoreline change) scenarios and epochs.** This cannot reasonably be described as open and clear.
- How do we know that the nearshore, longshore bars are also to be regarded as immutable? This requires further close reading of all the FRA texts and BEEMS documents that underpin them. We find the term ‘present bathymetry’ is used, thus implying the nearshore longshore bars and the Sizewell-Dunwich banks are combined as immutable geomorphic features for the purposes of the FRA, FRA Addendum and EGA. Section 6 of this paper explains and my paper REP2-393 sections 7.1, 7.2.
- The presence (immutability) of the Sizewell Dunwich banks and the nearshore bars does not represent conservative, precautionary modelling for all scenarios and epochs as the Applicant claims—these three related geomorphic features are fundamentally wave energy reducing. They are consequently vital to controlling shoreline erosion of the Greater Sizewell Bay.

#### Reference Point 13

The Applicant states: *“The above values, provided by Mr Scarr, were not presented in the MDS FRA or FRA Addendum. As such, no reference has been provided to clarify the origin of the values nor the base year of the extreme still water levels. Therefore, it is not possible to directly compare the values with those previously presented by SZC Co.”*

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- Again, there seems to be an assumption of sand supply in apparent contradiction to earlier statements that sand is lost to the system.
- That SCDF control is manageable with recharge is noted but it does not carry the validity of being underpinned by conservative study of shoreline retreat of the GSB.

- The Applicant states: *“In terms of the potential for a breach to the north of the proposed SCDF and HCDF, this has been considered up to 2190, as discussed in Section 3.4 of the MDS FRA Addendum [AS-158], with the conclusion that the main platform and the SSSI crossing with levels set at 7.3m AOD are not at risk of flooding under the reasonably foreseeable scenario up to 2190. The SCDF [REP10-124] numerical modelling considered scenarios with lowered or no banks, and therefore did not assume little or no change to the offshore geomorphology as Mr Scarr states.*
- AS-158 and AS-157 do not appear to reference the Sizewell-Dunwich banks and how they were used in this modelling.
- I have accepted the SCDF modelling in TR553 TR545 consider lowered or no banks and have stated this clearly, BEEMS TR544 (REP10-124) does not appear to mention the Sizewell-Dunwich banks.
- The Main FRA and EGA assume no change to the Sizewell Dunwich banks. I was not commenting on TR544/545/553.

#### Reference Point 18

The Applicant states *“Spent fuel cooling rates are specific to the type of fuel and the burn up of the individual assemblies, but it should be noted that no fuel will be sent from the SZC site until it meets the transport and Geological Disposal Facility (GDF) acceptance criteria.”*

- This is agreed but there does not appear to be a stated average burn-up rate and therefore decay heat and hence cooling times are unclear.
- The NDA (Nuclear Decommissioning Authority) and the ONR (Office for Nuclear Regulation) offer differing analyses for this period of onsite spent fuel cooling. The NDA on the 10/11/21 informed me that they were *“... not obliged under legislation FOIA or EIR to provide explanations, clarification, opinions etc...”* I asked the NDA that in view of its unwillingness to communicate with me could they please agree a conclusive analysis of fuel cooling requirements with the ONR. I did not receive a reply. **I think it imperative for BEIS to establish whether there is coherence regarding fuel cooling requirements between the NDA and the ONR.**

#### Summary:

The analysis of shoreline change at Sizewell appears to concentrate on independent assessments: the Soft Coastal Defence feature (SCDF) now modelled conservatively by BEEMS TR545, TR544, TR553; the Hard Coastal Defence Feature (HCDF), assessed by the Expert Geomorphological Assessment (EGA) non-conservatively and neither appear to be adequately considered within the context and environment of the Greater Sizewell Bay.

The Greater Sizewell Bay has experienced both acute erosion and stability in recent centuries resulting from the control of the inshore wave climate by the protective Sizewell-Dunwich banks located approximately 1 Km offshore. Unfortunately, the Dunwich bank is now depleting and, according to the Marine Management Organisation, it is logical to assume that it will continue to do so. The loss of the Dunwich bank would allow unmitigated waves onto the Sizewell C nuclear foreshore (we must assume that the loss of the nearshore, longshore bars could be rapid) and according to the Institute of Oceanographic Sciences those waves may carry higher than normal energy:

- *“... [wave energy coefficients] suggest a concentration of energy in the Sizewell area, [offshore of the Sizewell-Dunwich banks] especially for wave headings between 230 and 300*

*degrees. Wave refraction calculations also suggest that, particularly with waves come from the direction of maximum fetch (210 degrees), there are energy foci along the coast, notably between Sizewell and Thorpeness.*" Institute of Oceanographic Sciences, Sizewell-Dunwich banks field study, Topic Report 6, Carr, King, Heathershaw and Leeds. Page 15

The Sizewell foreshore, at least the first 80m or so, *is recently accreted material* (1836-1920) and hence must be regarded as a particularly soft and erodible receptor to any increased wave climate resulting from the loss of the Dunwich bank.

The reliance on a Coastal Management plan—the CPMMP—is, in my view, a high-risk strategy in that it lacks a fully conservative shoreline recession assessment for the Greater Sizewell Bay to define its remit and offers no 'Plan B' if it finds itself unable to manage an extreme event. Dunwich and Slaughden, approximately 6 km to the north and south respectively of the proposed Sizewell C were lost to sudden storms, almost overnight. It is not clear that a CPMMP based approach to 'pebble recharge' could have withstood such a rate of change and destructive force. **Hence, Sizewell C may represent an unreasonable fiscal and environmental risk to future generations.**

If these concerns are anyway to be over-ridden by political factors, then I suggest the following:

- **It must be acknowledged that the Sizewell C site will not have the benefit of the better locations occupied by Sizewell A and Sizewell B.** If the project should continue as planned by building Sizewell C into the low-lying marshlands of the Bay, then it must be accepted in a conservative analysis that the site may become a promontory or headland in this century or next. It would therefore be a reasonable and precautionary measure for sea defences to fully surround the main nuclear platform and not just the seaward aspect defined by the current proposal.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** FAO Gareth Leigh: TASC response to SZC Co's reply to TASC's comments re fish- our IP no. 20026424  
**Date:** 15 June 2022 00:30:05  
**Attachments:** [mapiaogbifaiidap.png](#)  
[TASC comments on EDF's response re fish June 2022.pdf](#)

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## TOGETHER AGAINST SIZEWELL C



FAO Gareth Leigh, BEIS

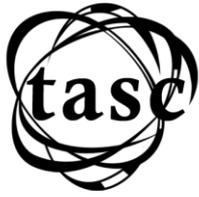
Dear Mr Leigh,

Please find attached TASC's response to SZC Co's document 'SZC Co's response to the Secretary of State's request for further information dated 25th April 2022 Appendix 2 Response to TASC's submission relating to fish', published by PINS on 25th May 2022. TASC trust the Secretary of State will take our comments into account when considering his decision regarding the SZC DCO application.

Please acknowledge receipt.

Yours sincerely,

Mr Chris Wilson



# Together Against Sizewell C

## Sizewell C [SZC] DCO

### TASC's [IP no. 20026424] response to Appendix 2 of SZC Co's May 2022 response regarding TASC's observations on fish matters

SZC Co's response: [REDACTED]

#### Role of Cefas

SZC Co in para 1 refer to Cefas's role in the DCO process and that they operate under the guidance of the Civil Service code from which we quote:-

- *'integrity' is putting the obligations of public service above your own personal interests*
- *'honesty' is being truthful and open*
- *'objectivity' is basing your advice and decisions on rigorous analysis of the evidence*
- *'impartiality' is acting solely according to the merits of the case and serving equally well governments of different political persuasions*

Cefas's website includes comments such as "Our work tackles the serious global problems of climate change, marine litter, over-fishing and pollution to secure a sustainable blue future for all." And "Tackling the serious global problems of climate change, biodiversity loss and food security to secure a sustainable blue future for all."

SZC Co's aim is to obtain maximum return for its investment by maximising profitability from the SZC project.

In TASC's opinion, Cefas's role compromises both the applicability of the Civil service code and the aims that it quotes on its website. We know from a previous FOI request [FOI 566] that during the years 2015-2018 Cefas received over £17.5 million for work carried out for EDF on the Hinkley Point C [HPC] and SZC projects. Cefas subsequently refused TASC's FOI request for equivalent figures for later years which, to TASC, suggests that Cefas may be embarrassed about how reliant its operation has become on income from EDF. TASC do not consider that Cefas, in common with other government agencies, will have been immune from the lack of government funding for its operations, so we suspect that many of the jobs within Cefas have become totally reliant on the income it has received from EDF. TASC consider that this suspected reliance on EDF's income is likely to have unintentionally compromised Cefas's ability to operate objectively and with impartiality. After all, it cannot be said that, in any way, the SZC project is going to enhance the very marine environment that Cefas are charged to protect: SZC will pollute and warm our seas with chemical and radiological wastes as well as through the discharge of an undefined volume of dead/dying



TASC note with incredulity, that Appendix 2 makes numerous references that effectively imply that, as lots of the fish will die anyway, those killed by the SZC cooling water system does not present a problem. Such references are in: para 1.1.2 regarding sea bass *“entrainment losses of early life-history stages from the station are dwarfed by very high rates of natural mortality in this species.”* : para 1.1.3 *“The majority of these juveniles would never survive to maturity (and reproduce) owing to very high rates of natural mortality.”*; para 1.2.3 *“high rates of natural mortality mean these early life stages have a low probability of reaching maturity.”* ; para 2.1.3 *“Due to the very high natural mortality of early life stages of sea bass, the relative population effects of any feasible underestimates of losses of these stages is minor.”* [TASC Note: as no detailed records of small fish entrained by SZB are available, TASC question SZC Co’s assertion that there are low numbers of sea bass, or any other species, vulnerable to entrainment]; para 3.1.1 *“any underestimation of these small size classes would have minor effect on the results, as demonstrated in Section 1.1 due to the low relative EAV.”* ; para 3.1.14 *“High natural mortality of juvenile pipefish means in reality, few juveniles would survive to maturity.”*; para 3.1.16 re flatfish *“Very high natural mortality of these early life stages means the equivalent adult losses are predicted to be low”*. These statements by the Applicant that the death of millions of juvenile, small, and long, thin fish as well as fish larvae, are of no consequence, ignores their importance as a food source for predators and also ignores the fact that natural mortality through circumstances such as starvation, means that an important part of the ecosystem, e.g. dead fish laying on the sea bed, is unnaturally removed, thereby negatively impacting on the natural food chain and biodiversity.

TASC note that the applicant has agreed a deed of covenant with the Environment Agency [REP10-088] which includes the statement *“The construction and operation of the nuclear power station is likely to have an adverse effect on the populations of eels and migratory fish in the locality”* and *“SZC Co will pay a financial contribution towards the carrying out of mitigation measures to reduce any such adverse effect, such contribution will be made pursuant to the Principal Deed”*. The deed then advises that the contribution is £500,000. It is TASC’s opinion that the size of financial compensation supports our contention that there will be substantial damage to the marine environment (eels and migratory fish being just a part of this) and that this damage has implications for protections under the Water Framework Directive (WFD).

#### Discharge of biota

With reference to the WFD and the shadow HRA, the Applicant has stated in section 1.4 of this response ‘Discharge of biota’, that there are not expected to be any impacts from the discharge of biota. TASC do not consider this position adequately considers the impact of biofouling of the intake tunnels, particularly resulting from outages. TASC have asked marine ecologist, Dr Peter Henderson, to consider this aspect and he has prepared a short report *‘Estimation of the weight of fouling organisms in the intake system at the proposed Sizewell C nuclear power station’* which is included at Annex A to this document. The conclusion states ***“In conclusion, when the culverts become heavily fouled, the total biomass of fouling organisms present could reach 4,000 tonnes by the time of the 18-month planned shutdown. This huge mass of dead organisms will generate an appreciable biological oxygen demand as they decay. This upper limit should not be viewed an extreme upper estimate as large culverts have in the past been fouled with far higher biomass of mussels and other molluscs per unit area than has been assumed here.”*** TASC do not consider the environmental implications of this toxic outfall at each outage has been adequately addressed or taken into consideration when considering the alternative use of cooling towers instead of a direct/once-through cooling water system.

## Cooling Towers

Para 1.5.3 of the Applicant's response is quite telling with its comments relating to consideration of cooling towers as an alternative cooling system. Firstly, the Applicant refers to their 'Alternatives' document APP-190, specifically paras 6.6.21-6.6.27, mentioning the Environment Agency criteria relating to cooling systems. TASC assume the Applicant is actually referring to paras 6.2.21-6.2.27 and will continue on that assumption. Para 6.2.24 is worth quoting: "*The Environment Agency (Ref. 6.5) states that direct cooling can be acceptable in coastal locations if three conditions are met:*

- *extension of heat plume in the surface water leaves passage for fish migration;*
- *cooling water intake is designed aiming at reduced fish entrainment; and*
- *heat load does not interfere with other users of receiving surface water."*

With regard to the second bullet point, para 6.2.25 then includes this statement "*The Sizewell C cooling water system has been designed to minimise environmental impacts on fish and other marine biota by means of the siting of the intake and outfalls, the specially designed Low Velocity Side-Entry intake head and the Fish Recovery and Return system.*" This statement is clearly incorrect, as the cooling water system design proposed for SZC does nothing to reduce fish **entrainment** as the measures quoted are all designed to reduce fish 'impingement'. As stated by TASC on many occasions, the Applicant does not have a clear picture of the number of fish that SZC will entrain anyway.

Secondly, TASC wish to advise the Secretary of State that the EA criteria is set out in the EA's document '*Cooling Water Options for the New Generation of Nuclear Power Stations in the UK*' published in 2010

[REDACTED] ). In para 1.2 it states, as part of the background, "*The Government is committed to allowing the construction of new nuclear power stations provided they are subject to the normal planning process for major projects (under a new national planning statement) and provided also that they receive no public subsidy [emphasis added]*" and "*A Strategic Siting Assessment of potential sites for nuclear new build has been carried out using exclusionary and discretionary criteria which were consulted upon publicly. This included a criterion on access to suitable sources of cooling.*" The first sentence quoted, highlights the change in circumstances since the EA document was published, as SZC is slated to receive public support via the RAB funding model and direct public ownership. The second sentence then highlights SZC's lack of potable water supplies that will be needed for cooling during the proposed 60 years of operation, a clear failure of any 'Strategic Siting Assessment'. This EA guidance is clearly out of date, and this was recognised by the government, when in 2018 the EA launched a scoping document '*Protection of biota from cooling water intakes at nuclear power stations: scoping study*'. This document clearly identified changes that had ensued since 2010 including the increasing awareness of the impact of cooling water systems on the marine environment, the increased awareness of the impacts of climate change and changes in technology. TASC consider it is worth acknowledging that the U.S.A. banned the use of direct cooling water systems in new nuclear plants due to their impact on the marine environment- see [REDACTED]

[REDACTED] which refers to section 316(b) of the Clean Water Act. TASC also point to the implication of the above matters to reinforce our previous comments that NPS EN6 is out of date, including its references to cooling water systems.

One of the predicted consequences of climate change is rising sea temperatures and it is recognised that this can have implications for the efficiency and effectiveness of a nuclear plant such as Sizewell C that will rely on sea water cooling. TASC do not consider this has been adequately addressed in the Applicant's consideration of the alternative of using cooling towers. TASC attempted to obtain information about the predicted impact that sea water and air temperatures may have on the operation of SZC from the Office for Nuclear Regulation (ONR) who held this in documents supplied by the Applicant as part of their application for a nuclear site licence. It is telling that this information was withheld by the ONR on the grounds of a supposed commercial sensitivity, suggesting that rising sea temperatures will have a negative impact on SZC's operations. This information should be available for public scrutiny.

In APP-190, the Applicant, in para 6.2.26, dismisses the use of cooling towers demonstrating an apparent lack of serious consideration of these as an alternative. The Applicant's comments demonstrate, more than anything else, that the proposed site for SZC is too small, also that it is in the wrong location because of its potential impact on the Suffolk Coast and Heaths AONB.

### Conclusion

TASC's review of the impact of SZC's proposed cooling water system has highlighted that there are unknown and unquantifiable negative impacts that it will have on the marine environment. EDF have recently announced that it is planning on applying to extend the life of Sizewell B by up to 20 years. SZC's operation alone is an unsustainable burden on the marine environment so the cumulative impact of 3 nuclear power reactors operating alongside each other for a likely period of 20 years needs far greater assessment than that already considered. The lack of a local source for potable water for SZC's build, 60 years of operation and decommissioning also highlights that SZC is not sustainable, and that the site is not suitable for SZC Co's proposals.

Finally, we refer to the submission made by the Blue Marine Foundation [AS-325] where they highlight the importance of the decision to be made in connection with the Hinkley Point C, Acoustic Fish Deterrent case, including the implications for the Water Framework Directive. They suggested that the SZC examination should not commence until that case has been decided. TASC believe that the Secretary of State is not in a position to make a fully informed decision on the SZC DCO application until the result of the HPC case is published. TASC are concerned that the results of the HPC case are being deliberately withheld because of the bearing it could have on aspects of the SZC DCO application.

ANNEX A

DR PETER HENDERSON REPORT FOR TASC:

*Estimation of the weight of fouling organisms in the intake system at the proposed Sizewell C nuclear power station*

# Estimation of the weight of fouling organisms in the intake system at the proposed Sizewell C Nuclear Power Station

P. A Henderson

Thursday, 09 June 2022

## The Risk of Biofouling without chlorination

The protection of the intake structure and the pipework of a plant from fouling by mussels and other organisms often requires the use of anti-fouling agents.

Bivalve animals, especially mussels, can and do settle and grow in cooling systems; their larvae and juvenile stages pass through intake filter screens. Within the system the animals can cause blockages, while detached mussel shells can cause erosion-corrosion in condenser tubes, thereby threatening plant integrity. Historically mussels had to be cleared by hand from culverts on a regular basis. Many coastal power stations control fouling by chlorination. Chlorination products are frequently released into the receiving waters at low levels with the discharge water. Chlorination is important as it will reduce entrainment survival and will kill a high proportion of the bacteria and other micro-organisms present in the intake water.

The Applicant's ES states the following: **“Sizewell is categorised to be a high-risk site in respect of potential fouling by marine organisms (e.g. mussels, tube worm, anemones etc) and low velocities act to enable settlement of the planktonic larvae of these organisms (which then grow into adults and their presence can restrict water flow and potentially block the cooling water system). Consequently, very low flow velocities are not suitable for the Sizewell C intake design. However, a design that is side entry and placed orthogonal to the tidal flow does not affect biofouling risk and so these elements have been retained to mitigate entrapment of marine animals.”**

It is clear that the inevitability of biofouling build-up on solid surfaces is accepted and one of the consequences is that a low velocity intake head which would have helped to reduce fish and invertebrate capture is not proposed.

The ES notes that: **“In contrast to the Sizewell B strategy, chlorine would not be added to the system upstream of the Sizewell C drum and band screens.”**

The result is that it is inevitable that the walls of the intake culverts, the fish return system and the drum and band screens will become fouled, and this will have potentially major impacts on both the operation of the plant and also the local environment.

The threat to the power station from biofouling has been dismissed with the simple statement **“ the intake tunnels for Sizewell C are very large (6m internal diameter)and are assessed to be capable**

**of incurring some fouling without having a significant effect on flow rates (fouling occurs on the walls of cooling water systems but the depth of material that can attach and survive there is finite; the large diameter of the intakes can accommodate a degree of fouling); in addition to the large diameter, flow rates in the intake tunnels are in excess of 2m/s and at such speeds settlement of fouling organisms is very unlikely; at the drum and band screens, ..”**

The problem is that it is not the reduction in flow rates that will first impact the power station but the shedding of lumps of biofouling comprising sea squirts, mussels, oyster, barnacles, anemones, tube worms and starfish amongst other organisms. This material will both block and penetrate the 10 mm mesh screens and has the potential to block and cause erosion of condensers and other bits of the plant. The assertion that a velocity in excess of 2 m/s will make fouling unlikely is incorrect. The velocity close to the culvert wall will be less than 2m/s because of boundary effects and once fouling organisms have settled, possibly during periods when pumping rates are low, they will increase the boundary effect and rapidly colonise.

A further problem is that fouling organisms will die when the pumps are turned off. This will generate a large volume of anoxic water which will be discharged to sea.

It is claimed that fouling of the screens will not occur because of high pressure washing. A system of low- and high-pressure washers are used at Marchwood Power Station filter screens in conjunction with the fish return system. The system was found to foul, and they have been forced to install chlorination at the intake in front of the screens. I believe this will also be found to be the case at Sizewell C. A particular area of concern relates to starfish. These are rarely a biofouling problem with short intake tunnels. However, the 3 km intake tunnels create a huge area for starfish to colonise. When they are washed onto screens they attach tenaciously and are hard to wash off. A large starfish ingress occurred when Sizewell B first started operation. The potential for a far more serious problem at Sizewell C exists.

Fouling within the unchlorinated fish return system is inevitable and this will inevitably impact upon its utility and ability to return fish alive to the environment.

## Quantification of the problem

1. The 3000 m long 6 m diameter intake culverts will each have a fouled surface area of 84,950 m<sup>2</sup>. The total unchlorinated hard surface available to fouling organisms, including the intake head works, screens and fish return system will be around 200,000 m<sup>2</sup>.
2. In the ES we are informed that, **“During the 60-year operational life, each reactor unit would undergo refuelling and maintenance shutdowns (‘outages’) at approximately 18-month intervals. The duration of these outages would vary but would typically be for up to two months.”**
3. Over an 18 month fouling period the typical biomass of attached biofouling (biofilms of microorganisms, mussels, barnacles, limpets, bryozoans, tube worms and ascidians) observed in culverts ranges would be expected to range from 100 g to 1 kg/m<sup>2</sup> depending upon conditions. In addition, the surface will be colonised by starfish and other mobile organisms such as crabs, amphipods and shrimps, the biomass of these motile forms is difficult to estimate, but starfish biomass could become appreciable as this has been

observed to be the case in the past at Sizewell and other power plants situated along the English Channel coast. There have been cases of filter screens becoming fouled when large numbers of starfish detach from culverts and reattach themselves to the rotating drum screens. Their sucker feet hold so strongly that the screen wash fails to remove them. Reasonable assumptions for mobile biomass would be 50g to 1 kg/m<sup>2</sup> depending upon the level of starfish colonisation.

4. The lower estimate of attached fouling organisms is  $0.01 \times 200,000 \text{ kg} = 2000 \text{ Kg}$
  
5. The upper estimate of attached fouling organisms is  $1 \times 200,000 \text{ kg} = 200,000 \text{ kg}$  or 2000 tonnes
  
6. The lower estimate of mobile fouling organisms is  $0.005 \times 200,000 \text{ kg} = 1000 \text{ Kg}$
  
7. The upper estimate of mobile fouling organisms is  $1 \times 200,000 \text{ kg} = 200,000 \text{ Kg}$

**In conclusion, when the culverts become heavily fouled, the total biomass of fouling organisms present could reach 4,000 tonnes by the time of the 18-month planned shutdown. This huge mass of dead organisms will generate an appreciable biological oxygen demand as they decay. This upper limit should not be viewed as an extreme upper estimate as large culverts have in the past been fouled with far higher biomass of mussels and other molluscs per unit area than has been assumed here.**



For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C.

From: Paul Collins: IP:20026395

RE: Sizewell C— Soft Coastal Defence Feature and the Sizewell B salient – Supplementary submission.

I am sending this supplementary submission to try to exemplify the issues referred to in my previous [submission](#) prompted by access to a BEEMS Technical Report (TR223 edition 3) and its relevance to the coastal defence. The issue relates to the lack of a Plan B for the Coastal Processes Monitoring and Mitigation Program (CPMMP) ([REP10-041](#)), should a catastrophic erosion event take place exposing the Hard Coastal Defence Feature (HCDF), referred to in previous submissions from myself, Theberton and Eastbridge Parish Council et.al. and from Mr Nick Scarr in several of his submissions including one recently submitted but not yet available on the PINS website.

It occurs to me that whilst we can talk about the claims of suitability of the Hard and Soft Coastal Defence proposals on the Sizewell Bay and the areas in front of both Sizewell A, B and proposed Sizewell C, it is almost impossible to reconcile these within the current coastal sea/beachscape without being able to see the level of imposition and eastward/seaward extent of the HCDF/SCDF compared to the natural coast/beach line without SZB in operation or Sizewell C being built.

What follows below is an attempt to show where that natural coastline would be with both the Sizewell A salient (still in evidence and not eroded away once Sizewell A ceased operation as stated by the Applicant) and Sizewell B salient. An initial attempt at this was shown in Figures 2&3 in [REP8-280](#) but I have adjusted them slightly to extend them further to the north and ensure they follow the foot of the existing sacrificial dune which is a good proxy for the natural coastline embayment.



Figure 1: Sizewell Bay with Natural Embayment/Sacrificial Dune and HCDF Overlay

As shown above, the current design of the Hard Coastal Defence Toe crosses the existing sacrificial dune at the southern end where it returns inland to meet the existing Sizewell B defences.

The Sacrificial Dune at this point has a viewing platform and steps straddling the dune and the toe of the HCDF lies approximately 15m seaward of the foot of the sacrificial dune as shown below.



Figure 2: South Easterly extent of HCDF Roundhead

The salient at its widest point a little south of here is about 28m wide before it drops to the tidal beach.

The Applicant has acknowledged analysis by Pethick (2004) that Sizewell B cessation of operation will result in loss or depletion of the Sizewell B salient (a shoreline protrusion created by, and in the lee of, the Sizewell B outfall) as follows:

[APP-312](#) at section 7.3 and in TR223 edition 3: *“The present-day beach salient formed at the Sizewell B Outfall is likely to be maintained until the station ceases to operate, after which the beach is expected to ‘relax’, eroding locally until the salient has disappeared (as per the Sizewell A salient following cessation of operation)...*

In the Sizewell C Coastal Defences Design Report ([REP2-116](#)) Appendix A, Figure 3-12, a cross-section of the HCDF and SCDF is shown for a roughly central position along the SZC frontage and reproduced below. Unfortunately, this does not show the southern roundhead cross-section which will have a steeper SCDF slope and will also protrude further eastward as shown below in Figure 3.6 Sizewell B Interface Plan.

The access path is shown immediately above the foot of the HCDF at a height of +5.2m OD with the SCDF rising to +6.2m OD before sloping down to the beach as a shingle slope managed through the Coastal Process Monitoring and Mitigation Plan (CPMMP). There appears to be no definition of the

slope of the SCDF although by comparison with the 1 in 3 slope of the main HCDF, it is clearly shallower perhaps 1 in 4 or 1 in 5.

Allowing 3m for the rise to 6.2m, 3m for the flat top of the new SCDF, at a 1 in 5 slope a further ~32m of SCDF will be required to reach 0m OD.

A.1. May 2020 Submission (upper) and January 2021 Change Submission (lower) - Figure 3-12

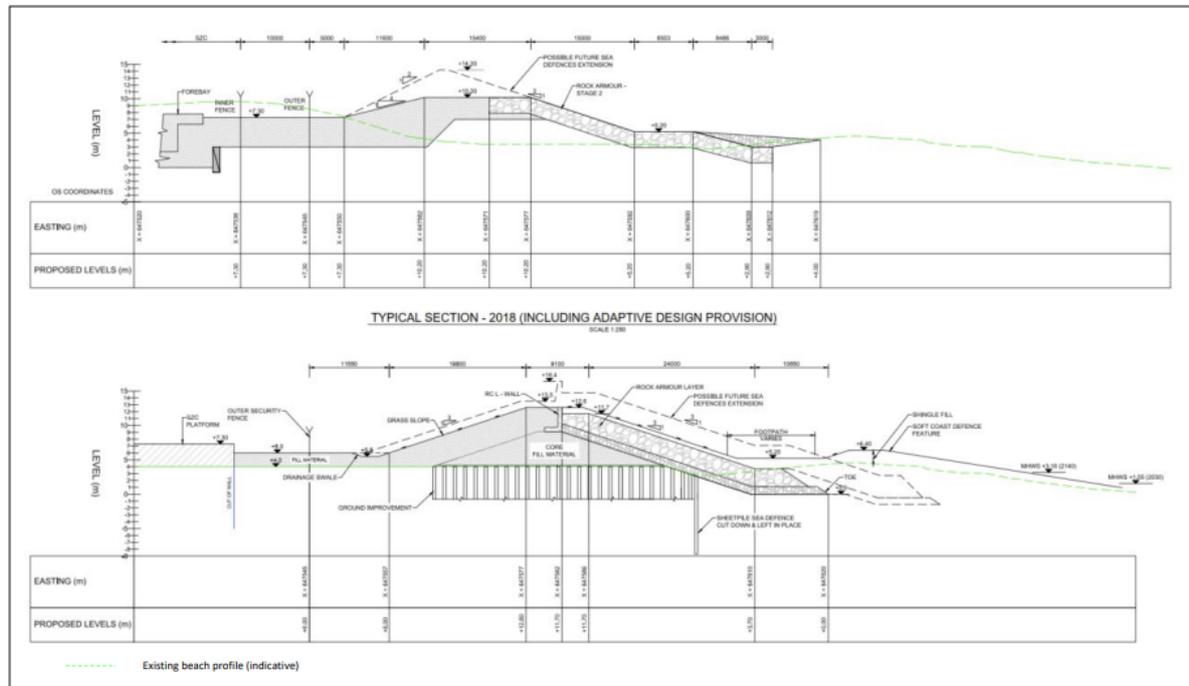


Figure 3-6 - SZB Interface - Plan



When we plotted the position of the Toe of the HCDF and during a beach event on Sizewell beach we had the participants line up along the eastern edge of the HCDF toe and for about three quarters of its length, the HCDF toe sits just behind the existing sacrificial dune, as shown below. The current dune width at this point is about 11.4m, including both slopes and a 2m top.



Figure 3: HCDF Toe Position

This means that the new SCDF will protrude an additional 20m eastwards, assuming a 1 in 5 slope, from the seaward foot of the existing sacrificial dune, which marks the natural embayment profile of Sizewell Bay.

The Sizewell B salient apex is some 28m from the sacrificial dune seaward foot, and yet the Applicant expects the Sizewell B Salient to “relax” or erode back to this natural embayment profile once Sizewell B ceases operation within 2 years.

This places the whole of the SZC SCDF profile in immediate threat from the natural erosion processes that will occur as soon as Sizewell B ceases operation.

The necessity to push the operational platform so far east, to accommodate the dual reactor design, with the consequences for the position of the HCDF and its protective SCDF will create a significant coastal structure well outside the natural profile of Sizewell Bay. Whilst this might endure for a while whilst the Sizewell B outfall is maintaining its salient, once Sizewell B ceases operation, coastal erosion will be constantly driving the removal of the Sizewell C SCDF even without any significant storm events.

The position of the south-eastern toe of the HCDF at the roundhead some 15m east of the sacrificial dune with a steeper and narrower SCDF protection will be under even more threat from this erosion once Sizewell B ceases operation.

The most vulnerable part of the coast defence is planned to be protected by the narrowest (weakest) part of the SCDF. The creation of this weak point is a major cause for concern on the integrity of the coast defence structure and the safety of Sizewell C.

Rapid SCDF loss will expose the shallow HCDF toe (-1.0m OD) at this point. Undercutting of the toe will cause a progressive collapse of the HCDF and create a hardpoint on the coast. The ability to mitigate any sudden rapid erosion and HCDF toe exposure/collapse is, in my view, inadequately considered in the CPMMP. In my opinion it is likely that the current CPMMP will be unable to regain control of the defences, following such an episode, rather than the current expectation of regaining control by beach recharge.

The chance of a single storm removing this defence and undermining the HCDF toe at its south-eastern extremity is high and the current CPMMP simply does not have an expectation or capability to manage such a threat to these defences.

The Applicant's attempt to fit two reactors into such a constrained site, requiring such a significant advance seaward of the site and its coastal defence structures, given the susceptibility of this coast to continuous and episodic erosive events, makes the proposal vulnerable to coastal erosion with potential adverse impacts to the coast both north and south.

Effectively, this design and its position on the coast, given the artificial nature of the existing coastal profile due to Sizewell B's outfall, is unsustainable and the CPMMP will be unable to manage the constant determination of natural coastal processes to bring the coast back into alignment.

This project has been inadequately assessed and has not adhered to conservative assessments. It is the wrong project in the wrong place and it should be refused consent.

Kind regards

Paul Collins

**From:** [REDACTED]  
**To:** [SizewellC](#); [beiseip@beis.gov.uk](mailto:beiseip@beis.gov.uk)  
**Subject:** Sizewell C - Response to the Applicant's document 'SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022' section FR4  
**Date:** 19 June 2022 13:55:51  
**Attachments:** [My response to ONR and Applicant ref docs published 17th June 2022.pdf](#)

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For the attention of Gareth Leigh, Head of Infrastructure Planning BEIS, ref: Sizewell C.

From: Nick Scarr Interested Party number 20025524. 19 6 2022

Dear Gareth Leigh,

Ref: Response to the Applicant's document '*SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022*' section FR4 and the ONR's document '*Sizewell C: Final Recommendations from the Government of Austria - ONR Response to the Secretary of State June 2022 CM9 Ref. 2022/36295*' Section 2.4.

With specific reference to the Sizewell Dunwich Banks and marshland flood risk. Question FR4.

NOTE: I am grateful that the Applicant takes the trouble to reply to myself and others, however on inspection of its replies relevant to my area of interest I find them often self-referential and compromised by contradictions and uncertainties. Hence my need to respond once more, and finally, with this brief paper which illustrates and substantiates these concerns.

I would be grateful if BEIS were to consider my response to the Applicant's document referred to above.

Kind regards

Nick Scarr Interested Party number 20025524.

19 6 2022

Responses offered to the Austrian Government by the ONR and the Applicant published on the PINS website 17/6/2022

Nick Scarr - Interested Party number 20025524. 18/6/2022

Head of Energy Infrastructure Planning, Department for Business, Energy, & Industrial Strategy, [Sizewellc@planninginspectorate.gov.uk](mailto:Sizewellc@planninginspectorate.gov.uk)

Dear Gareth Leigh,

Ref: Response to the Applicant's document 'SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022' section FR4 and the ONR's document 'Sizewell C: Final Recommendations from the Government of Austria - ONR Response to the Secretary of State June 2022 CM9 Ref. 2022/36295' Section 2.4.

With specific reference to the Sizewell Dunwich Banks and marshland flood risk. Question FR4.

**NOTE:** I am grateful that the Applicant takes the trouble to reply to myself and others, however on inspection of its replies relevant to my area of interest I find them often self-referential and significantly compromised by contradictions and uncertainties. I note and accept that these contradictions and uncertainties do not stop the Environment Agency and the ONR from fully validating and supporting the Applicant. Even in the face of such compelling affirmation I am not satisfied with the evidence that the proposed Sizewell C, if built as currently proposed, will offer sufficient flood and erosion resilience into the end of the twenty-second century. Hence my need to respond once more, and finally, with this paper which, despite the position taken by the EA and the ONR, illustrates and substantiates my concerns.

## 1 Response from the ONR to question FR4:

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.*

### My response to the ONR statement:

- The flooding of the marshlands around Sizewell C is just an 'environmental/habitats matter'? Really?

## 2 Response from the Applicant to question FR4:

2.6 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.

*Applicant's response:*

2.6.1 Within the SDSR, coastal flooding studies for SZC take account of conservative assumptions around the evolution for the coastline/geomorphology and climate change in accordance with latest government guidance (UKCP18). This is fully inline with ONR and Environment Agency's expectations for these studies. As noted in the response to FR3, the RCP8.5 scenario used by SZC is the most precautionary scenario defined in UKCP18 and considers climate change where surface temperature exceeds the 1.5°C referred to (+4.3°C).

2.6.2 In relation to the Sizewell-Dunwich banks, flood risk assessments and coastal geomorphology assessments took the precautionary approach of modelling scenarios with the banks completely absent [see SZC Co response to Refs 3 – 8 in SZC Co's Response to SoS Request for Comments 25 April - Appendix 1]. In the response to Ref 5 in Appendix 1 SZC Co. specifically addresses potential loss of the banks via natural processes and explains that there is no identified scientific reason for the banks to be lost in the manner described. See SZC Co.'s Response to the Secretary of State's Letter dated 31 May 2022

#### My response to the Applicant part 2.6.1:

The SDSR (the Site Data Summary Report). This is not a DCO document however a draft SDSR has been obtained by TASC from the ONR under FOI202202052 and is quoted from below:

SDSR *“Future Geomorphology: “The rationale behind the definition and projection of a likely future shoreline baseline during the operational phase of SZC is set out in Reference [20].”* (SDSR 2.4.2)

- Reference [20] quoted by the SDSR is TR403, The Expert Geomorphological Assessment (EGA) for shoreline retreat. The EGA is a self-declared non-conservative assessment.
  - The EGA shoreline change assessment used RCP4.5, not RCP8.5. (See Beems TR403 section 3.1.3). The EGA assessment only considers sea level rise until 2070.
  - The EGA claims that there is *“no direct correlation between sea level rise and shoreline retreat...”* (see TR403 section 3.1.3.1). It is not clear what the IPCC would make of such a comment.

The SDSR continues:

*“...Shoreline change is driven by several factors whose importance and interaction **cannot be accurately predicted several decades into the future** either separately or in combination. **Moreover, there is no current computational modelling platform able to accurately integrate the numerous environmental processes that drive shoreline change (especially for mixed gravel/sand beaches), and there is no published evidence that shoreline change models can be reliably applied over the required multi-decadal timescale [Ref. 14].”** My bold text.*

- It is difficult, then, to correlate the Applicant's comments in its SDSR with its claim in 2.6.1: 2.6.1 claims it *‘take[s] account of conservative assumptions around the evolution for the coastline/geomorphology’* referring to the SDSR yet it states in the SDSR that shoreline change *‘cannot be accurately predicted’* there is *‘no current computational modelling’* and that the *‘rationale behind the definition and projection’* is based on the non-conservative EGA.

### My response to the Applicant part 2.6.2:

- The Applicant states above that it ‘took the precautionary approach of modelling scenarios with the banks completely absent’. This does not tally with the well-discussed Applicant’s statement that “...the Baseline scenario, i.e. with the Sizewell – Dunwich bank in situ, resulted in more conservative (i.e. worst case) nearshore wave conditions than with their removal... for all scenarios and epochs as a conservative approach.” See [SZC Co’s Response to SoS Request for Comments 25 April - Appendix 1].
- The banks (The Sizewell Dunwich bank and the nearshore longshore bars, all wave energy relief features) were *present* in the main Flood Risk assessments, the Addendum Flood Risk assessment, and the Expert Geomorphological shoreline change Assessment (EGA) (TR403 3.1.6). The banks were absent in late TR reports which specifically relate to the Soft Coastal Defence Feature only, not the Greater Sizewell Bay as explained below:

The Applicant states in 2.6.2 that it “took the precautionary approach of modelling scenarios with the banks completely absent [see SZC Co response to Refs 3 – 8 in SZC Co’s Response to SoS Request for Comments 25 April - Appendix 1].”

- This is a reference to BEEMS TR544/545 ref above. BEEMS TR544 /TR545 relate only to the Soft Coastal Defence Feature and do not represent fully conservative modelling of the Greater Sizewell Bay. They also appear to be limited by the following:

The Applicant has stated in [SZC Co section 7 Response to SoS Request for Comments 25 April - Appendix 1] “..that it is based on numerical modelling without the Sizewell-Dunwich Bank present (see Section 2.2.1 of BEEMS Technical Report TR545 [REP9-020])”. However, in TR545 the ‘2017 Titan DEM’ appears to be otherwise retained suggesting the inclusion of the nearshore longshore bars as permanent wave relief features. This would be implausible in event of the loss of the Dunwich bank. TR545/44 uses RCP4.5 mid-range climate data. No significant storm surge was used in the BofE modelling (and only a very limited consideration in other modelling); this reflects a true condition of the BofE storm, I acknowledge this, but for a fully conservative exercise significant storm surge could have been considered.

It is difficult to comment as an external observer on how exactly how the modelling was undertaken but the above reflects best endeavour referencing responses by the Applicant. There is a later modelling exercise, TR553, that was “*not submitted as part of the DCO application or examination.*” See: BEEMS TR553, Appx 5 page 10. It appeared on the SzC portal on 11/4/22 almost two months after being made available to the Environment Agency.

TR553 is difficult to interpret without discussion with the creators however, it extends modelling to 2140, it addresses many concerns raised TR544/5 listed above. It shows the SCDF design to be seemingly functional within its remit **however, it is not at all clear in TR553 where the imagined shoreline of the Greater Sizewell Bay is between now and 2140. Is there any consideration given to a shoreline that has retreated inland across the Minsmere levels?**

TR553 illustrates therefore, in my view, the need to consider the Greater Sizewell Bay shoreline change analysis with the same parameters as TR553 and not those

used by the Expert Geomorphological Assessment in the DCO which relies fully on the *'natural energy dissipating effects'* of the Sizewell Dunwich and nearshore bars and only runs until 2070/87. The SCDF should not, in my view be treated as separate and distinct from the Greater Sizewell Bay.

- If there is *"no identified scientific reason for the banks to be lost in the manner described"* then there must be *'identified scientific reason for the banks to be maintained'*; the Applicant has made clear in its responses to me [see SZC Co's Response to SoS Request for Comments 25 April – Appendix 1] that:
  - *"There is good evidence to suggest that the volume of sand being supplied to the Sizewell – Dunwich Bank complex would rise or remain similar"*
  - The EGA consensus also relies on this mechanism for *"maintenance of the bar system (and hence the nearshore wave impacts)..."* was that *"...sand supply would not be limiting"* see 4.3.4 Beems TR403.

This would be fine but the Applicant, however, in the same document section 2 states that: *"pebbles are confined to the system, but the sand is not."* The Marine Management Organisation has also made clear that *"...the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue."* See REF MMO below.

I therefore maintain the view that there is no plausible mechanism that could justify the assumption for the maintenance and preservation of the Sizewell-Dunwich banks over the next two 100-year episodes of coastal processes the uncertainties of which can only be increased by climate change sea-level rise.

- The SDSR states *"...One of the plausible scenarios in Reference [22] relates to depletion of the Dunwich-Sizewell bank, leading to a loss of natural sea defence. However, as coastal erosion is a slow process that will be monitored over the lifetime of the plant, it is not considered as a coastal flooding initiator (see Section 3.5.1.1).*
- My response. **I disagree with this statement based on the Applicant's own research found in BEEMS pre-DCO. Loss of the Dunwich bank will result in an unknowable increase in shoreline erosional stress. Erosional events on the Suffolk coast can indeed be slow, however, they can also be sudden and severe. It would be recklessly high risk and contrary to historical precedent to assume coastal erosion is necessarily a slow process.**

## Summary

The Applicant's approach to the offshore geomorphology—its essential assumption of its stability and retention in wave limiting form could have led the Applicant to its concerning thesis that *'coastal erosion is a slow process'* and hence manageable by a coastal management plan—the CPMMP.

In my view, the Applicant's reliance on the CPMMP is a high-risk strategy in that it lacks a fully conservative shoreline recession assessment (both rate and extent) for the Greater Sizewell Bay to define its remit and offers no 'Plan B' if it finds itself unable to manage an extreme event. Dunwich and Slaughden, approximately 6 km to the north and south respectively of the proposed Sizewell C

were lost to sudden storms, almost overnight. It is not clear that a CPMMP based approach to 'pebble recharge' could have withstood such a rate of change and destructive force.

In my view, Sizewell C may represent an unreasonable fiscal and environmental risk to future generations unless extended sea defences and a reappraisal of platform height is considered; such a reappraisal could offer a plausible 'Plan B' if the CPMMP finds itself overwhelmed by a major event or series of events sometime between now and the end of the twenty-second century.

References:

Ref MMO:

The Marine Management Association states:

*"5.1.7 In relation to p.20.4.77 on the future shoreline baseline geomorphic elements, it is assumed that the future baseline will resemble the present day. As mentioned above, the lack of assessment of changes to the offshore wave climate to a NE domination is a gap in the analysis. For the nearshore climate, it assumes the bank system is stable. **However, the northern end of Dunwich bank has lowered 2 metres in the past 10 years; the most logical assumption would be for this trend to continue. This will affect the nearshore wave climate and should be included.**"*

MMO Reference: DCO/2013/00021 Planning Inspectorate Reference: EN010012 MMO Registration Identification Number: 20025459 Page 25 Deadline 2 submission.

Ref 2:

The accreted part of the Sizewell shoreline is discussed in my document REP2-393 Section 2. This paper also shows the clear linkage between the Sizewell Dunwich banks and the shoreline.

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** FW: Submission of documentation for BEIS regarding Sizewell C  
**Date:** 22 June 2022 11:50:02  
**Attachments:** [22\\_06\\_07\\_SZC\\_DCO\\_Bill\\_Parker.pdf](#)  
[Bill\\_Parker\\_IP\\_20026713\\_EA\\_ONR\\_Letter\\_Response.docx](#)  
[principles-for-flood-and-coastal-erosion-risk-management.pdf](#)

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Dear Sir,

I submit today a letter from the Environment Agency regarding 'Sea defences and the lifetime of the (Sizewell C) power station' and my response which I believe contains material consideration for the decision on whether or not to grant planning permission for Sizewell C.

My original query to the EA / ONR was as follows:

*EDF are saying that the proposed Sizewell C plant has a time horizon for the life of their sea defences of 2140 – although I'm sure even they would agree this is based on an optimistic schedule.*

*However the EA / ONR requirement for the life of sea defences based on the FCERM guidance is for 160 years after commencement of operation and even if you utilise the unlikely completion date of 2030 means that they need to be robust till at least 2190.*

*Therefore I am seeking to clarify what the correct planning time scale for effective sea defences is. Clearly the defences that is planned and in the public domain are inadequate for any date later than 2140. Therefore I wish to understand the EA / ONR position on this and how EDF will be held to account to ensure that the risk of over topping (or worse) especially with regard to the spent fuel store that will need to be held on site for a lot longer than 2140.*

My apologies for the late submission however I only received the response to my queries from September 2021 from the EA on 9<sup>th</sup> June 2022.

Please can this be passed to BEIS with all haste.

Yours faithfully

[REDACTED]  
IP 20026713

(m) [REDACTED]

Your Ref: 2206SZC

22/6/22

Dear Simon

### **Sizewell C project – Sea Defences and Lifetime of the Power Station**

Thank you for your email dated 9<sup>th</sup> June. It is unfortunate that it has taken 254 days to respond to my initial question. However, I do appreciate you co-ordinating a combined EA / ONR response.

Your combined comments have however raised further questions that I have, and I would therefore appreciate your offer of a meeting with you and your colleagues to ensure that there are no misunderstandings on these important issues.

The purpose of my original question is to ascertain what the correct time horizons should be and if in the light of coastal change and climate change (inc. sea level rise), the site is appropriately protected in line with both EA / ONR policies. In addition, have there been sufficient pre-cautions taken for both the life of the power station (incl. decommissioning) and any residual spent fuel left on the site.

Your combined response highlights important issues as to whether the current process is fit for purpose and whether its application is sufficiently precautionary on such a long-term basis.

It may be helpful for me to highlight the areas of most concern as follows:

#### **1) Roles of the EA and ONR**

- In your letter you state for the FRA a primary responsibility of the EA is that '*Planning guidance requires the developer to consider flood risk and safety of people over the lifetime of the development*', and the FRA focus is on evacuation of people and off-site impacts. This is entirely reasonable and appropriate for developments such as housing, however it misses the entire additional issue of extremely hazardous radioactive material (either within the power station or being stored on site) and therefore vulnerable to flooding. Evidence from Fukushima demonstrates that once nuclear toxic waste is in the sea it can never be recovered.
- It is also stated that the '*ONR doesn't specify any planning timescale for sea defences*' and delegates this to the applicant. This is however at odds with the '*Principles of FCERM (V1) which the EA / ONR published in 2017*' which give a very clear expectation of how long sea defences should be planned for.
- In the published ONR Strategy 2020-2025 the stated mission of the ONR is '*to protect society by securing safe nuclear operations*' and there is recognition that the '*Local and global challenge of climate change*' is a factor in setting the strategy. One of the core strategic themes highlighted in the ONR Corporate plan 2022/23 is '*inspiring stakeholder confidence*'. I understand that the Applicant has submitted details of its coastal erosion and flood defences within the confidential safety case which therefore excludes

stakeholder scrutiny. Does this really need to be a confidential issue and would it not better meet the ONR Corporate Plan objectives to reassure and provide confidence to an array of stakeholders from local communities to national governments by publishing this information.

**Point 1 Conclusion:**

It is not clear whether the EA or the ONR is taking accountability for ensuring that SZC is adequately protected from erosion or flooding during the site's operation / decommissioning or residual time of spent fuel being stored on site. There is little reassurance to stakeholders that the assessment has been appropriately undertaken and under what assumptions. This appears to be a failure in the process.

**2) Over reliance in the process on the Applicant**

The Principles of FCERM (V1) document suggesting that 160 years from completion is a reasonable length of time for suitable sea defences but the ONR states that the time scale should be specified and justified by the operator. On the over optimistic assumption that the station is completed in 2035 (as promoted by the Applicant) then 2140 is a maximum of 105 years – some 55 years shorter than specified in the EA / ONR's own FCERM principles document. No evidence has been presented for public scrutiny by the applicant that this is reasonable or achievable.

Evidence that has been presented by many Interested Parties challenge the presumptions made by the Applicant in the following areas:

- The 2140 time scale – This is simply not a credible date to; approve, build, operate for 60 years and then sufficiently decommission for this date to be worthy of considering. It is a date published by the Applicant but should be challenged by the regulatory authorities and a more realistic date, in line with FCERM (VI), identified. Once established then this should be utilised for the risk analysis.
- The ONR also states that '*Should the life-time of the station be extended ...then SZC would need to demonstrate that the sea defences will continue to adequately protect the site....*' This may be true, however once built then if the defences are inadequate or flawed then it may not be possible to defend the site, even to the initial projected life-time of the station. The CPMMP (beach management plan) and the sustainability of the Hard Coastal Defence Feature contain major assumptions that are subject to legitimate and unanswered questions. The presumption that the assumptions and proposals for the coastal defence features (both hard and soft) are robust enough till 2140 is unproven.
- The Applicant has included the details of the assessment and analysis of the effectiveness of the flood and coastal erosion defences into the Safety Case. Therefore this is not open to public scrutiny and ONR who are looking at a wide range of issues themselves may not have the technical expertise or location specific knowledge on these matters. It is unclear who might provide the ONR with the technical advice on these matters and it would be unwise to rely solely on the

submissions and assurances from the Applicant. This is a weakness of the process as currently defined.

**Point 2 Conclusion:**

The Applicant's over-riding objective is to obtain permission to build Sizewell C. The reliance of the ONR and EA on the submissions from the applicant and the failure to challenge the assumptions and assertions of the applicant undermine both the quality and confidence in the approval process.

**3) Weakness of the assumptions accepted by the EA in the FRA**

I am pleased to read that the FRA did consider flood risk up to 2190. However, your letter states regarding wave over-topping that in a 1 in 1000 event in 2190 the probable would be 1.9 l/s/m against the stated maximum threshold of 2 l/s/m. The confidence that this will be below the threshold in 170 years is with a 5% safety margin (1.9 vs 2.0 l/s/m) seems overly optimistic for the following reasons:

- In the past 25 years the assumptions about the rate of sea level rise have increased rapidly, from 6mm / year in 2003, to an average of 10.15mm year in the latest UPCIP18 predictions. In view of the increasing volume of scientific evidence on the rapid increase in sea level rise the 5% margin of safety is grossly over optimistic. The 'hockey stick curve' model of sea level rise contests this overly confident position.
- The assertion (promoted by the Applicant) that 'coastal erosion is a slow process' and therefore the CPMMP will be able to deal with changes in the foreshore is also a high-risk assumption. It also not historically accurate nor reflects more challengingly the uncharted implications of a rapidly changing climate, not seen in the last 200 years of measurements of sea level rise. The modelling presented so far presumes that the CPMMP will work and prevent significant coastal erosion. This cannot be accepted by the regulatory authorities.
- The soft coastal defence will extend beyond the natural sweep of the Sizewell Bay in front of the SZA, SZB and SZC site and will be protected somewhat by the SZB salient during SZB's continued operation. Once SZB ceases operation the salient and soft defence will be subject to significant erosion as the coast "relaxes" to its natural profile, a process that EDF state will take 1-2 years. The CPMMP will not be able to resist this change and this "relaxation" process will threaten the integrity of the hard coastal defence at its southern extremity, will considerably weaken the overall coastal defence and compromise the CPMMP's ability to mitigate such changes. These changes do not appear to have been properly considered in the modelling of the coastal defences.
- The results from the modelling are from the Applicant, questions on whether the assumptions and calculations made in this modelling have been sufficiently stress tested or have the ONR / EA just accepted the Applicants data, remain?

- The EA / ONR seem to have accepted that by 2140, decommissioning of the majority of the buildings on site would have been completed. Evidence for this is weak and in reality, 2140 will not be achieved. The applicant is maintaining this position as they know that if a realistic timeline is followed then the credibility of their coast and flood defence proposals is in jeopardy. It may be helpful to refer to the applicant's FRA document 5.2

[REDACTED] para

1.3.5 which states *"Due to the uncertain timing and nature of the decommissioning phase (2140 to 2190) a separate planning application would be submitted at the appropriate time and the effects on flood risk would be reassessed at that time. However, to provide some confidence on flood risk impacts, this FRA considers in broad terms a conservative assessment to 2190."*

This appears to confirm the Applicant lacks confidence in its own modelling till even 2140. If 2190 is the applicant's relevant date, then shouldn't they be required to demonstrate that the site can be kept safe till 2190 at this planning stage, not in a 100 years' time when the situation may be significantly more difficult to resolve. This would be avoided with effective and detailed analysis now.

### **Conclusion to point 3 – weak assumptions**

Whether both the EA and ONR have unconditionally accept the results of the modelling presented by the Applicant is unclear and, whilst the prescribed process may be followed to the letter, there is no evidence of robust challenge and a precautionary approach to this proposal as submitted by the Applicant. It is seen as a failing of the EA / ONR process to be precautionary when clearly the margins for error are so small.

### **4) Conclusion overall**

Thank you for responding to my queries, your responses have unfortunately not allayed my concerns. Whilst I am sure that the process as set out for the safety case and FRA have been followed and that the individuals have tried to ensure that they have been fair to the applicant, it remains clear that:

- There is a lack of clarity as to who is ultimately responsible for approving the in-combination flood and coastal erosion risk assessments
- There is an over-reliance on and insufficient scepticism of the Applicants proposals and base case modelling assumptions
- That the margins for error are so small for such a long time period that this proposal, as it stands, cannot be accepted.

I therefore urge both the EA and ONR to demonstrate they understand and reflect the concerns of the wider knowledgeable community and that this is central to their thinking to ensure that all proposals are sufficiently robust and long term to give confidence that good decisions are being made.

The EA / ONR must focus on the site and proposal as presented to them by the Applicant. It must not be the role of the EA / ONR to accept a proposal just because this proposal supports the Applicant's limited time horizon (2140) regardless of the long-term consequences, in particular with regard to flood and coastal defence.

Failure to achieve an effective and precautionary assessment, will pass the responsibility for corrective actions to future generations to resolve (if that is even possible). It must be the responsibility of both the EA and ONR to ensure that the right assessments are being undertaken now and that a credible long-term mitigation and coastal protection strategy is adopted.

I look forward to hearing from you and potential dates for a follow-up meeting in the near future,

Yours sincerely



Bill Parker

IP20026713

**Bill Parker**

**Our Ref:** 2206SZC

**Date:** 7 June 2022

**By email only**

Dear Mr Parker

**Sizewell C Project – Sea Defences and Lifetime of the Power Station**

Thank you for your email of 16 May 2022 regarding the lifetime of sea defences for proposed Sizewell C project. In order to provide a full response, we have coordinated our reply with the Office of Nuclear Regulation (ONR)

**Environment Agency Response**

The planning guidance requires the developer to undertake a Flood Risk Assessment (FRA) to consider the flood risk and safety of people over the lifetime of the development. It does not however prescribe that the site must not be at any risk of flooding for this lifetime, but the FRA must detail how the risks would be managed. The ONR & EA Joint Advice Note 'Principles for Flood and Coastal Erosion Risk Management' (Version 1) states that 'Focus of the EA is on the lead time / ability to evacuate the site safely in the event of an overtopping scenario, as well as understanding the potential off site impacts as a result of the development. ONR is concerned with the safety case'.

The FRA did consider flood risk up to 2190. For the Reasonably Foreseeable actual risk up to 2190 (using UKCP18 8.5 95%) the FRA showed that there would be no inundation of the main platform or SSSI crossing from overtopping of the Hard Coastal Defence (HCDF) or the remaining lower northern and southern sand dunes/shingle defences in all events up to the 0.1% (1 in 1000) annual probability flood events in 2190 as the flood level is 6.02mAOD and the level of the platform is 7.3mAOD. In terms of wave overtopping of the HCDF or Northern Mound in the reasonably foreseeable 0.1% (1 in 1000) annual probability flood event in 2190, there would be 1.9 l/s/m which is below the maximum allowed of 2 l/s/m, and will result in flood depths on the platform below 0.1m and velocities below 1m/s which will result in a low hazard so the workers will remain safe, and the buildings with floor levels 0.2m above platform level will remain dry.

In the Credible Maximum climate change scenarios (BECC Upper) there would be overtopping of the existing remaining northern and southern shingle ridges/sand dune defences and wave overtopping of the HCDF, resulting in flood depths on the platform in both 2140 and 2190. However, the FRA stated that by 2140 decommissioning of the majority of the buildings on site would be completed. At this point there will be very limited activities on the platform (most likely only involving periodic inspections of the spent fuel

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storage facilities) and the flood risk to either property or users of the site would be very limited. Therefore the flood risk to people would be managed, so that with appropriate forecasting and warning systems in place, any activity on site would be avoided during such extreme events.

### **ONR Response**

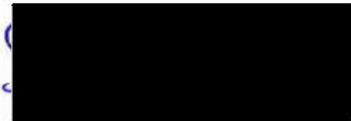
ONR does not specify the planning timescale required for sea defences. Whilst the 'Principles for Flood and Coastal Erosion Risk Management' (Version 1) suggests that 160 years may be considered a reasonable time for the *'full life-time of the station'* it is also clear that this should be specified and justified by the operator.

During operation of the nuclear licenced site it is a regulatory expectation for the licensee to periodically review the validity of the safety case for all facilities on the site against external hazards, to ensure the site remains protected. This includes the dry fuel store and taking updated climate change projections into account for coastal flood hazard.

The design of the SZC sea defences is currently stated to be until 2140. Should the life-time of the station extend beyond this date NNB GenCo (SZC) would need to demonstrate that the sea defences will continue to adequately protect the site, or provide additional protection measures.

I hope that this letter can provide you with an explanation into the concerns that you have raised. If - however - questions remain, then I imagine that we could arrange a meeting in which we might better discuss those remaining uncertainties.

Yours sincerely



Simon Barlow  
Project Manager  
Sizewell C Nuclear New Build  
Environment Agency

Tel: 020302 58491 



Office for  
Nuclear Regulation



Environment  
Agency

# Principles for Flood and Coastal Erosion Risk Management

Office for Nuclear Regulation and Environment Agency Joint  
Advice Note

July 2017 – Version 1

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## 1. Purpose of this document

This document will be of interest to any party interested in understanding the approach to flood risk in the nuclear new-build programme in England.

It provides advice on how flood and coastal erosion risk issues are taken into account when considering proposals for new build developments. This advice is intended to be risk based, pragmatic and proportionate in its approach. It will be reviewed and updated as necessary.

This document:

- Identifies in one place all the relevant legislation, regulatory authorities, dutyholders and high level principles applicable to flood risk management for a new nuclear site.
- Sets out principles based on good flood risk management practice that minimises the impact of a new nuclear site on existing flood risk elsewhere, whilst keeping the risk of nuclear consequences arising from extreme flooding events entering the site, as low as reasonably practicable (ALARP).
- Sets out jointly the relevant advice from the Office for Nuclear Regulation (ONR) and the Environment Agency (EA) on flood and coastal risk management issues.
- Provides a standardised framework and starting point for EA and ONR staff involved in pre-planning / early nuclear safety discussions and relevant consultations.

The underpinning legislation and working arrangements of both these organisations are different and there is a potential for inconsistency in the advice and guidance offered to dutyholders. This document helps to bring consistency and clarity to the regulators' approach.

We also make clear the expectations of the EA and the ONR in respect of flood and coastal risk management, and provide a basis for regulatory decision making and advice (under our statutory consultee role in the planning process) to Local Planning Authorities and the National Infrastructure Directorate of the Planning Inspectorate (PINs).

Ultimately it will be for PINS and the ONR to make the decisions on the safety of the development and residual flood risk.

Flood hazard analysis and the necessary protection and management arrangements should be captured and reported by the developer (referred to as the dutyholder) in different documents:

- for the EA - in planning submissions and Flood Risk Assessments, and
- for the ONR - in relevant nuclear safety case(s)

The individual submissions may differ in detail but there should be consistency between them. The submissions will respond to different regulatory requirements and expectations but where they overlap in their predictions of flooding effects on the site, the predictions should be consistent; differences in data, methods used and judgments should be reconcilable and justified between the two analyses. The analyses and protection arrangements that best address EA's requirements, for

example, should be consistent with those needed to address nuclear safety criteria as regulated by the ONR.

These principles reflect the guidance within other regulatory guidance/planning documents<sup>1</sup> and should be read alongside them.

## **2. Principles**

### **Principle 1 – Dutyholder responsibilities**

Prime responsibility for the assessment and management of Flood and Coastal Erosion Risk rests with the dutyholder<sup>2</sup>.

#### **Considerations**

- Flood risks posed to the site should be fully assessed from all potential sources of flooding, or any joint combination of sources, where appropriate.
- Any flood or coastal risks arising from the site are the responsibility of the dutyholder and must be managed appropriately.
- Current and future flood and coastal erosion risk should be managed so that it does not cause unacceptable increases in risk or burdens to future generations, and their environment.

### **Principle 2 – Management arrangements**

It is the responsibility of the Dutyholder to put in place the necessary management arrangements to ensure that appropriate flood and coastal erosion risk management measures are delivered at all stages of the design, construction and operation of the nuclear site.

Management arrangements should be established based on the following four areas:

- Leadership by the dutyholder
- Capability and competence
- Clarity of decision-making
- Learning from experience

#### **Considerations**

- Leadership
  - Early engagement and the establishment, at the outset, of joint working by the dutyholder with the EA and the ONR; and - where appropriate - other risk management authorities and the local planning authority.
  - Develop and maintain a plan or strategy for the assessment and management of flood and coastal erosion risk and present it to the EA and the ONR at the earliest opportunity. This should include:
    - Flood modelling requirements.
    - Outline design criteria.

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<sup>1</sup> National Policy Statement EN6 – New Nuclear, EN1 – Energy (NPS), CLG - National Planning Policy Framework (2012)

<sup>2</sup> The term “dutyholder” is used in here to refer generally to include those with responsibilities under relevant legislation and includes “licensee” and “licence applicant” under nuclear legislation. See also Appendix B.

- Approaches to the assessment of climate change.
  - Approaches to the management/maintenance of flood defences.
- Capability
  - Those involved in the assessment and management of flood and coastal erosion risks should have sufficient capabilities and training to undertake the required tasks and/or make decisions.
- Decision-making
  - Decisions should be informed by the most appropriate scientific knowledge.
  - Decisions should take into account uncertainties and a precautionary approach should be adopted where there is potential for adverse consequences to people, property and the environment, both off-site and on-site.
- Learning
  - Dutyholders (and other relevant organisations) should learn from their own and others' experience so as to continually improve their ability to manage and where reasonably practicable reduce flood and coastal risk. Examples include:
    - Engaging with local resilience forums.
    - Reviewing and learn lessons from flood reviews and emergency planning exercises - such as the 2011 Exercise Watermark.
    - Maintaining an awareness of flooding events to nuclear and other facilities so that relevant learning can be taken from such events.

### **Principle 3 – Fit for purpose assessment of flood risk**

A fit for purpose assessment of flood risk should be undertaken to inform the detailed siting, design, management and safety case requirements of any new nuclear facility. The principle documents through which flood risk is reported are the Flood Risk Assessment (FRA) that is prepared for the planning process and assessed by the EA and the nuclear safety case(s). These documents must consider all sources of flooding and coastal erosion risk.

#### **Considerations**

- The expectation is that all flood risk analysis work is undertaken in a manner that makes it suitable for both the FRA and the nuclear safety case(s). As noted in Section 1, if separate assessments are required, then appropriate consistency of data input, modelling and analysis is required, so that flood predictions by both analysis streams can be reconciled. Any differences should be clearly explained and justified.
- Both the EA and ONR expect the assessment of flood and coastal erosion risk to be:
  - Consistent with relevant guidance from the EA, ONR, other relevant regulators and government.

- Consistent with Cabinet Office guidance on Critical Infrastructure Resilience. For example, assess and demonstrate explicitly at what point the nuclear facilities and supporting infrastructure - including critical transport links/routes - cease to be operable, in terms of flood return period<sup>3</sup>.
- Consistent with, and take advantage of, relevant good practice, for example the International Atomic Energy Agency<sup>4</sup>.
- Any assessment should be timely, transparent and comprehensive based on sufficient good quality data and properly documented – (including a non-technical summary).
- Any assessment should include the consideration of climate change using relevant good practice and best available information (see Appendix 3).
- Flood and coastal erosion characteristics of the site and surrounding area should be kept under review and assessments made of the effects of natural and man-made changes. For nuclear licensed sites, this requirement is captured by Licence Condition 15.
- Flood and coastal risk assessments should provide analysis to address the following matters:
  - The potential for flooding due to pluvial, surface water, groundwater, high tides, storm surges and tsunamis.
  - The combined effects of high tide, wind effects, wave actions, duration of the flood and flow conditions.
  - The potential for coastal erosion due to the above factors and other geological and geo-morphological considerations.
  - The probability of failure of flood risk management measures, for example, blocked drainage channels, or the breach / over-topping of flood defences, and the associated consequences
  - The risk of foreshore lowering due to coastal processes undermining sea protection works.
  - The effects of climate change over the full life-time of the station assessed using the most up to date credible projections.
  - Off-site flood and coastal erosion risks, for example, to site access and egress routes.
  - Studies to address any significant uncertainties (as determined for example by sensitivity studies) that exist.
  - Any changes to flood and coastal erosion risk elsewhere as a result of works.
- A FRA should address all relevant matters including those above, and based on this analysis should:
  - Assess and demonstrate that staff and visitors on the site are safe from the effects of flooding over the developments full life-time<sup>5</sup>.
  - Demonstrate that all works associated with development of a nuclear site will not cause unacceptable increases in flood risk elsewhere,

<sup>3</sup>

<sup>4</sup> See especially guide SSG-18, available from IAEA, [REDACTED]

<sup>5</sup> National Planning Framework: Flood Risk and coastal change [REDACTED]

- cause detriment to other flood or coastal erosion assets, or prevent any other flood and coastal erosion risk operator from maintaining or improving any assets in the future - taking into account climate change over the full life-time of the station.
- Take account of relevant plans or strategies which will affect the site, for example, Shoreline Management Plans (SMP).
- Demonstrate that the site proposed for nuclear development is not at risk (or that the risk is adequately managed) from coastal change/erosion taking into account climate change over the full life-time of the station.
- Demonstrate that all works associated with development of a proposed nuclear site will not cause unacceptable coastal change/erosion risk elsewhere, taking into account climate change.
- Demonstrate that where development is undertaken in areas at risk from coastal change, the detrimental effects presented by coastal change can be mitigated, taking into account climate change.
- The nuclear safety case(s) should consider the principles above where relevant to nuclear safety and in addition:
  - Consider the approach to platform height carefully. Nuclear facilities should be protected against the design basis flood by the adoption of a plant layout that incorporates the 'dry site concept'<sup>6</sup>, where reasonably practicable.
  - Demonstrate that the nuclear safety risks from flood and coastal erosion hazards are adequately controlled and these risks are ALARP.

#### **Principle 4 – Fit for purpose flood and coastal risk management**

A fit for purpose plan/strategy should be produced so that all identified flood and coastal risks can be adequately managed.

#### **Considerations**

- The plan/strategy should be informed by other relevant flood and coastal risk management plans such as catchment flood management plans, shoreline management plans, strategic flood risk assessments, preliminary flood risk assessments, flood warning and emergency planning protocols, local flood management studies/improvement schemes.
- Consideration should be given to all of the significant uncertainties, risks, assumptions, exclusions and key decision points.
- Arrangements required to support claims made by the nuclear safety case(s) including those for beyond design basis, cliff edge assessments and flood management regimes.
- Include both on-site and off-site management arrangements.
- Management arrangements should be designed, operated and tested to ensure reliability, for example, by exercising the nuclear site's emergency arrangements.

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<sup>6</sup> ONR Safety Assessment Principles (SAPs) para. 261.

- Any flood or coastal erosion risk measure implemented by the operator should not increase risk elsewhere, cause detriment to other flood or coastal erosion assets, or prevent any other flood and coastal erosion risk operator from maintaining or improving any assets in the future.
- Structures, systems, components and mitigation measures that are, or comprise part of the flood management measures should receive regular and systematic examination, inspection, testing, maintenance and, if necessary, renewal/replacement.
- All relevant flood and coastal risk management measures required to provide a nuclear safety function must remain in the control, and be the sole responsibility of, the operator, or adequate arrangements must exist with 3<sup>rd</sup> parties who own these measures, so that the dutyholder has adequate confidence that any nuclear safety benefits claimed for them can be provided. Where these items consist of physical measures, they should be listed in the dutyholder's relevant maintenance schedule.
- Ensure that all relevant flood and coastal risk management measures are planned, designed and implemented so that they are capable of being modified/adapted to maintain adequate safety in light of climate change over the full life-time of the station.
- The design and operation of flood emergency plans and management measures, including communications, should be such that response arrangements are enacted in the event of a flood warning, or a flood.
- The plan/strategy should allow for the dutyholders to receive tailored flood warnings for the site and associated infrastructure.
- The plan/strategy should enable the flood emergency procedures to be tested and operated at appropriate intervals.
- The plan/strategy should enable dutyholders to engage with local resilience forums.
- Flood and coastal risk management should be managed to avoid placing a burden on the public purse, or increasing flood risk elsewhere.
- Funding arrangements:
  - Dutyholders should plan, design, implement and fully fund the necessary flood and coastal erosion risk management measures for a site and its associated infrastructure. This may include arrangements for the management of risks off site, for example, access and egress routes required for staff.
  - Dutyholders should not call on public money to provide flood and coastal erosion risk management measures for their site, associated infrastructure and access. However, where an operator is seeking to provide a defence that could also benefit the community, public funds may be available to support this providing that the public contribution is, at most, proportional to the whole life benefits gained by the public.
  - Dutyholders should discuss with the EA on a case-by-case basis those instances where, based on the benefits received by the public, some

public money may be available towards the upgrading of an operator owned asset (which will already provide adequate protection to the nuclear site) to extend the level of protection to existing communities for the life-time of the development. This contribution should be - at most - proportional to the whole life benefits that will be gained by the public and in line with the EA flood coastal risk management external contributions policy.

### **3. Appendices**

#### **Appendix A – Definitions**

*Operational Life* – the period commencing with the transfer of nuclear materials to site. Operational life should be specified by the operator, but is generally understood to be at least 60 years.

*Full life-time of the station* – operational life, plus the time taken for the decommissioning and interim storage of spent fuel and waste, prior to disposal. Again, this should be specified and justified by the operator, but is generally understood to be 160 years.

*Critical Transport Link/Route* - that which is identified as necessary to address the requirements of Cabinet Office guidance on Critical Infrastructure.

## **Appendix B – Roles and responsibilities**

Responsibility relating to controlling and regulating flood hazard and coastal erosion around each new nuclear site is vested in various national and local authorities (Includes the lead local flood authority), the site operator and local landowners. These responsibilities and the duties and obligations they confer on the various organisations, although covered by several unconnected legislative instruments, are complementary. In general, the ability to satisfy individual responsibilities can have an effect on others. These principles recognise the synergies that exist between these individual responsibilities and seek to provide advice that recognises this.

### Dutyholder

The principal responsibilities of a company which plans to build, operate and decommission new nuclear power stations are:

- To undertake a flood and coastal erosion risk assessment covering all relevant areas both on and off site before seeking any relevant consents for a new nuclear power station. The assessment should cover the facility's full life-time where relevant.
- To maintain and operate any flood and coastal erosion risk control measures necessary to meet claims in the FRA and relevant nuclear safety case(s).

Different legislation uses different terms to describe the organisation responsible for compliance; in particular the Health & Safety at Work etc. Act. 1974 (HSW74) refers to dutyholders; the Nuclear Installations Act 1965 as amended (NIA65) identifies the responsible organisation as a licensee, holding a nuclear site licence to operate a nuclear reactor or undertake other prescribed nuclear operations.

### Office for Nuclear Regulation

The ONR's principal responsibility is to regulate nuclear safety on nuclear licensed sites, including the safety implications – both off-site and on-site – associated with hazards arising from flood and coastal erosion. This role is defined in the Energy Act 2013,, in which ONR is defined as the enforcing authority for the following purposes:

- Nuclear safety
- Nuclear site health and safety (conventional health and safety)
- Nuclear security (on civil nuclear premises)
- Nuclear safeguards (related to UK's treaty obligations covering non-proliferation etc.)
- Civil transport of radioactive materials.

Flood and coastal erosion hazards are covered by the first of these purposes. Two existing statutes, the NIA65 and HSW74, facilitate ONR's ability to licence nuclear sites, permission nuclear significant activities on them, and to set standards that the dutyholder must meet to ensure its activities are safe.

The NIA65 enables ONR to grant nuclear site licences to competent organisations and to attach conditions to those licences. At the present time there are 36 standard licence conditions attached to every Nuclear Site Licence (NSL) covering different safety related issues, such as maintenance, the need for safety cases, emergency arrangements and the need to control modifications to existing plant. The licence

conditions provide ONR with powers to permission nuclear significant activities on the site. Permissions relevant to flood hazards can be granted when the licensee submits an adequate safety case to the ONR; the safety case demonstrates that the activities for which permission is sought can be carried out safely. The NIA65 is a relevant statutory provision under the Energy Act 2013. ONR's powers under NIA65 only extend to the licensee itself, although the licensee is expected to have arrangements to ensure that other organisations upon which it depends, such as support contractors, themselves operate safety when working on the site.

The HSW74 requires dutyholders to ensure that risks to the public and workers are reduced so far as is reasonably practicable; this principle is absorbed into nuclear regulation as the ALARP principle. HSW74 is also a relevant statutory provision under the Energy Act 2013 and applies to all organisations and individuals undertaking safety duties relevant to the site.

ONR's principal role in relation to flood and coastal erosion hazards is to permission nuclear significant activities at nuclear licensed sites on the basis of a safety case(s) submitted by the licensee. ONR does this after assessing the safety case(s) to ensure it is adequate. In broad terms, a safety case(s) is adequate if it demonstrates that the risks arising from the activities for which permission is sought are ALARP.

ONR's regulatory remit strictly only applies once an organisation has formally applied for a NSL, and extends from this point to final de-licensing of the site, covering all construction, operation and decommissioning activities relevant to nuclear safety. In practice, ONR engages with organisations before a formal licence application is made to provide advice on matters relevant to obtaining a NSL, including consideration of technical issues relevant to the viability of the site. Flood and coastal erosion hazards are an example of this.

ONR is a statutory consultee on all new nuclear build applications for Development Consent Orders (DCO) made to the PINS. The relationship between PINS and the nuclear regulators, which includes ONR<sup>7</sup> and EA, is set out in sect. 2.7 of the National Policy Statement (NPS) for nuclear power generation, EN-6<sup>8</sup>. Flood risk is identified as a nuclear impact in sect. 3.4 of EN-6 and anticipates liaison between the nuclear regulators and PINS.

Based on the advice of the relevant nuclear regulators, the PINS should be satisfied that the applicant is able to demonstrate suitable flood risk mitigation measures. These mitigation measures should take account of the potential effects of climate change in the most recent marine and coastal flood projections. Applicants should demonstrate that future adaptation/flood mitigation would be achievable at the site, after any power station is built, to allow for any future credible predictions that might arise during the life of the station and the interim spent fuel stores.

In the case of planning applications to local authorities, the ONR is consulted in relation to the effects of a new development proposal on an existing site whenever it may have a bearing on nuclear safety, including the effects of hazards such as flooding.

In the assessment of risk, ONR should:

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<sup>7</sup> Note that prior to the Energy Act 2013 coming in to force, ONR was an agency of the Health and Safety Executive (HSE). The powers and responsibilities formerly lodged with HSE and discharged by ONR on its behalf have, through the EA13, been transferred to ONR in its new role as a stand-alone public corporation.

<sup>8</sup> DECC, National Policy Statement for Nuclear Power Generation (EN-6), Vol I of II, July 2011,

- Provide advice to PINS (or the relevant planning authority) on request, on whether the applicant is likely to be able to demonstrate suitable flood risk protection and mitigation measures to keep nuclear risks from flooding hazard ALARP.
- Review and assess the adequacy of the licensee's nuclear safety arrangements in relation to flood and coastal erosion hazard by a mixture of inspection and assessment, in summary:
  - Inspection should examine the site's operational arrangements (processes, procedures, work instructions etc.) for maintaining the effectiveness of the flood and coastal erosion defences in line with safety case claims. This may also include testing the emergency arrangements using emergency exercises.
  - Assessment should examine the safety case(s) and supporting documents that together demonstrate the risk from flood and coastal erosion hazards are ALARP. Claims made on physical protection measures and operator actions to maintain or activate these should be assessed according to the guidance in the Safety Assessment Principles (SAPs) and Technical Assessment Guide (TAG) 13.

### Environment Agency

The EA is the principal flood risk management authority in England providing a strategic overview relating to all forms of flood risk. The EA is responsible for forecasting and mapping flood risk, providing warnings, taking part in emergency planning and response and advising on development in the flood-plain; and has permissive powers for building and keeping defences in good order.

The EA is a consenting authority for flood and coastal risk management and land drainage, for example:

- Works in, over, under, main rivers; or likely to affect the integrity of fluvial and tidal defences.
- Raising ground levels in the floodplain beside a main river.
- Coastal works undertaken by local authorities.
- Other works covered by local byelaws.

The EA is a statutory consultee on planning applications for new nuclear sites and a statutory consultee on all applications for DCOs made to PINS.

The EA is the regulator for environmental permits for new nuclear build.

*In the assessment of risks, the Environment Agency should:*

- Review the flood risk assessment and associated flood risk management measures against the requirement for safe occupancy, and access for staff, for the full life-time of the station where relevant.
- Review the food risk assessment and associated flood risk management measures against the requirement to not cause adverse harm to others through any alteration to the characteristics of flooding in the area, leading to increased off-site impacts for the full life-time of the station.
- Provide advice on its review of the flood risk assessment and associated flood risk management measures to PINS and the relevant planning authorities.

## National Infrastructure Directorate of the Planning Inspectorate (PINS)

The Planning Inspectorate responsibilities include:

- Examining Development Consent Order applications under the Planning Act 2008 (and amended by the Localism Act 2011).
- Providing recommendations to the Secretary of State for their decision. (The decision of the acceptability of the safety of site users/occupants would lie with the Secretary of State).

## Local Authority

The local authorities' responsibilities include:

- To provide advice on issues of safety relating to emergency planning during a flooding incident. This will be supported by other category one responders, for example, emergency services, through the local resilience forum and set out in a local emergency preparedness framework.
- Examining and determining planning applications under the Town and Country Planning Act 1990.
- Consenting authority for the majority of coastal protection works<sup>9</sup>.

Prepare an Emergency Plan under the Radiation Emergency Preparedness and Public Information Regulations 2001 (REPPPIR):

## Lead Local Flood Authorities

The Lead Local Flood Authorities (LLFAs) are county or unitary councils who, under the Floods and Water Management Act, have the responsibility for the management of local flooding including surface water, ordinary watercourses and ground water.

LLFAs are responsible for the regulation (consenting and enforcement) of particular activities on ordinary watercourses.

## Highways Authority

The Highways Authority is responsible for managing the road drainage from roads on the adopted local road network.

The Highways Agency England / is responsible for managing road drainage from the trunk road and motorway network in England. The upper tier of local authorities (county councils and unitary authorities) is generally responsible for other public roads.

## Internal Drainage Boards

Internal Drainage Boards (IDBs) operate under the Land Drainage Act 1991 and have permissive powers to undertake works to secure drainage and water level management of their districts. They may also undertake and regulate flood defence works on ordinary watercourses within their district (that is, watercourses other than 'main river').

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<sup>9</sup> The Marine Management Organisation has responsibility for Flood and Environmental Protection Act 1985 (FEPA) licensing duties for all works below Mean High Water Springs (MHWS) .

The IDB is responsible for consenting works on an ordinary watercourse within their drainage district. Prior written consent is required for the erection of flow control structures or any culverting of an ordinary watercourse within the IDB's drainage district.

## **Appendix C – Adapting to Climate Change**

Climate change potentially impacts all sources of flood risk and is expected to increase coastal erosion rates, cliff instability and sea defence fragility. Preparing for, or adapting to, these impacts is therefore a necessity. Although the broad impacts of climate change on UK flood risk is understood, there is significant uncertainty on the rate of change and the eventual magnitude of change at any specific location. This is an area of active research. Operators should use the most up to date advice and ensure that this advice remains valid. For example, when any major new research is published applications should be reviewed in the light of the new information

### Consideration of Climate Change in Nuclear Safety Assessments

ONR guidance on assessment of external hazards and the control of the associated risks, including flooding and the effects of climate change is set out in Technical Assessment Guide (TAG) 13. TAG 13 currently states that for new build, ONR expects the designs to incorporate due consideration of the effects of climate change over the life-time of the facility. To this end, ONR expects the designs to be capable of accommodating the emissions scenario that is considered on the basis of relevant good practice to be most consistent to demonstrating that the risk arising from climate change effects is ALARP. An important consideration is that flood protection measures are made adaptable to cover possible changes to future estimates of climate change effects, as a way of managing the large uncertainties inherent in flood hazard predictions over the life-time of new nuclear reactor sites. A range of scenarios should also be considered to assess the implications of any disproportionate increase in consequences (i.e. “cliff-edge” effects) where a small increase in flood risk will result in a significant increase in the flood hazard and to assess the potential need for adaptation options. This is consistent with TAG 13 which states that the design of new facilities would also be expected to be able to accommodate a wider range of emissions scenarios including conservative scenarios, although not necessarily the most conservative. In addition, it is prudent to ensure that there are no features of the design which are completely undermined by more radical changes to the climate. In this context the maximum credible scenario may be used, see next section.

### Consideration of Climate Change in Energy Infrastructure Planning and Operation

#### *National Policy Statements*

Guidance on how climate change should be taken into account in planning for new energy infrastructure is given in the overarching National Policy Statement EN-1 and for nuclear power stations specifically in EN-6. Climate change guidance for general planning applications is provided in the National Planning Policy Framework and Planning Practice Guidance..

EN-1 states that applicants must consider the impacts of climate change when planning the location, design, build, operation and where appropriate, decommissioning of new energy infrastructure.

EN-1 states that the Planning Inspectorate (PINS) - should be satisfied that applicants for new energy infrastructure have taken into account the potential impacts of climate change using the latest UK Climate Projections available at the time the Environmental Statement (ES) was prepared to ensure they have identified appropriate mitigation or adaptation measures. This should cover the estimated life-time of the new infrastructure. Should a new set of UK Climate Projections become

available after the preparation of the ES, PINS should consider whether they need to request further information from the applicant.

The National Policy Statement provides guidance on how to consider the changing flood and coastal erosion risks. They also discuss how to manage those risks both within the initial design but also over the life-time of the site. It describes how PINS may consider requiring the applicant to ensure that an adaptation measure could be implemented should the need arise, rather than at the outset of the development (for example increasing height of existing, or requiring new, sea walls). More detail on this type of approach is given below, described as a “managed adaptive approach”.

The ONR and EA will assess the evidence provided by applicants that demonstrate external hazards to the proposed nuclear power station have been considered. This will include consideration of the projected impacts of climate change over the life-time of the power station.

### Consideration of Government Guidance and Data to Support Adaptation within Flood and Coastal Erosion Management

Government policy on adapting infrastructure to climate change is set out in its vision - “An infrastructure network that is resilient to today’s natural hazards and prepared for the future changing climate”<sup>10</sup>. For those nuclear sites and infrastructure on the coasts, the impacts from sea level rise, change to storm surges and wave climate (wave heights, period and direction) need to be considered over the life-time of the facilities. This includes operation, decommissioning and waste storage phases.

The **credible maximum scenario** described in EN-1 is a peer-reviewed, high end, plausible, scenario. A current example of the credible maximum scenario for sea level rise and storm surge for the period to 2100 is provided by Government’s UKCP09, and is termed the H++ scenario<sup>11</sup>.

The Department for Environment, Food and Rural Affairs (DEFRA)), the EA and the ONR encourage a “**managed adaptive approach**” to flood and coastal erosion risk management when planning for climate change. The approach is described by the Environment Agency within its document called, ‘*Adapting to Climate Change: Advice for Flood and Coastal Risk Management Authorities*’. The approach sets out a way of dealing with the significant uncertainty around the projections of future climate change for the UK.

The aim of the managed adaptive approach is to build flexibility into decisions today so that they can be ‘adjusted’ depending on what happens in the future. There are two elements of the managed adaptive approach. One approach is to build in the ability to adjust an option should it be required - flexible options. Examples include allowing an additional strip of land to the rear of a new flood bank to enable it to be raised if necessary or providing larger foundations to a flood wall to enable later raising with minimal work and disruption.

A complementary approach is to build flexibility into the decision process itself through waiting and learning - flexible plans. For example, sequencing options so that no or low regret options are taken earlier and more inflexible measures are delayed in anticipation of better information.

<sup>10</sup> Climate Resilient Infrastructure: “Preparing for a Changing Climate” Defra 2011 Cm8065

<sup>11</sup> UK Climate Projections 2009 UKCP09 Defra

Not all of the options to manage future climate change will be suitable for a managed adaptive approach of waiting and learning, for instance some of the options will be more cost-effectively implemented during initial construction. So, a mix of precautionary design and managed adaptive approach is likely to be the most suitable approach for nuclear sites.

Given the potentially significant risks that climate change presents and the significant uncertainty over the very long life of nuclear sites, we expect site applications will contain precautionary elements within the initial design, flexibility designed into flood measures and a plan for the whole life of the site detailing future options and the triggers that would lead to their implementation. This should be an integral part of the on-going periodic safety review following construction.

#### What are the elements of a managed adaptive approach?

- Understanding the full range of risks that might need to be managed. This comes from understanding the full range of climate change as described by the credible maximum scenario.
- Understanding how much flexibility and what options might be needed - and when - depending on the different climate change projections.
- Iterative decision-making (evaluating results and adjusting actions on the basis of what has been learned).
- Feedback between monitoring and decisions (learning) knowing when a decision will be needed given the changing risks and the lead time to make an adjustment, or implement a new option.

For the managed adaptive approach to be suitable, it will be necessary to demonstrate that it is made up of:

- Technically feasible and viable options - i.e. that the future cost of the options can be accounted for.
- The lead time between the need for an option being triggered and implemented is achievable.
- The fullest range of risks has been accounted for through the use of the credible maximum scenario.

## Appendix D – ONR and EA Flood risk interests for Nuclear New Build development proposals in England\*:

(\* Please note that this is not a prescriptive list of the requirements of the ONR and EA rather an indication of the differences between the ONR and EA remit.)

Nuclear New Build site			Comment
Flood Risk Remit	Environment Agency (Construction, operation and decommissioning),	ONR (Construction, operation and decommissioning)	Both EA and ONR have an interest in all stages of site development.
Identification of all forms of flooding and coastal erosion	<p>On-site and off-site risks and impacts</p> <p>Tidal flooding - 0.5% annual probability (event with and without climate change allowances</p> <p>Fluvial flooding- 1% annual probability event with and without climate change allowances</p> <p>Fluvial and Tidal flooding – 0.1% annual probability event with and without climate change allowances</p>	<p>On-site impacts only, but on-site and off-site effects from these impacts to ensure dutyholder risks are as low as reasonably practicable, (ALARP)</p> <p>Design basis analysis - 0.01%<sup>12</sup> annual probability flood event (SAPs EH.4, para. 239<sup>13</sup></p> <p>Beyond design basis analysis - assess cliff-edge effects etc. (SAPs EHA.7 &amp; EHA.18, paras. 246-248</p> <p>Probabilistic safety analysis – SAP EHA.18, para. 246(c)</p> <p>Severe accident analysis – SAP EHA.18, para. 246(e)</p>	<p>Focus of the EA is to ensure that existing and future flood risks and coastal erosion risk is fully understood and robustly defined as part of the assessment, to inform site design and decision makers. EA is also concerned with understanding the potential of the development to impact on flood risk to third parties (e.g. loss of floodplain storage). ONR focus is on the safety case.</p>
Breach	<p>Yes</p> <p>Tidal defence breach - 0.5% and 0.1% annual probability event with climate change allowances. Duration of breach (i.e. no. of tidal cycles to be considered) will need to be agreed with local EA FCRM teams.</p>	<p>Dependent on the claims made in dutyholders safety case</p>	<p>ONR focus is on the safety case. EA's role will ensure the modelling/assumptions are appropriate under the EA remit.</p>

<sup>12</sup> The ONR SAPs refer to the 1 in 10000 year event the two are understood to be the same.

<sup>13</sup> Consideration can be given to design basis events at higher frequencies (less onerous) where the facility cannot give rise to high unmitigated consequences (SAPs para. 241). This situation may apply, for example, to a reactor site near its end of life when most of the nuclear material has been removed or stored passively. The safety case must still demonstrate that the hazards are adequately controlled and that the risk from flooding is ALARP.

	Fluvial defence breach - 1% and 0.1% annual probability event with climate change allowances		
Overtopping	Yes  Defence overtopping – 0.1% annual probability event with climate change allowances	Yes  Defence overtopping should not occur at the Design Basis flood level and there should be some margin available above this to cover the possibility of Beyond Design Basis cliff edge effects.  Overtopping may be possible at flood hazard levels significantly beyond the Design Basis, but would need to be managed by site staff through e.g. emergency arrangements. The risk arising from such low probability events should be assessed by the licensee and shown to be risk ALARP.	Focus of the EA is on the lead time/ ability to evacuate the site safely in the event of an overtopping scenario, as well as understanding the potential off site impacts as a result of the development. ONR is concerned with the safety case.
Debris	Yes	Yes  The safety significance of flood borne debris hazard should be covered in the licensee's safety case(s).	EA is concerned with the potential of flood risk debris from the site to affect third parties and occupants during a flood event – thereby affecting UK Flood Hazard ratings. ONR is concerned about the potential of flood debris to affect operations in respect of the reactor and hence safety case.
Blockage of systems	Yes	Yes  The safety significance of blockage to safety significant systems should be covered in the licensee's safety case(s).	EA is concerned with ensuring that there is a strategy to deal with/ avoid/ clear debris from flood risk critical systems to ensure standards of flood protection are maintained (e.g. ensuring that there is a strategy to maintain conveyance through culverts through appropriate design of trash screens and a maintenance strategy). ONR's focus is on

			ensuring that the release of radiological material is managed – there may be a link to ensuring that flood risk critical systems are kept clear of debris.
How residual risks are managed	Yes	<p>Yes</p> <p>Managed through arrangements for monitoring the potential for flooding and through implementation of preventative measures, and the site emergency plan if flooding occurs.</p> <p>The residual risk should be shown by the licensee to be ALARP.</p>	<p>EA focus is on the residual risk of flooding from coastal and fluvial and how the applicant has demonstrated in their design/ mitigation that there is sufficient flexibility/ redundancy in the design to cope with the residual risks of flooding (e.g. breach of defences).</p> <p>ONR's focus is on the management of the residual risk of flooding in the design basis and approaches specified in the safety case.</p>
Emergency arrangements	Yes	<p>Yes</p> <p>ONR requires on-site Emergency Arrangements to be exercised periodically and demonstrated annually. These demonstrations can include extreme flooding scenarios.</p>	<p>The NSL requires licensees to put in place a site based Emergency Plan. Although these are not flood hazard specific, they should account for plant states that extreme flooding might cause.</p> <p>The Local Authority is responsible under REPPiR for creating and exercising an off-site Emergency Plan, which should account for extreme flooding scenarios. The Licensee, ONR and EA have obligations under these Emergency Plans.</p>
Where possible reducing overall risk in the area	Yes	No	EA's focus is on compliance with national policy on development and flood risk whereby developers should attempt to reduce flood risk to third parties where possible.
Within the site, the most vulnerable development is located in areas of lowest flood risk unless there	Yes – development not related to safety case	Only those areas related to safety case	Note the sequential test for the principle of the site has been agreed in the Strategic Siting Assessment (SSA) however this does not include any development

are overriding reasons to prefer a different location;			which has not been informed by the SSA process for these developments a sequential test is required.
Safe access/ egress and escape routes	<p>Yes</p> <p>Tidal flooding - safe access/ egress in 0.5% annual probability event with climate change allowances</p> <p>Fluvial flooding - safe access/ egress in 1% annual probability event with climate change allowances</p> <p>Tidal and fluvial flooding – safe means of escape (or sufficient time available) up to the 0.1% annual probability event</p>	<p>Yes</p> <p>Where safe means of access to the reactor and associated site infrastructure is required to meet Design basis safety claims.</p> <p>Beyond the Design Basis, the licensee's emergency plan should address safe access/egress</p>	<p>Focus of the EA is on the lead time/ ability to evacuate the site safely in the event of a 0.1% annual probability event and safe access/ egress during a 0.5% annual probability event (tidal/ 1% annual probability event (fluvial), with climate change allowances.</p> <p>ONR is concerned with the safety case and ensuring that there is a safe and achievable means of access to the safety critical elements of the design.</p>
Flood Warning process	<p>Yes: but limited e.g. Provide supporting providing data on request:</p> <p>E.g. identifying what flood warning services are available in the area/ flood level information.</p>	<p>Yes</p>	<p>There is an obvious link between flood warning coverage/ capability and safe evacuation of the site – which the EA will be concerned with. ONR may have a focus on flood warning of the safety case is contingent on receiving flood warnings to enact measures to protect the reactor and prevent the release of radiological material.</p>
Climate change Assessment	<p>Yes</p> <p>For non-safety critical elements up to 2080s and beyond we advise both the medium and high emissions scenarios be assessed based on the 90<sup>th</sup> percentile for the development life-time.</p> <p>For safety critical elements sensitivity test using to credible maximum (H++ upper end) for whole development life-time should also be applied.</p>	<p>Yes</p> <p>Safety critical infrastructure Covered by the licensee's safety case(s) analysed by Design Basis Analysis (DBA), Beyond Design Basis Analysis (BDBA) and Probabilistic Safety Analysis (PSA) methods.</p>	<p>EA's focus is on risk to the site and occupants (level of protection from flooding and mitigation against any off-site flood risk impacts) Implications on third parties for the full life-time of the development, incorporating climate change allowances.</p> <p>ONR is concerned with the safety case and the applicant would need to demonstrate that the reactor and associated infrastructure was safe (risk ALARP) for the operational life-time.</p>

	The managed adaptive approach can be used to develop a flood risk management approach to balance the risks and costs, in particular avoiding a 'cliff edge' effect.		
Adaptation	Yes Focus is on strategy - Anything a developer does in terms of mitigation needs to be designed so it doesn't prevent future adaptation up to credible maximum	Yes The Licence's safety case(s) should demonstrate that flood defences are adaptable to cover potential changes in climate change predictions over the life of the site.	EA's focus is on if the strategy allows room for future adaptation. And considers off site flood risk impacts in the adaptation scenario  For those adaptation/mitigation measures outside the scope of the FRA (i.e. beyond 0.1% annual probability event or not included in the DCO) we would not expect these to be covered in the FRA for the DCO other than a couple of lines outlining the general principle to these mitigation/ adaptation measures and that the detail will be considered by the ONR. The ONR will pick up on the technical detail of adaptation.

#### Associated development sites

	Environment Agency	ONR	Comment
Approach to Climate change for associated development sites	More onerous (i.e. sensitivity testing to H++ upper end) required if associated infrastructure is critical to the day to day running of the site. If the infrastructure is not critical (e.g. in the case of a road that has been constructed as part of the new build to assist with local transport capacity improvements), then the most relevant climate change criteria must be applied in accordance with national planning policy.	Outside remit unless associated development linked to the Nuclear Licensed Site	EA is concerned with ensuring climate change has been incorporated appropriately and proportionately in line with the category/ type of associated development. ONR is concerned about ensuring the development is appropriately resilient to climate change for the full life-time of the development if the associated development is critical to the operation of the site.

**Environment Agency**

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L20 7HS

Email [onrenquiries@onr.gov.uk](mailto:onrenquiries@onr.gov.uk)

**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Subject:** RE: Submission of documentation for BEIS regarding Sizewell C  
**Date:** 22 June 2022 11:54:15  
**Attachments:** [Bill Parker\\_IP\\_20026713\\_FA\\_ONR\\_Letter\\_Response.pdf](#)

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Dear Planning Inspectorate

Further to my email of a few moments ago I attach a pdf version of my letter, please discard the word version of the same letter sent to you previously

Thank you

[REDACTED]

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**From:** [REDACTED]  
**Sent:** 22 June 2022 11:49  
**To:** [SizewellC](#)  
**Subject:** FW: Submission of documentation for BEIS regarding Sizewell C

Dear Sir,

I submit today a letter from the Environment Agency regarding 'Sea defences and the lifetime of the (Sizewell C) power station' and my response which I believe contains material consideration for the decision on whether or not to grant planning permission for Sizewell C.

My original query to the EA / ONR was as follows:

*EDF are saying that the proposed Sizewell C plant has a time horizon for the life of their sea defences of 2140 – although I'm sure even they would agree this is based on an optimistic schedule.*

*However the EA / ONR requirement for the life of sea defences based on the FCERM guidance is for 160 years after commencement of operation and even if you utilise the unlikely completion date of 2030 means that they need to be robust till at least 2190.*

*Therefore I am seeking to clarify what the correct planning time scale for effective sea defences is. Clearly the defences that is planned and in the public domain are inadequate for any date later than 2140. Therefore I wish to understand the EA / ONR position on this and how EDF will be held to account to ensure that the risk of over topping (or worse) especially with regard to the spent fuel store that will need to be held on site for a lot longer than 2140.*

My apologies for the late submission however I only received the response to my queries from September 2021 from the EA on 9<sup>th</sup> June 2022.

Please can this be passed to BEIS with all haste.

Yours faithfully

[REDACTED]  
IP 20026713

Your Ref: 2206SZC

██████████  
██████████  
██████████  
22/6/22

Dear Simon

### **Sizewell C project – Sea Defences and Lifetime of the Power Station**

Thank you for your email dated 9<sup>th</sup> June. It is unfortunate that it has taken 254 days to respond to my initial question. However, I do appreciate you co-ordinating a combined EA / ONR response.

Your combined comments have however raised further questions that I have, and I would therefore appreciate your offer of a meeting with you and your colleagues to ensure that there are no misunderstandings on these important issues.

The purpose of my original question is to ascertain what the correct time horizons should be and if in the light of coastal change and climate change (inc. sea level rise), the site is appropriately protected in line with both EA / ONR policies. In addition, have there been sufficient pre-cautions taken for both the life of the power station (incl. decommissioning) and any residual spent fuel left on the site.

Your combined response highlights important issues as to whether the current process is fit for purpose and whether its application is sufficiently precautionary on such a long-term basis.

It may be helpful for me to highlight the areas of most concern as follows:

#### **1) Roles of the EA and ONR**

- In your letter you state for the FRA a primary responsibility of the EA is that '*Planning guidance requires the developer to consider flood risk and safety of people over the lifetime of the development*', and the FRA focus is on evacuation of people and off-site impacts. This is entirely reasonable and appropriate for developments such as housing, however it misses the entire additional issue of extremely hazardous radioactive material (either within the power station or being stored on site) and therefore vulnerable to flooding. Evidence from Fukushima demonstrates that once nuclear toxic waste is in the sea it can never be recovered.
- It is also stated that the '*ONR doesn't specify any planning timescale for sea defences*' and delegates this to the applicant. This is however at odds with the '*Principles of FCERM (V1) which the EA / ONR published in 2017*' which give a very clear expectation of how long sea defences should be planned for.
- In the published ONR Strategy 2020-2025 the stated mission of the ONR is '*to protect society by securing safe nuclear operations*' and there is recognition that the '*Local and global challenge of climate change*' is a factor in setting the strategy. One of the core strategic themes highlighted in the ONR Corporate plan 2022/23 is '*inspiring stakeholder confidence*'. I understand that the Applicant has submitted details of its coastal erosion and flood defences within the confidential safety case which therefore excludes

stakeholder scrutiny. Does this really need to be a confidential issue and would it not better meet the ONR Corporate Plan objectives to reassure and provide confidence to an array of stakeholders from local communities to national governments by publishing this information.

**Point 1 Conclusion:**

It is not clear whether the EA or the ONR is taking accountability for ensuring that SZC is adequately protected from erosion or flooding during the site's operation / decommissioning or residual time of spent fuel being stored on site. There is little reassurance to stakeholders that the assessment has been appropriately undertaken and under what assumptions. This appears to be a failure in the process.

**2) Over reliance in the process on the Applicant**

The Principles of FCERM (V1) document suggesting that 160 years from completion is a reasonable length of time for suitable sea defences but the ONR states that the time scale should be specified and justified by the operator. On the over optimistic assumption that the station is completed in 2035 (as promoted by the Applicant) then 2140 is a maximum of 105 years – some 55 years shorter than specified in the EA / ONR's own FCERM principles document. No evidence has been presented for public scrutiny by the applicant that this is reasonable or achievable.

Evidence that has been presented by many Interested Parties challenge the presumptions made by the Applicant in the following areas:

- The 2140 time scale – This is simply not a credible date to; approve, build, operate for 60 years and then sufficiently decommission for this date to be worthy of considering. It is a date published by the Applicant but should be challenged by the regulatory authorities and a more realistic date, in line with FCERM (VI), identified. Once established then this should be utilised for the risk analysis.
- The ONR also states that '*Should the life-time of the station be extended ...then SZC would need to demonstrate that the sea defences will continue to adequately protect the site....*' This may be true, however once built then if the defences are inadequate or flawed then it may not be possible to defend the site, even to the initial projected life-time of the station. The CPMMP (beach management plan) and the sustainability of the Hard Coastal Defence Feature contain major assumptions that are subject to legitimate and unanswered questions. The presumption that the assumptions and proposals for the coastal defence features (both hard and soft) are robust enough till 2140 is unproven.
- The Applicant has included the details of the assessment and analysis of the effectiveness of the flood and coastal erosion defences into the Safety Case. Therefore this is not open to public scrutiny and ONR who are looking at a wide range of issues themselves may not have the technical expertise or location specific knowledge on these matters. It is unclear who might provide the ONR with the technical advice on these matters and it would be unwise to rely solely on the

submissions and assurances from the Applicant. This is a weakness of the process as currently defined.

**Point 2 Conclusion:**

The Applicant's over-riding objective is to obtain permission to build Sizewell C. The reliance of the ONR and EA on the submissions from the applicant and the failure to challenge the assumptions and assertions of the applicant undermine both the quality and confidence in the approval process.

**3) Weakness of the assumptions accepted by the EA in the FRA**

I am pleased to read that the FRA did consider flood risk up to 2190. However, your letter states regarding wave over-topping that in a 1 in 1000 event in 2190 the probable would be 1.9 l/s/m against the stated maximum threshold of 2 l/s/m. The confidence that this will be below the threshold in 170 years is with a 5% safety margin (1.9 vs 2.0 l/s/m) seems overly optimistic for the following reasons:

- In the past 25 years the assumptions about the rate of sea level rise have increased rapidly, from 6mm / year in 2003, to an average of 10.15mm year in the latest UPCIP18 predictions. In view of the increasing volume of scientific evidence on the rapid increase in sea level rise the 5% margin of safety is grossly over optimistic. The 'hockey stick curve' model of sea level rise contests this overly confident position.
- The assertion (promoted by the Applicant) that 'coastal erosion is a slow process' and therefore the CPMMP will be able to deal with changes in the foreshore is also a high-risk assumption. It also not historically accurate nor reflects more challengingly the uncharted implications of a rapidly changing climate, not seen in the last 200 years of measurements of sea level rise. The modelling presented so far presumes that the CPMMP will work and prevent significant coastal erosion. This cannot be accepted by the regulatory authorities.
- The soft coastal defence will extend beyond the natural sweep of the Sizewell Bay in front of the SZA, SZB and SZC site and will be protected somewhat by the SZB salient during SZB's continued operation. Once SZB ceases operation the salient and soft defence will be subject to significant erosion as the coast "relaxes" to its natural profile, a process that EDF state will take 1-2 years. The CPMMP will not be able to resist this change and this "relaxation" process will threaten the integrity of the hard coastal defence at its southern extremity, will considerably weaken the overall coastal defence and compromise the CPMMP's ability to mitigate such changes. These changes do not appear to have been properly considered in the modelling of the coastal defences.
- The results from the modelling are from the Applicant, questions on whether the assumptions and calculations made in this modelling have been sufficiently stress tested or have the ONR / EA just accepted the Applicants data, remain?

- The EA / ONR seem to have accepted that by 2140, decommissioning of the majority of the buildings on site would have been completed. Evidence for this is weak and in reality, 2140 will not be achieved. The applicant is maintaining this position as they know that if a realistic timeline is followed then the credibility of their coast and flood defence proposals is in jeopardy. It may be helpful to refer to the applicant's FRA document 5.2

[REDACTED]

[REDACTED]

[REDACTED] para

1.3.5 which states *"Due to the uncertain timing and nature of the decommissioning phase (2140 to 2190) a separate planning application would be submitted at the appropriate time and the effects on flood risk would be reassessed at that time.*

*However, to provide some confidence on flood risk impacts, this FRA considers in broad terms a conservative assessment to 2190."*

This appears to confirm the Applicant lacks confidence in its own modelling till even 2140. If 2190 is the applicant's relevant date, then shouldn't they be required to demonstrate that the site can be kept safe till 2190 at this planning stage, not in a 100 years' time when the situation may be significantly more difficult to resolve. This would be avoided with effective and detailed analysis now.

#### **Conclusion to point 3 – weak assumptions**

Whether both the EA and ONR have unconditionally accept the results of the modelling presented by the Applicant is unclear and, whilst the prescribed process may be followed to the letter, there is no evidence of robust challenge and a precautionary approach to this proposal as submitted by the Applicant. It is seen as a failing of the EA / ONR process to be precautionary when clearly the margins for error are so small.

#### **4) Conclusion overall**

Thank you for responding to my queries, your responses have unfortunately not allayed my concerns. Whilst I am sure that the process as set out for the safety case and FRA have been followed and that the individuals have tried to ensure that they have been fair to the applicant, it remains clear that:

- There is a lack of clarity as to who is ultimately responsible for approving the in-combination flood and coastal erosion risk assessments
- There is an over-reliance on and insufficient scepticism of the Applicants proposals and base case modelling assumptions
- That the margins for error are so small for such a long time period that this proposal, as it stands, cannot be accepted.

I therefore urge both the EA and ONR to demonstrate they understand and reflect the concerns of the wider knowledgeable community and that this is central to their thinking to ensure that all proposals are sufficiently robust and long term to give confidence that good decisions are being made.

The EA / ONR must focus on the site and proposal as presented to them by the Applicant. It must not be the role of the EA / ONR to accept a proposal just because this proposal supports the Applicant's limited time horizon (2140) regardless of the long-term consequences, in particular with regard to flood and coastal defence.

Failure to achieve an effective and precautionary assessment, will pass the responsibility for corrective actions to future generations to resolve (if that is even possible). It must be the responsibility of both the EA and ONR to ensure that the right assessments are being undertaken now and that a credible long-term mitigation and coastal protection strategy is adopted.

I look forward to hearing from you and potential dates for a follow-up meeting in the near future,

Yours sincerely



Bill Parker

IP20026713

Your Ref: 2206SZC

22/6/22

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- That the margins for error are so small for such a long time period that this proposal, as it stands, cannot be accepted.

I therefore urge both the EA and ONR to demonstrate they understand and reflect the concerns of the wider knowledgeable community and that this is central to their thinking to ensure that all proposals are sufficiently robust and long term to give confidence that good decisions are being made.

The EA / ONR must focus on the site and proposal as presented to them by the Applicant. It must not be the role of the EA / ONR to accept a proposal just because this proposal supports the Applicant's limited time horizon (2140) regardless of the long-term consequences, in particular with regard to flood and coastal defence.

Failure to achieve an effective and precautionary assessment, will pass the responsibility for corrective actions to future generations to resolve (if that is even possible). It must be the responsibility of both the EA and ONR to ensure that the right assessments are being undertaken now and that a credible long-term mitigation and coastal protection strategy is adopted.

I look forward to hearing from you and potential dates for a follow-up meeting in the near future,

Yours sincerely



Bill Parker

IP20026713

**Bill Parker**

**Our Ref:** 2206SZC

**Date:** 7 June 2022

**By email only**

Dear Mr Parker

**Sizewell C Project – Sea Defences and Lifetime of the Power Station**

Thank you for your email of 16 May 2022 regarding the lifetime of sea defences for proposed Sizewell C project. In order to provide a full response, we have coordinated our reply with the Office of Nuclear Regulation (ONR)

**Environment Agency Response**

The planning guidance requires the developer to undertake a Flood Risk Assessment (FRA) to consider the flood risk and safety of people over the lifetime of the development. It does not however prescribe that the site must not be at any risk of flooding for this lifetime, but the FRA must detail how the risks would be managed. The ONR & EA Joint Advice Note 'Principles for Flood and Coastal Erosion Risk Management' (Version 1) states that 'Focus of the EA is on the lead time / ability to evacuate the site safely in the event of an overtopping scenario, as well as understanding the potential off site impacts as a result of the development. ONR is concerned with the safety case'.

The FRA did consider flood risk up to 2190. For the Reasonably Foreseeable actual risk up to 2190 (using UKCP18 8.5 95%) the FRA showed that there would be no inundation of the main platform or SSSI crossing from overtopping of the Hard Coastal Defence (HCDF) or the remaining lower northern and southern sand dunes/shingle defences in all events up to the 0.1% (1 in 1000) annual probability flood events in 2190 as the flood level is 6.02mAOD and the level of the platform is 7.3mAOD. In terms of wave overtopping of the HCDF or Northern Mound in the reasonably foreseeable 0.1% (1 in 1000) annual probability flood event in 2190, there would be 1.9 l/s/m which is below the maximum allowed of 2 l/s/m, and will result in flood depths on the platform below 0.1m and velocities below 1m/s which will result in a low hazard so the workers will remain safe, and the buildings with floor levels 0.2m above platform level will remain dry.

In the Credible Maximum climate change scenarios (BECC Upper) there would be overtopping of the existing remaining northern and southern shingle ridges/sand dune defences and wave overtopping of the HCDF, resulting in flood depths on the platform in both 2140 and 2190. However, the FRA stated that by 2140 decommissioning of the majority of the buildings on site would be completed. At this point there will be very limited activities on the platform (most likely only involving periodic inspections of the spent fuel

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storage facilities) and the flood risk to either property or users of the site would be very limited. Therefore the flood risk to people would be managed, so that with appropriate forecasting and warning systems in place, any activity on site would be avoided during such extreme events.

## **ONR Response**

ONR does not specify the planning timescale required for sea defences. Whilst the 'Principles for Flood and Coastal Erosion Risk Management' (Version 1) suggests that 160 years may be considered a reasonable time for the '*full life-time of the station*' it is also clear that this should be specified and justified by the operator.

During operation of the nuclear licenced site it is a regulatory expectation for the licensee to periodically review the validity of the safety case for all facilities on the site against external hazards, to ensure the site remains protected. This includes the dry fuel store and taking updated climate change projections into account for coastal flood hazard.

The design of the SZC sea defences is currently stated to be until 2140. Should the life-time of the station extend beyond this date NNB GenCo (SZC) would need to demonstrate that the sea defences will continue to adequately protect the site, or provide additional protection measures.

I hope that this letter can provide you with an explanation into the concerns that you have raised. If - however - questions remain, then I imagine that we could arrange a meeting in which we might better discuss those remaining uncertainties.

Yours sincerely



Simon Barlow  
Project Manager  
Sizewell C Nuclear New Build  
Environment Agency





Office for  
Nuclear Regulation



Environment  
Agency

# Principles for Flood and Coastal Erosion Risk Management

Office for Nuclear Regulation and Environment Agency Joint  
Advice Note

July 2017 – Version 1

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## 1. Purpose of this document

This document will be of interest to any party interested in understanding the approach to flood risk in the nuclear new-build programme in England.

It provides advice on how flood and coastal erosion risk issues are taken into account when considering proposals for new build developments. This advice is intended to be risk based, pragmatic and proportionate in its approach. It will be reviewed and updated as necessary.

This document:

- Identifies in one place all the relevant legislation, regulatory authorities, dutyholders and high level principles applicable to flood risk management for a new nuclear site.
- Sets out principles based on good flood risk management practice that minimises the impact of a new nuclear site on existing flood risk elsewhere, whilst keeping the risk of nuclear consequences arising from extreme flooding events entering the site, as low as reasonably practicable (ALARP).
- Sets out jointly the relevant advice from the Office for Nuclear Regulation (ONR) and the Environment Agency (EA) on flood and coastal risk management issues.
- Provides a standardised framework and starting point for EA and ONR staff involved in pre-planning / early nuclear safety discussions and relevant consultations.

The underpinning legislation and working arrangements of both these organisations are different and there is a potential for inconsistency in the advice and guidance offered to dutyholders. This document helps to bring consistency and clarity to the regulators' approach.

We also make clear the expectations of the EA and the ONR in respect of flood and coastal risk management, and provide a basis for regulatory decision making and advice (under our statutory consultee role in the planning process) to Local Planning Authorities and the National Infrastructure Directorate of the Planning Inspectorate (PINs).

Ultimately it will be for PINS and the ONR to make the decisions on the safety of the development and residual flood risk.

Flood hazard analysis and the necessary protection and management arrangements should be captured and reported by the developer (referred to as the dutyholder) in different documents:

- for the EA - in planning submissions and Flood Risk Assessments, and
- for the ONR - in relevant nuclear safety case(s)

The individual submissions may differ in detail but there should be consistency between them. The submissions will respond to different regulatory requirements and expectations but where they overlap in their predictions of flooding effects on the site, the predictions should be consistent; differences in data, methods used and judgments should be reconcilable and justified between the two analyses. The analyses and protection arrangements that best address EA's requirements, for

example, should be consistent with those needed to address nuclear safety criteria as regulated by the ONR.

These principles reflect the guidance within other regulatory guidance/planning documents<sup>1</sup> and should be read alongside them.

## 2. Principles

### Principle 1 – Dutyholder responsibilities

Prime responsibility for the assessment and management of Flood and Coastal Erosion Risk rests with the dutyholder<sup>2</sup>.

#### Considerations

- Flood risks posed to the site should be fully assessed from all potential sources of flooding, or any joint combination of sources, where appropriate.
- Any flood or coastal risks arising from the site are the responsibility of the dutyholder and must be managed appropriately.
- Current and future flood and coastal erosion risk should be managed so that it does not cause unacceptable increases in risk or burdens to future generations, and their environment.

### Principle 2 – Management arrangements

It is the responsibility of the Dutyholder to put in place the necessary management arrangements to ensure that appropriate flood and coastal erosion risk management measures are delivered at all stages of the design, construction and operation of the nuclear site.

Management arrangements should be established based on the following four areas:

- Leadership by the dutyholder
- Capability and competence
- Clarity of decision-making
- Learning from experience

#### Considerations

- Leadership
  - Early engagement and the establishment, at the outset, of joint working by the dutyholder with the EA and the ONR; and - where appropriate - other risk management authorities and the local planning authority.
  - Develop and maintain a plan or strategy for the assessment and management of flood and coastal erosion risk and present it to the EA and the ONR at the earliest opportunity. This should include:
    - Flood modelling requirements.
    - Outline design criteria.

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<sup>1</sup> National Policy Statement EN6 – New Nuclear, EN1 – Energy (NPS), CLG - National Planning Policy Framework (2012)

<sup>2</sup> The term “dutyholder” is used in here to refer generally to include those with responsibilities under relevant legislation and includes “licensee” and “licence applicant” under nuclear legislation. See also Appendix B.

- Approaches to the assessment of climate change.
  - Approaches to the management/maintenance of flood defences.
- Capability
  - Those involved in the assessment and management of flood and coastal erosion risks should have sufficient capabilities and training to undertake the required tasks and/or make decisions.
- Decision-making
  - Decisions should be informed by the most appropriate scientific knowledge.
  - Decisions should take into account uncertainties and a precautionary approach should be adopted where there is potential for adverse consequences to people, property and the environment, both off-site and on-site.
- Learning
  - Dutyholders (and other relevant organisations) should learn from their own and others' experience so as to continually improve their ability to manage and where reasonably practicable reduce flood and coastal risk. Examples include:
    - Engaging with local resilience forums.
    - Reviewing and learn lessons from flood reviews and emergency planning exercises - such as the 2011 Exercise Watermark.
    - Maintaining an awareness of flooding events to nuclear and other facilities so that relevant learning can be taken from such events.

### **Principle 3 – Fit for purpose assessment of flood risk**

A fit for purpose assessment of flood risk should be undertaken to inform the detailed siting, design, management and safety case requirements of any new nuclear facility. The principle documents through which flood risk is reported are the Flood Risk Assessment (FRA) that is prepared for the planning process and assessed by the EA and the nuclear safety case(s). These documents must consider all sources of flooding and coastal erosion risk.

#### **Considerations**

- The expectation is that all flood risk analysis work is undertaken in a manner that makes it suitable for both the FRA and the nuclear safety case(s). As noted in Section 1, if separate assessments are required, then appropriate consistency of data input, modelling and analysis is required, so that flood predictions by both analysis streams can be reconciled. Any differences should be clearly explained and justified.
- Both the EA and ONR expect the assessment of flood and coastal erosion risk to be:
  - Consistent with relevant guidance from the EA, ONR, other relevant regulators and government.

- Consistent with Cabinet Office guidance on Critical Infrastructure Resilience. For example, assess and demonstrate explicitly at what point the nuclear facilities and supporting infrastructure - including critical transport links/routes - cease to be operable, in terms of flood return period<sup>3</sup>.
- Consistent with, and take advantage of, relevant good practice, for example the International Atomic Energy Agency<sup>4</sup>.
- Any assessment should be timely, transparent and comprehensive based on sufficient good quality data and properly documented – (including a non-technical summary).
- Any assessment should include the consideration of climate change using relevant good practice and best available information (see Appendix 3).
- Flood and coastal erosion characteristics of the site and surrounding area should be kept under review and assessments made of the effects of natural and man-made changes. For nuclear licensed sites, this requirement is captured by Licence Condition 15.
- Flood and coastal risk assessments should provide analysis to address the following matters:
  - The potential for flooding due to pluvial, surface water, groundwater, high tides, storm surges and tsunamis.
  - The combined effects of high tide, wind effects, wave actions, duration of the flood and flow conditions.
  - The potential for coastal erosion due to the above factors and other geological and geo-morphological considerations.
  - The probability of failure of flood risk management measures, for example, blocked drainage channels, or the breach / over-topping of flood defences, and the associated consequences
  - The risk of foreshore lowering due to coastal processes undermining sea protection works.
  - The effects of climate change over the full life-time of the station assessed using the most up to date credible projections.
  - Off-site flood and coastal erosion risks, for example, to site access and egress routes.
  - Studies to address any significant uncertainties (as determined for example by sensitivity studies) that exist.
  - Any changes to flood and coastal erosion risk elsewhere as a result of works.
- A FRA should address all relevant matters including those above, and based on this analysis should:
  - Assess and demonstrate that staff and visitors on the site are safe from the effects of flooding over the developments full life-time<sup>5</sup>.
  - Demonstrate that all works associated with development of a nuclear site will not cause unacceptable increases in flood risk elsewhere,

<sup>3</sup> <http://www.cabinetoffice.gov.uk/sites/default/files/resources/natural-hazards-infrastructure.pdf>

<sup>4</sup> See especially guide SSG-18, available from IAEA, [REDACTED]

<sup>5</sup> National Planning Framework: Flood Risk and coastal change : <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

- cause detriment to other flood or coastal erosion assets, or prevent any other flood and coastal erosion risk operator from maintaining or improving any assets in the future - taking into account climate change over the full life-time of the station.
- Take account of relevant plans or strategies which will affect the site, for example, Shoreline Management Plans (SMP).
- Demonstrate that the site proposed for nuclear development is not at risk (or that the risk is adequately managed) from coastal change/erosion taking into account climate change over the full life-time of the station.
- Demonstrate that all works associated with development of a proposed nuclear site will not cause unacceptable coastal change/erosion risk elsewhere, taking into account climate change.
- Demonstrate that where development is undertaken in areas at risk from coastal change, the detrimental effects presented by coastal change can be mitigated, taking into account climate change.
- The nuclear safety case(s) should consider the principles above where relevant to nuclear safety and in addition:
  - Consider the approach to platform height carefully. Nuclear facilities should be protected against the design basis flood by the adoption of a plant layout that incorporates the 'dry site concept'<sup>6</sup>, where reasonably practicable.
  - Demonstrate that the nuclear safety risks from flood and coastal erosion hazards are adequately controlled and these risks are ALARP.

#### **Principle 4 – Fit for purpose flood and coastal risk management**

A fit for purpose plan/strategy should be produced so that all identified flood and coastal risks can be adequately managed.

##### **Considerations**

- The plan/strategy should be informed by other relevant flood and coastal risk management plans such as catchment flood management plans, shoreline management plans, strategic flood risk assessments, preliminary flood risk assessments, flood warning and emergency planning protocols, local flood management studies/improvement schemes.
- Consideration should be given to all of the significant uncertainties, risks, assumptions, exclusions and key decision points.
- Arrangements required to support claims made by the nuclear safety case(s) including those for beyond design basis, cliff edge assessments and flood management regimes.
- Include both on-site and off-site management arrangements.
- Management arrangements should be designed, operated and tested to ensure reliability, for example, by exercising the nuclear site's emergency arrangements.

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<sup>6</sup> ONR Safety Assessment Principles (SAPs) para. 261.

- Any flood or coastal erosion risk measure implemented by the operator should not increase risk elsewhere, cause detriment to other flood or coastal erosion assets, or prevent any other flood and coastal erosion risk operator from maintaining or improving any assets in the future.
- Structures, systems, components and mitigation measures that are, or comprise part of the flood management measures should receive regular and systematic examination, inspection, testing, maintenance and, if necessary, renewal/replacement.
- All relevant flood and coastal risk management measures required to provide a nuclear safety function must remain in the control, and be the sole responsibility of, the operator, or adequate arrangements must exist with 3<sup>rd</sup> parties who own these measures, so that the dutyholder has adequate confidence that any nuclear safety benefits claimed for them can be provided. Where these items consist of physical measures, they should be listed in the dutyholder's relevant maintenance schedule.
- Ensure that all relevant flood and coastal risk management measures are planned, designed and implemented so that they are capable of being modified/adapted to maintain adequate safety in light of climate change over the full life-time of the station.
- The design and operation of flood emergency plans and management measures, including communications, should be such that response arrangements are enacted in the event of a flood warning, or a flood.
- The plan/strategy should allow for the dutyholders to receive tailored flood warnings for the site and associated infrastructure.
- The plan/strategy should enable the flood emergency procedures to be tested and operated at appropriate intervals.
- The plan/strategy should enable dutyholders to engage with local resilience forums.
- Flood and coastal risk management should be managed to avoid placing a burden on the public purse, or increasing flood risk elsewhere.
- Funding arrangements:
  - Dutyholders should plan, design, implement and fully fund the necessary flood and coastal erosion risk management measures for a site and its associated infrastructure. This may include arrangements for the management of risks off site, for example, access and egress routes required for staff.
  - Dutyholders should not call on public money to provide flood and coastal erosion risk management measures for their site, associated infrastructure and access. However, where an operator is seeking to provide a defence that could also benefit the community, public funds may be available to support this providing that the public contribution is, at most, proportional to the whole life benefits gained by the public.
  - Dutyholders should discuss with the EA on a case-by-case basis those instances where, based on the benefits received by the public, some

public money may be available towards the upgrading of an operator owned asset (which will already provide adequate protection to the nuclear site) to extend the level of protection to existing communities for the life-time of the development. This contribution should be - at most - proportional to the whole life benefits that will be gained by the public and in line with the EA flood coastal risk management external contributions policy.

### **3. Appendices**

#### **Appendix A – Definitions**

*Operational Life* – the period commencing with the transfer of nuclear materials to site. Operational life should be specified by the operator, but is generally understood to be at least 60 years.

*Full life-time of the station* – operational life, plus the time taken for the decommissioning and interim storage of spent fuel and waste, prior to disposal. Again, this should be specified and justified by the operator, but is generally understood to be 160 years.

*Critical Transport Link/Route* - that which is identified as necessary to address the requirements of Cabinet Office guidance on Critical Infrastructure.

## **Appendix B – Roles and responsibilities**

Responsibility relating to controlling and regulating flood hazard and coastal erosion around each new nuclear site is vested in various national and local authorities (Includes the lead local flood authority), the site operator and local landowners. These responsibilities and the duties and obligations they confer on the various organisations, although covered by several unconnected legislative instruments, are complementary. In general, the ability to satisfy individual responsibilities can have an effect on others. These principles recognise the synergies that exist between these individual responsibilities and seek to provide advice that recognises this.

### Dutyholder

The principal responsibilities of a company which plans to build, operate and decommission new nuclear power stations are:

- To undertake a flood and coastal erosion risk assessment covering all relevant areas both on and off site before seeking any relevant consents for a new nuclear power station. The assessment should cover the facility's full life-time where relevant.
- To maintain and operate any flood and coastal erosion risk control measures necessary to meet claims in the FRA and relevant nuclear safety case(s).

Different legislation uses different terms to describe the organisation responsible for compliance; in particular the Health & Safety at Work etc. Act. 1974 (HSW74) refers to dutyholders; the Nuclear Installations Act 1965 as amended (NIA65) identifies the responsible organisation as a licensee, holding a nuclear site licence to operate a nuclear reactor or undertake other prescribed nuclear operations.

### Office for Nuclear Regulation

The ONR's principal responsibility is to regulate nuclear safety on nuclear licensed sites, including the safety implications – both off-site and on-site – associated with hazards arising from flood and coastal erosion. This role is defined in the Energy Act 2013,, in which ONR is defined as the enforcing authority for the following purposes:

- Nuclear safety
- Nuclear site health and safety (conventional health and safety)
- Nuclear security (on civil nuclear premises)
- Nuclear safeguards (related to UK's treaty obligations covering non-proliferation etc.)
- Civil transport of radioactive materials.

Flood and coastal erosion hazards are covered by the first of these purposes. Two existing statutes, the NIA65 and HSW74, facilitate ONR's ability to licence nuclear sites, permission nuclear significant activities on them, and to set standards that the dutyholder must meet to ensure its activities are safe.

The NIA65 enables ONR to grant nuclear site licences to competent organisations and to attach conditions to those licences. At the present time there are 36 standard licence conditions attached to every Nuclear Site Licence (NSL) covering different safety related issues, such as maintenance, the need for safety cases, emergency arrangements and the need to control modifications to existing plant. The licence

conditions provide ONR with powers to permission nuclear significant activities on the site. Permissions relevant to flood hazards can be granted when the licensee submits an adequate safety case to the ONR; the safety case demonstrates that the activities for which permission is sought can be carried out safely. The NIA65 is a relevant statutory provision under the Energy Act 2013. ONR's powers under NIA65 only extend to the licensee itself, although the licensee is expected to have arrangements to ensure that other organisations upon which it depends, such as support contractors, themselves operate safety when working on the site.

The HSW74 requires dutyholders to ensure that risks to the public and workers are reduced so far as is reasonably practicable; this principle is absorbed into nuclear regulation as the ALARP principle. HSW74 is also a relevant statutory provision under the Energy Act 2013 and applies to all organisations and individuals undertaking safety duties relevant to the site.

ONR's principal role in relation to flood and coastal erosion hazards is to permission nuclear significant activities at nuclear licensed sites on the basis of a safety case(s) submitted by the licensee. ONR does this after assessing the safety case(s) to ensure it is adequate. In broad terms, a safety case(s) is adequate if it demonstrates that the risks arising from the activities for which permission is sought are ALARP.

ONR's regulatory remit strictly only applies once an organisation has formally applied for a NSL, and extends from this point to final de-licensing of the site, covering all construction, operation and decommissioning activities relevant to nuclear safety. In practice, ONR engages with organisations before a formal licence application is made to provide advice on matters relevant to obtaining a NSL, including consideration of technical issues relevant to the viability of the site. Flood and coastal erosion hazards are an example of this.

ONR is a statutory consultee on all new nuclear build applications for Development Consent Orders (DCO) made to the PINS. The relationship between PINS and the nuclear regulators, which includes ONR<sup>7</sup> and EA, is set out in sect. 2.7 of the National Policy Statement (NPS) for nuclear power generation, EN-6<sup>8</sup>. Flood risk is identified as a nuclear impact in sect. 3.4 of EN-6 and anticipates liaison between the nuclear regulators and PINS.

Based on the advice of the relevant nuclear regulators, the PINS should be satisfied that the applicant is able to demonstrate suitable flood risk mitigation measures. These mitigation measures should take account of the potential effects of climate change in the most recent marine and coastal flood projections. Applicants should demonstrate that future adaptation/flood mitigation would be achievable at the site, after any power station is built, to allow for any future credible predictions that might arise during the life of the station and the interim spent fuel stores.

In the case of planning applications to local authorities, the ONR is consulted in relation to the effects of a new development proposal on an existing site whenever it may have a bearing on nuclear safety, including the effects of hazards such as flooding.

In the assessment of risk, ONR should:

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<sup>7</sup> Note that prior to the Energy Act 2013 coming in to force, ONR was an agency of the Health and Safety Executive (HSE). The powers and responsibilities formerly lodged with HSE and discharged by ONR on its behalf have, through the EA13, been transferred to ONR in its new role as a stand-alone public corporation.

<sup>8</sup> DECC, National Policy Statement for Nuclear Power Generation (EN-6), Vol I of II, July 2011.

<http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/consents-planning/nps2011/2009-nps-for-nuclear-volume1.pdf>

- Provide advice to PINS (or the relevant planning authority) on request, on whether the applicant is likely to be able to demonstrate suitable flood risk protection and mitigation measures to keep nuclear risks from flooding hazard ALARP.
- Review and assess the adequacy of the licensee's nuclear safety arrangements in relation to flood and coastal erosion hazard by a mixture of inspection and assessment, in summary:
  - Inspection should examine the site's operational arrangements (processes, procedures, work instructions etc.) for maintaining the effectiveness of the flood and coastal erosion defences in line with safety case claims. This may also include testing the emergency arrangements using emergency exercises.
  - Assessment should examine the safety case(s) and supporting documents that together demonstrate the risk from flood and coastal erosion hazards are ALARP. Claims made on physical protection measures and operator actions to maintain or activate these should be assessed according to the guidance in the Safety Assessment Principles (SAPs) and Technical Assessment Guide (TAG) 13.

### Environment Agency

The EA is the principal flood risk management authority in England providing a strategic overview relating to all forms of flood risk. The EA is responsible for forecasting and mapping flood risk, providing warnings, taking part in emergency planning and response and advising on development in the flood-plain; and has permissive powers for building and keeping defences in good order.

The EA is a consenting authority for flood and coastal risk management and land drainage, for example:

- Works in, over, under, main rivers; or likely to affect the integrity of fluvial and tidal defences.
- Raising ground levels in the floodplain beside a main river.
- Coastal works undertaken by local authorities.
- Other works covered by local byelaws.

The EA is a statutory consultee on planning applications for new nuclear sites and a statutory consultee on all applications for DCOs made to PINS.

The EA is the regulator for environmental permits for new nuclear build.

*In the assessment of risks, the Environment Agency should:*

- Review the flood risk assessment and associated flood risk management measures against the requirement for safe occupancy, and access for staff, for the full life-time of the station where relevant.
- Review the food risk assessment and associated flood risk management measures against the requirement to not cause adverse harm to others through any alteration to the characteristics of flooding in the area, leading to increased off-site impacts for the full life-time of the station.
- Provide advice on its review of the flood risk assessment and associated flood risk management measures to PINS and the relevant planning authorities.

## National Infrastructure Directorate of the Planning Inspectorate (PINS)

The Planning Inspectorate responsibilities include:

- Examining Development Consent Order applications under the Planning Act 2008 (and amended by the Localism Act 2011).
- Providing recommendations to the Secretary of State for their decision. (The decision of the acceptability of the safety of site users/occupants would lie with the Secretary of State).

## Local Authority

The local authorities' responsibilities include:

- To provide advice on issues of safety relating to emergency planning during a flooding incident. This will be supported by other category one responders, for example, emergency services, through the local resilience forum and set out in a local emergency preparedness framework.
- Examining and determining planning applications under the Town and Country Planning Act 1990.
- Consenting authority for the majority of coastal protection works<sup>9</sup>.

Prepare an Emergency Plan under the Radiation Emergency Preparedness and Public Information Regulations 2001 (REPPPIR):

## Lead Local Flood Authorities

The Lead Local Flood Authorities (LLFAs) are county or unitary councils who, under the Floods and Water Management Act, have the responsibility for the management of local flooding including surface water, ordinary watercourses and ground water.

LLFAs are responsible for the regulation (consenting and enforcement) of particular activities on ordinary watercourses.

## Highways Authority

The Highways Authority is responsible for managing the road drainage from roads on the adopted local road network.

The Highways Agency England / is responsible for managing road drainage from the trunk road and motorway network in England. The upper tier of local authorities (county councils and unitary authorities) is generally responsible for other public roads.

## Internal Drainage Boards

Internal Drainage Boards (IDBs) operate under the Land Drainage Act 1991 and have permissive powers to undertake works to secure drainage and water level management of their districts. They may also undertake and regulate flood defence works on ordinary watercourses within their district (that is, watercourses other than 'main river').

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<sup>9</sup> The Marine Management Organisation has responsibility for Flood and Environmental Protection Act 1985 (FEPA) licensing duties for all works below Mean High Water Springs (MHWS) .

The IDB is responsible for consenting works on an ordinary watercourse within their drainage district. Prior written consent is required for the erection of flow control structures or any culverting of an ordinary watercourse within the IDB's drainage district.

## **Appendix C – Adapting to Climate Change**

Climate change potentially impacts all sources of flood risk and is expected to increase coastal erosion rates, cliff instability and sea defence fragility. Preparing for, or adapting to, these impacts is therefore a necessity. Although the broad impacts of climate change on UK flood risk is understood, there is significant uncertainty on the rate of change and the eventual magnitude of change at any specific location. This is an area of active research. Operators should use the most up to date advice and ensure that this advice remains valid. For example, when any major new research is published applications should be reviewed in the light of the new information

### Consideration of Climate Change in Nuclear Safety Assessments

ONR guidance on assessment of external hazards and the control of the associated risks, including flooding and the effects of climate change is set out in Technical Assessment Guide (TAG) 13. TAG 13 currently states that for new build, ONR expects the designs to incorporate due consideration of the effects of climate change over the life-time of the facility. To this end, ONR expects the designs to be capable of accommodating the emissions scenario that is considered on the basis of relevant good practice to be most consistent to demonstrating that the risk arising from climate change effects is ALARP. An important consideration is that flood protection measures are made adaptable to cover possible changes to future estimates of climate change effects, as a way of managing the large uncertainties inherent in flood hazard predictions over the life-time of new nuclear reactor sites. A range of scenarios should also be considered to assess the implications of any disproportionate increase in consequences (i.e. “cliff-edge” effects) where a small increase in flood risk will result in a significant increase in the flood hazard and to assess the potential need for adaptation options. This is consistent with TAG 13 which states that the design of new facilities would also be expected to be able to accommodate a wider range of emissions scenarios including conservative scenarios, although not necessarily the most conservative. In addition, it is prudent to ensure that there are no features of the design which are completely undermined by more radical changes to the climate. In this context the maximum credible scenario may be used, see next section.

### Consideration of Climate Change in Energy Infrastructure Planning and Operation

#### *National Policy Statements*

Guidance on how climate change should be taken into account in planning for new energy infrastructure is given in the overarching National Policy Statement EN-1 and for nuclear power stations specifically in EN-6. Climate change guidance for general planning applications is provided in the National Planning Policy Framework and Planning Practice Guidance..

EN-1 states that applicants must consider the impacts of climate change when planning the location, design, build, operation and where appropriate, decommissioning of new energy infrastructure.

EN-1 states that the Planning Inspectorate (PINS) - should be satisfied that applicants for new energy infrastructure have taken into account the potential impacts of climate change using the latest UK Climate Projections available at the time the Environmental Statement (ES) was prepared to ensure they have identified appropriate mitigation or adaptation measures. This should cover the estimated life-time of the new infrastructure. Should a new set of UK Climate Projections become

available after the preparation of the ES, PINS should consider whether they need to request further information from the applicant.

The National Policy Statement provides guidance on how to consider the changing flood and coastal erosion risks. They also discuss how to manage those risks both within the initial design but also over the life-time of the site. It describes how PINS may consider requiring the applicant to ensure that an adaptation measure could be implemented should the need arise, rather than at the outset of the development (for example increasing height of existing, or requiring new, sea walls). More detail on this type of approach is given below, described as a “managed adaptive approach”.

The ONR and EA will assess the evidence provided by applicants that demonstrate external hazards to the proposed nuclear power station have been considered. This will include consideration of the projected impacts of climate change over the life-time of the power station.

### Consideration of Government Guidance and Data to Support Adaptation within Flood and Coastal Erosion Management

Government policy on adapting infrastructure to climate change is set out in its vision - “An infrastructure network that is resilient to today’s natural hazards and prepared for the future changing climate”<sup>10</sup>. For those nuclear sites and infrastructure on the coasts, the impacts from sea level rise, change to storm surges and wave climate (wave heights, period and direction) need to be considered over the life-time of the facilities. This includes operation, decommissioning and waste storage phases.

The **credible maximum scenario** described in EN-1 is a peer-reviewed, high end, plausible, scenario. A current example of the credible maximum scenario for sea level rise and storm surge for the period to 2100 is provided by Government’s UKCP09, and is termed the H++ scenario<sup>11</sup>.

The Department for Environment, Food and Rural Affairs (DEFRA)), the EA and the ONR encourage a “**managed adaptive approach**” to flood and coastal erosion risk management when planning for climate change. The approach is described by the Environment Agency within its document called, ‘*Adapting to Climate Change: Advice for Flood and Coastal Risk Management Authorities*’. The approach sets out a way of dealing with the significant uncertainty around the projections of future climate change for the UK.

The aim of the managed adaptive approach is to build flexibility into decisions today so that they can be ‘adjusted’ depending on what happens in the future. There are two elements of the managed adaptive approach. One approach is to build in the ability to adjust an option should it be required - flexible options. Examples include allowing an additional strip of land to the rear of a new flood bank to enable it to be raised if necessary or providing larger foundations to a flood wall to enable later raising with minimal work and disruption.

A complementary approach is to build flexibility into the decision process itself through waiting and learning - flexible plans. For example, sequencing options so that no or low regret options are taken earlier and more inflexible measures are delayed in anticipation of better information.

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<sup>10</sup> Climate Resilient Infrastructure: “Preparing for a Changing Climate” Defra 2011 Cm8065

<sup>11</sup> UK Climate Projections 2009 UKCP09 Defra [ukclimateprojections.defra.gov.uk/content/view/1805/690/](http://ukclimateprojections.defra.gov.uk/content/view/1805/690/)

Not all of the options to manage future climate change will be suitable for a managed adaptive approach of waiting and learning, for instance some of the options will be more cost-effectively implemented during initial construction. So, a mix of precautionary design and managed adaptive approach is likely to be the most suitable approach for nuclear sites.

Given the potentially significant risks that climate change presents and the significant uncertainty over the very long life of nuclear sites, we expect site applications will contain precautionary elements within the initial design, flexibility designed into flood measures and a plan for the whole life of the site detailing future options and the triggers that would lead to their implementation. This should be an integral part of the on-going periodic safety review following construction.

#### What are the elements of a managed adaptive approach?

- Understanding the full range of risks that might need to be managed. This comes from understanding the full range of climate change as described by the credible maximum scenario.
- Understanding how much flexibility and what options might be needed - and when - depending on the different climate change projections.
- Iterative decision-making (evaluating results and adjusting actions on the basis of what has been learned).
- Feedback between monitoring and decisions (learning) knowing when a decision will be needed given the changing risks and the lead time to make an adjustment, or implement a new option.

For the managed adaptive approach to be suitable, it will be necessary to demonstrate that it is made up of:

- Technically feasible and viable options - i.e. that the future cost of the options can be accounted for.
- The lead time between the need for an option being triggered and implemented is achievable.
- The fullest range of risks has been accounted for through the use of the credible maximum scenario.

## Appendix D – ONR and EA Flood risk interests for Nuclear New Build development proposals in England\*:

(\* Please note that this is not a prescriptive list of the requirements of the ONR and EA rather an indication of the differences between the ONR and EA remit.)

Nuclear New Build site	Environment Agency (Construction, operation and decommissioning),	ONR (Construction, operation and decommissioning)	Comment
<b>Flood Risk Remit</b>			<b>Both EA and ONR have an interest in all stages of site development.</b>
Identification of all forms of flooding and coastal erosion	<p>On-site and off-site risks and impacts</p> <p>Tidal flooding - 0.5% annual probability (event with and without climate change allowances</p> <p>Fluvial flooding- 1% annual probability event with and without climate change allowances</p> <p>Fluvial and Tidal flooding – 0.1% annual probability event with and without climate change allowances</p>	<p>On-site impacts only, but on-site and off-site effects from these impacts to ensure dutyholder risks are as low as reasonably practicable, (ALARP)</p> <p>Design basis analysis - 0.01%<sup>12</sup> annual probability flood event (SAPs EH.4, para. 239<sup>13</sup></p> <p>Beyond design basis analysis - assess cliff-edge effects etc. (SAPs EHA.7 &amp; EHA.18, paras. 246-248</p> <p>Probabilistic safety analysis – SAP EHA.18, para. 246(c)</p> <p>Severe accident analysis – SAP EHA.18, para. 246(e)</p>	<p>Focus of the EA is to ensure that existing and future flood risks and coastal erosion risk is fully understood and robustly defined as part of the assessment, to inform site design and decision makers. EA is also concerned with understanding the potential of the development to impact on flood risk to third parties (e.g. loss of floodplain storage). ONR focus is on the safety case.</p>
Breach	<p>Yes</p> <p>Tidal defence breach - 0.5% and 0.1% annual probability event with climate change allowances. Duration of breach (i.e. no. of tidal cycles to be considered) will need to be agreed with local EA FCRM teams.</p>	<p>Dependent on the claims made in dutyholders safety case</p>	<p>ONR focus is on the safety case. EA's role will ensure the modelling/assumptions are appropriate under the EA remit.</p>

<sup>12</sup> The ONR SAPS refer to the 1 in 10000 year event the two are understood to be the same.

<sup>13</sup> Consideration can be given to design basis events at higher frequencies (less onerous) where the facility cannot give rise to high unmitigated consequences (SAPs para. 241). This situation may apply, for example, to a reactor site near its end of life when most of the nuclear material has been removed or stored passively. The safety case must still demonstrate that the hazards are adequately controlled and that the risk from flooding is ALARP.

	Fluvial defence breach - 1% and 0.1% annual probability event with climate change allowances		
Overtopping	Yes  Defence overtopping – 0.1% annual probability event with climate change allowances	Yes  Defence overtopping should not occur at the Design Basis flood level and there should be some margin available above this to cover the possibility of Beyond Design Basis cliff edge effects.  Overtopping may be possible at flood hazard levels significantly beyond the Design Basis, but would need to be managed by site staff through e.g. emergency arrangements. The risk arising from such low probability events should be assessed by the licensee and shown to be risk ALARP.	Focus of the EA is on the lead time/ ability to evacuate the site safely in the event of an overtopping scenario, as well as understanding the potential off site impacts as a result of the development. ONR is concerned with the safety case.
Debris	Yes	Yes  The safety significance of flood borne debris hazard should be covered in the licensee's safety case(s).	EA is concerned with the potential of flood risk debris from the site to affect third parties and occupants during a flood event – thereby affecting UK Flood Hazard ratings. ONR is concerned about the potential of flood debris to affect operations in respect of the reactor and hence safety case.
Blockage of systems	Yes	Yes  The safety significance of blockage to safety significant systems should be covered in the licensee's safety case(s).	EA is concerned with ensuring that there is a strategy to deal with/ avoid/ clear debris from flood risk critical systems to ensure standards of flood protection are maintained (e.g. ensuring that there is a strategy to maintain conveyance through culverts through appropriate design of trash screens and a maintenance strategy). ONR's focus is on

			ensuring that the release of radiological material is managed – there may be a link to ensuring that flood risk critical systems are kept clear of debris.
How residual risks are managed	Yes	<p>Yes</p> <p>Managed through arrangements for monitoring the potential for flooding and through implementation of preventative measures, and the site emergency plan if flooding occurs.</p> <p>The residual risk should be shown by the licensee to be ALARP.</p>	<p>EA focus is on the residual risk of flooding from coastal and fluvial and how the applicant has demonstrated in their design/ mitigation that there is sufficient flexibility/ redundancy in the design to cope with the residual risks of flooding (e.g. breach of defences).</p> <p>ONR's focus is on the management of the residual risk of flooding in the design basis and approaches specified in the safety case.</p>
Emergency arrangements	Yes	<p>Yes</p> <p>ONR requires on-site Emergency Arrangements to be exercised periodically and demonstrated annually. These demonstrations can include extreme flooding scenarios.</p>	<p>The NSL requires licensees to put in place a site based Emergency Plan. Although these are not flood hazard specific, they should account for plant states that extreme flooding might cause.</p> <p>The Local Authority is responsible under REPPiR for creating and exercising an off-site Emergency Plan, which should account for extreme flooding scenarios. The Licensee, ONR and EA have obligations under these Emergency Plans.</p>
Where possible reducing overall risk in the area	Yes	No	EA's focus is on compliance with national policy on development and flood risk whereby developers should attempt to reduce flood risk to third parties where possible.
Within the site, the most vulnerable development is located in areas of lowest flood risk unless there	Yes – development not related to safety case	Only those areas related to safety case	Note the sequential test for the principle of the site has been agreed in the Strategic Siting Assessment (SSA) however this does not include any development

are overriding reasons to prefer a different location;			which has not been informed by the SSA process for these developments a sequential test is required.
Safe access/ egress and escape routes	<p>Yes</p> <p>Tidal flooding - safe access/ egress in 0.5% annual probability event with climate change allowances</p> <p>Fluvial flooding - safe access/ egress in 1% annual probability event with climate change allowances</p> <p>Tidal and fluvial flooding – safe means of escape (or sufficient time available) up to the 0.1% annual probability event</p>	<p>Yes</p> <p>Where safe means of access to the reactor and associated site infrastructure is required to meet Design basis safety claims.</p> <p>Beyond the Design Basis, the licensee's emergency plan should address safe access/egress</p>	<p>Focus of the EA is on the lead time/ ability to evacuate the site safely in the event of a 0.1% annual probability event and safe access/ egress during a 0.5% annual probability event (tidal/ 1% annual probability event (fluvial), with climate change allowances.</p> <p>ONR is concerned with the safety case and ensuring that there is a safe and achievable means of access to the safety critical elements of the design.</p>
Flood Warning process	<p>Yes: but limited e.g. Provide supporting providing data on request:</p> <p>E.g. identifying what flood warning services are available in the area/ flood level information.</p>	Yes	There is an obvious link between flood warning coverage/ capability and safe evacuation of the site – which the EA will be concerned with. ONR may have a focus on flood warning of the safety case is contingent on receiving flood warnings to enact measures to protect the reactor and prevent the release of radiological material.
Climate change Assessment	<p>Yes</p> <p>For non-safety critical elements up to 2080s and beyond we advise both the medium and high emissions scenarios be assessed based on the 90<sup>th</sup> percentile for the development life-time.</p> <p>For safety critical elements sensitivity test using to credible maximum (H++ upper end) for whole development life-time should also be applied.</p>	<p>Yes</p> <p>Safety critical infrastructure Covered by the licensee's safety case(s) analysed by Design Basis Analysis (DBA), Beyond Design Basis Analysis (BDBA) and Probabilistic Safety Analysis (PSA) methods.</p>	<p>EA's focus is on risk to the site and occupants (level of protection from flooding and mitigation against any off-site flood risk impacts) Implications on third parties for the full life-time of the development, incorporating climate change allowances. ONR is concerned with the safety case and the applicant would need to demonstrate that the reactor and associated infrastructure was safe (risk ALARP) for the operational life-time.</p>

	The managed adaptive approach can be used to develop a flood risk management approach to balance the risks and costs, in particular avoiding a 'cliff edge' effect.		
Adaptation	Yes Focus is on strategy - Anything a developer does in terms of mitigation needs to be designed so it doesn't prevent future adaptation up to credible maximum	Yes  The Licence's safety case(s) should demonstrate that flood defences are adaptable to cover potential changes in climate change predictions over the life of the site.	EA's focus is on if the strategy allows room for future adaptation. And considers off site flood risk impacts in the adaptation scenario  For those adaptation/mitigation measures outside the scope of the FRA (i.e. beyond 0.1% annual probability event or not included in the DCO) we would not expect these to be covered in the FRA for the DCO other than a couple of lines outlining the general principle to these mitigation/ adaptation measures and that the detail will be considered by the ONR. The ONR will pick up on the technical detail of adaptation.

#### Associated development sites

	Environment Agency	ONR	Comment
Approach to Climate change for associated development sites	More onerous (i.e. sensitivity testing to H++ upper end) required if associated infrastructure is critical to the day to day running of the site. If the infrastructure is not critical (e.g. in the case of a road that has been constructed as part of the new build to assist with local transport capacity improvements), then the most relevant climate change criteria must be applied in accordance with national planning policy.	Outside remit unless associated development linked to the Nuclear Licensed Site	EA is concerned with ensuring climate change has been incorporated appropriately and proportionately in line with the category/ type of associated development. ONR is concerned about ensuring the development is appropriately resilient to climate change for the full life-time of the development if the associated development is critical to the operation of the site.

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**From:** [REDACTED]  
**To:** [SizewellC](#)  
**Cc:** [REDACTED]  
**Subject:** EN010012 SZC Application - the RSPB (PINs Ref: 20026628) and SWT (PINs Ref: 20026359) - New Information  
**Date:** 06 July 2022 10:11:56  
**Importance:** High

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Dear Sir or Madam,

The RSPB and Suffolk Wildlife Trust have recently been consulted on a planning application<sup>1</sup> by NNB Generation Company (SZC) Limited for the "Creation of wetland habitat for wildlife on land in the vicinity of Lower Abbey Farm within the EDF Sizewell Estate." We understand that this application is to enable the construction of the wetland element of the marsh harrier compensatory foraging habitat before the construction of Sizewell C commences, should it be consented. We are concerned that these proposals, which have been revised compared to the designs submitted within the DCO application, have not been put before the Planning Inspectorate or Secretary of State, and hence any decision on the adequacy of the marsh harrier compensation would be based on outdated information.

Whilst we are supportive of the principle of bringing the creation of the wetland component of the compensatory marsh harrier foraging area forward to ensure it is created before impacts from the construction of Sizewell C occur, we do not agree that the revised habitat designs within the planning application are likely to successfully deliver the wetland component of the compensatory marsh harrier habitats (especially reedbed) in this. We therefore have significant concerns around impacts on marsh harriers of the Minsmere-Walberswick SPA as it appears that key elements of the compensation (wetland habitats) are not deliverable at the time required and to the standards required.

Clarity is also required, as to how this planning application would be part of the DCO requirements and overall development to ensure the needed requirements, controls and, if needed, enforcement provisions are also attached. We of course appreciate this can be done in part within a planning permission, but similar to concerns we have raised about other consents, permissions, licences etc, we are concerned with another part being dealt with separately.

We have found no reference to this in [SZC Co.'s Response to the Secretary of State's Request for Further Information dated 18 March 2022: Appendix 1 - The DCO Schedule of Changes Arising from the Secretary of State's Request for Further Information dated 18 March 2022](#), April 2022

Nor in [SZC Co.'s Response to the Secretary of State's Request for Further Information dated 31 March 2022: Appendix 11 - Draft Development Consent Order Reflecting The Changes Arising From The Two Secretary of State's Requests for Further Information](#) (tracked change version), dated 18 and 31 March 2022, April 2022.

Nor any reference to these possible changes both in design, creation and new application within [The Sizewell C Project SZC Co.'s Response to the Secretary of State's Request for Further Information](#) dated 18 March 2022, April 2022.

Apologies for making this email of high importance but due to the decision being made shortly we wanted to ensure you and BEIS were made aware.

Should you require any more information or have any questions please do not hesitate to contact us

Best Wishes

Rosie

1. East Suffolk planning reference [DC/22/2273/FUL](#) | Creation of wetland habitat for wildlife on land in the vicinity of lower abbey farm within the EDF Sizewell Estate. The habitat will comprise reedbed, open water and ditches surrounded by tussocky grassland. Part of the reedbed will be managed to create wet woodland through natural succession. Provision of 55 car parking spaces at Bentwaters Park, Rendlesham, Woodbridge, to support the workforce. | Land To The East Of Lower Abbey Farm Eastbridge Road Leiston Suffolk

**Rosie Sutherland**  
**Head of Environmental Law and In-house Solicitor**  
**The RSPB**

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[REDACTED]

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