Response to Sizewell C DCO Issue-specific hearing 6 (ISH6) Coastal geomorphology meeting on the 14th July 2021.

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This document is a response to the issue specific geomorphology hearing (ISH6). This paper relates primarily to the agenda item referring to the Sizewell-Dunwich banks and their relevance to the flood risk and shoreline change assessments submitted by the Applicant.

Preamble:

Sizewell C will be a nuclear power plant to 2090 and a nuclear waste storage facility to 2150 or later.

The Sizewell-Dunwich banks act as a **natural offshore 'breakwater'** limiting storm wave energy onto the Sizewell foreshore and have provided recent historical stability and protection to the existing nuclear installations. The banks, however, are largely formed from unconsolidated sand and mud deposits and the northern, Dunwich section is currently indicating marked instability.

The Environment Agency and East Suffolk Council stated at the Issue Specific meeting referenced above that they consider EDF's Flood Risk and shoreline change assessments (FRA and EGA) broadly satisfactory. In the meeting referenced, the technical representative of the applicant also appeared satisfied that historical coastal processes at Sizewell had been addressed.

In my view the main flood and coastal change assessments are insufficient in their present form and scope in that they may understate the reasonable and plausible risk of accelerated and severe erosion of the Sizewell/Minsmere foreshore resulting from loss or significant change to the Dunwich bank, the loss or degradation of which is not considered in the Applicant's FRA and EGA. In my view also, despite the Applicant's assertion, there is no evidence that I can find in EDF's FRA and EGA that there has been full consideration of the three main coastal processes that have occurred at Sizewell since 1736.

Historical records show the Sizewell shoreline (i.e., *at the location of the current nuclear installations*) and prior to the development of the Sizewell Dunwich banks northwards, was '*the most eroded shoreline in the records*' established by Pye and Blott. A logical and reasonable extrapolation from this historical period suggests the plausible risk of a return to extreme erosion should the bank be lost. EDF does not appear to consider this period in the DCO and DCO Addendum. The historical periods of shoreline change at Sizewell are briefly explained in Section 1 below.

The current FRA and EGA submitted by EDF in the DCO and DCO Addendum do not appear to consider any change or degradation of the Sizewell -Dunwich banks over the lifetime of the proposed Sizewell C and regard them as an immutable wave relief feature. In my view this is an unsupportable assumption. The way in which EDF has considered the importance of the Sizewell -Dunwich banks pre and post DCO is discussed in Section 2.

Notes

1. EDF pledges to *"… make sure we provide the best opportunities we can for people to engage with the application when it is submitted."* This paper engages with the Development Consent Order (DCO) application and is an independent appraisal. The paper's worthiness must be established by expert bodies notwithstanding the considerable effort expended to substantiate all relevant parts of the case made. Statements made in this document are my opinions, there is a basis to those statements and are therefore statements that any honest person could make.

2. Sizewell C timeline according to EDF from the DCO documents:
   - 2022: start of construction.
   - 2034: end of construction and start of operation (sometimes quoted as 2030).
   [Note: EDF's Assessment of shoreline change ends 2070]
   - 2090: end of operation.
   - 2140: interim spent fuel store decommissioned. [NDA data suggest 2180-2230]
   - 2190: theoretical maximum site lifetime.

   DCO: Main Development Site Flood Risk Assessment. Op cit., section 1.2.16. Page 18.

The above dates are confirmed in the FRA Addendum in the same format but 'decommissioned' is changed to 'decommissioning'. See Section 11.

3. BEEMS 'British Energy Estuarine & Marine Studies' including BECC 'British Energy Climate Change', are technical documents produced and commissioned by the nuclear energy industry to research coastal processes. British Energy has been a wholly owned subsidiary of EDF from 2009. The reports were not in the public domain; some have appeared embedded in DCO documents. **These documents are used as defining references by EDF in the Sizewell C DCO and, having been obtained under FOI, are therefore extensively referred to and quoted in this paper.**

4. Cefas describes itself as 'Government's marine and freshwater science experts'. Cefas, in tender documentation, states that it *'supports the construction of Sizewell C nuclear power station (SZC) by monitoring changes in the shoreline position and the geomorphology of nearshore features using a range of methods.'* Cefas has prepared, or partnered, many of the BEEMS publications and supplied much of the FRA modelling data to EDF.

5. Block quotes in the paper carry quotation marks to make clear they are direct quotations. Any bold typeface within a quotation has been added by me for emphasis.

6. Sources: All documents cited in this paper are from the public domain, obtained under Freedom of Information as stated and, in the case of academic documents, purchased (from Elsevier, JSTOR and Inst. Ocean. Sciences). No proprietary information has been referred to or accessed at any time.

7. The Environment Agency and the Office for Nuclear Regulation have been regularly updated with copies of the main paper referred to in the final paragraph and its periodic revisions. The paper has been regularly updated as changing circumstances and information are made available.

Section 1 – Historical evidence.

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*.

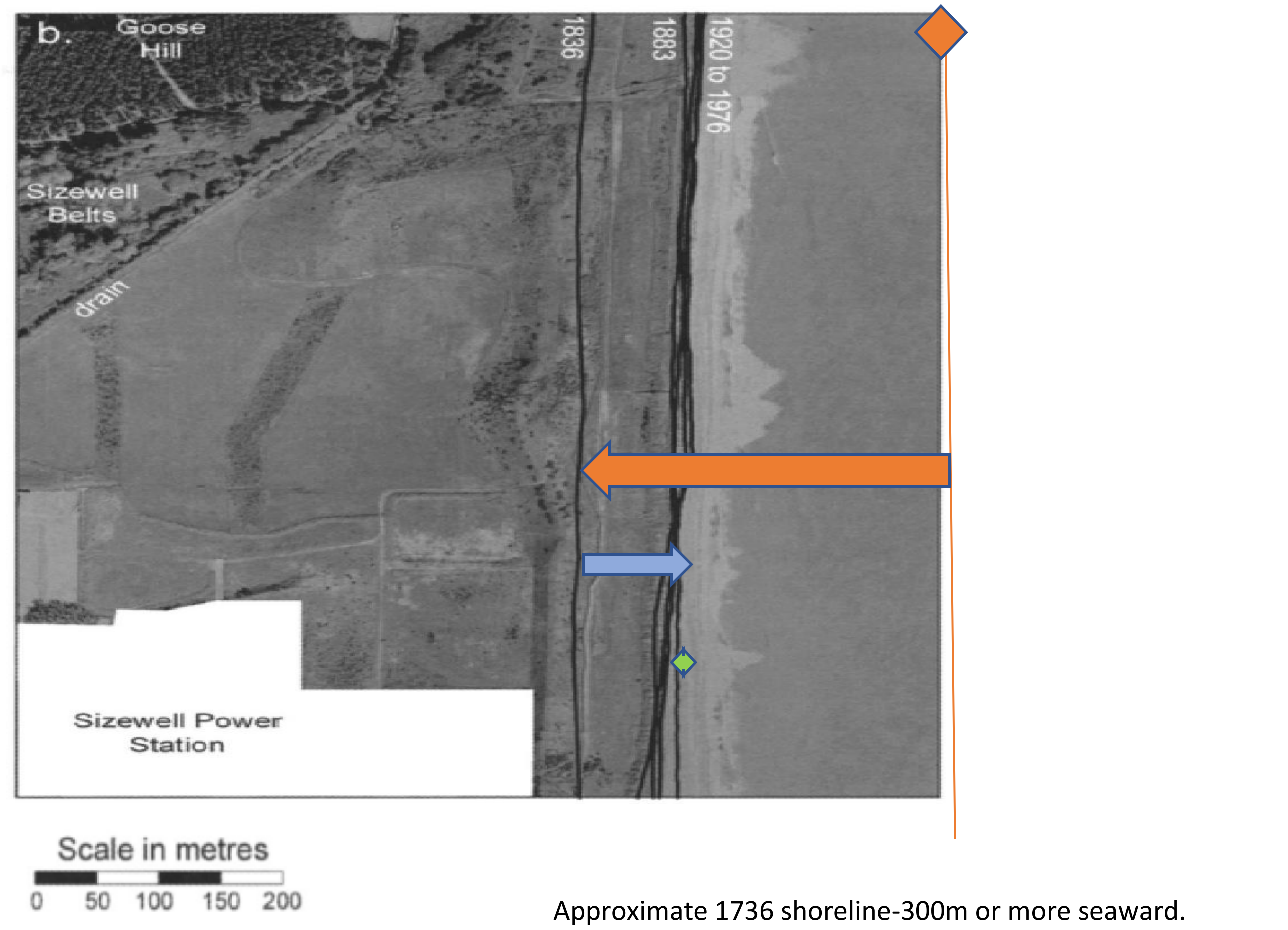
The **three** 'approximately 100-year' episodes recorded for Sizewell:

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.

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

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



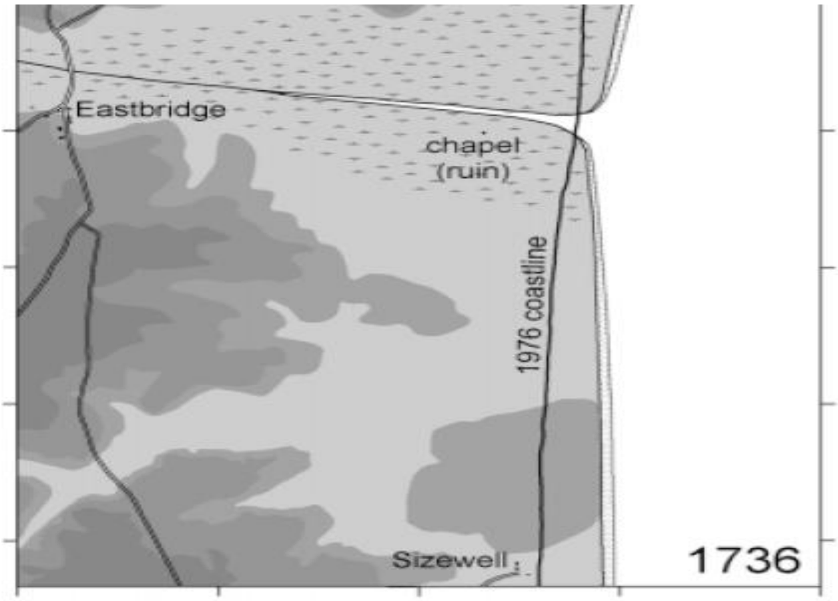
Approximate 1736 shoreline-300m or more seaward.

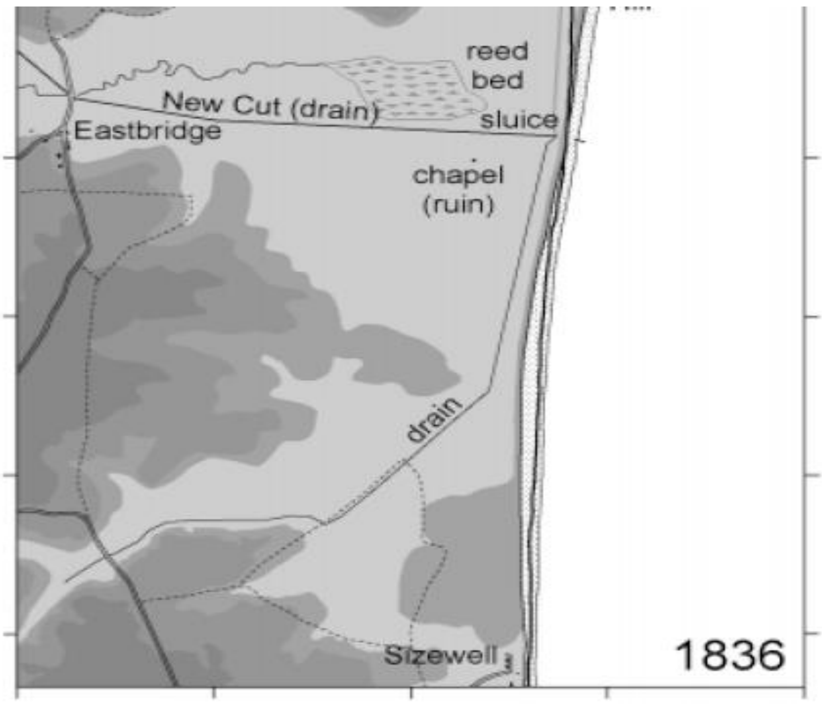
'Coastal Processes and Morphological Change in the Dunwich-Sizewell Area, Suffolk', UK Author(s): Kenneth Pye and Simon J. Blott Source: Journal of Coastal Research, Vol. 22, No. 3 (May 2006).

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.

"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, para 2.3.3.

This extreme erosion that has particularly occurred at Sizewell before the development of the Sizewell Dunwich banks northwards 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

Section 2 - EDF's assessment of the importance of the Sizewell Dunwich banks pre DCO, in the DCO application and post application.

There have been three different approaches by EDF regarding its assessment of the importance of the Sizewell-Dunwich banks to Sizewell shoreline stability:

1. Pre-DCO – EDF states that the Dunwich bank is critically important to shoreline processes and is an indispensable wave relief feature. This is supported by academic research.

2. In the DCO Application – EDF acknowledges stability problems in the Dunwich bank but claims, in my view, three unsupportable premises: *1) the banks will be maintained by sediment delivery from Northern cliff erosion; 2) The Sizewell-Dunwich banks can be regarded as a permanent wave relief feature for modelling purposes and 3) this approach represents a worse-case conservative worse-case modelling so is the safe, responsible approach to modelling.*

3. During the DCO question/response process – EDF now appears to suggest the further, in my view, unsupportable premise that *the Dunwich bank is essentially unimportant and the 'mobile section' has little effect on shoreline processes and offers no meaningful wave relief.*

These three approaches are discussed below:

1. PRE-DCO

EDF states that the Dunwich bank is **critically important** to shoreline processes and a seemingly indispensable wave relief feature, the loss of which would cause shoreline erosion and 'knock-on' effects on the Sizewell bank. This is supported by academic research.

1.1 The role of the Sizewell-Dunwich bank in providing Sizewell shoreline stability:

*"The [Sizewell-Dunwich] bank represents a natural wave break preventing larger waves from propagating inshore and thus reducing erosion rates along this shoreline. **As a result, the Bank forms an integral component of the shore defence and provides stability for the Sizewell coastal system**".* 'Sizewell C proposed Nuclear Development, Sizewell C EIA Scoping Report, April 2014, Planning Inspectorate Ref: EN010012, Page, 150.

1.2 The CRITICAL importance of the banks to Sizewell shoreline erosion:

The size, depth and position of this ‘saddle’ [of the Dunwich bank] is therefore **of critical importance** with regard to the risk of erosion and flooding between the proposed Sizewell ‘C’ site and Minsmere Sluice.”
BEEMS TR139, Edition 2: A Consideration of "Extreme Events" at Sizewell, Suffolk, With Particular Reference to Coastal Morphological Change and Extreme Water Levels, Page 5

1.3 The unconsolidated nature of the banks:

“…the Dunwich Bank has no inherited stabilising hard geology (i.e., no headland or underpinning crag). DCO: Coastal Geomorphology Appendix 20A – (Main Development Site Chapter 20 Coastal Geomorphology and Hydrodynamics Appendix 20A Coastal Geomorphology and Hydrodynamics: Synthesis for Environmental Impact Assessment). Page 135 of 167. APP-312.

1.4 EDF’s original assessment of the consequences should there be loss or compromise of the Dunwich bank, pre-DCO.

1.4.1 *“Dunwich Bank would therefore be expected to continue to provide protection from high-energy storm waves across the majority of the GSB. With continued lowering and reduction in the northern extent of Dunwich Bank, the section of shoreline subject to the impacts of storm waves from the northeast sector would be expected to migrate south accordingly.”* BEEMS TR500 Page 11. i.e., threaten what would now become Sizewell C.

“*.. a reduction in the size of this feature…[would reduce its effect in attenuating waves thereby increasing] the magnitude of extreme events on the shoreline and increase the risk of erosion”.* Mott Macdonald ‘Thorpeness Coastal Erosion Appraisal Final Report December 2014’, Mott Macdonald., op. cit., page 57.

1.4.2 ***“Rapid changes in bank form are thought to be linked to downstream bank-to bank interactions in a sand bank complex*** *(Dolphin et al., 2007 and Thurston et al., 2009).* ***This model may have application at Sizewell-Dunwich [bank] as it is feasible that changes at Dunwich bank could have knock-on effects at Sizewell.*** *…* ***There will be a tipping point beyond which further shoreward migration will significantly alter bank hydrodynamics and could result in large scale reconfiguration of the bank****”*
BEEMS Technical Report Series 2009 no. 058, Sizewell: *Morphology of coastal sandbanks and impact to adjacent shorelines*. Page 45-6.

2. In the DCO APPLICATION

EDF acknowledges stability problems in the Dunwich bank but claims, in my view, three unsupportable premises: *1) the banks will be maintained by sediment delivery from Northern cliff erosion; 2) The Sizewell-Dunwich banks can be regarded as a permanent wave relief feature for modelling purposes and 3) this approach represents a worse-case conservative worse-case modelling so is the safe, responsible approach to modelling.*

2.1 Stability problems acknowledged:

EDF acknowledges problems with the stability of the Dunwich bank:

"Records over the last decade show…Dunwich Bank exhibited greater variability in both its morphology and position with:

- ***erosion north of 267000N, resulting in bank lowering of -0.5 – -1.5 m,***
- ***a decrease in its northern extent of approximately 250 m,***
- ***landward movement (200 – 475 m) of the northernmost 2.75 km of its seaward flank,***
- *accretion/migration on its landward flank adjacent to its peak and most landward position (between approximately 267000N – 267600N), and*
- *ongoing migration of the landward flank for the -6 to -10 m (ODN) contours*

(approximately -6 m/yr)"
DCO: Coastal Geomorphology Appendix 20A, op cit., Page 21. (BEEMS Technical Report TR500).

This erosion of the Dunwich bank is confirmed by Cefas in BEEMS TR500:

"In contrast to Sizewell Bank, ***Dunwich Bank exhibited large-scale erosion*** *across its northern third."* BEEMS Cefas Technical Report TR500, ibid., Page 32.

The Marine Management Association has stated that the Dunwich bank has dropped 2m in the last 10 years. See end of document map of Dunwich banks
MMO Reference: DCO/2013/00021, Planning Inspectorate Reference: EN010012
MMO Registration Identification Number: 20025459. Page 25

2.2 Unsupportable premise 1: The banks will be maintained by sediment delivery from Northern cliff erosion:

"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)." DCO: Coastal Geomorphology Appendix 20A, op cit., Page 135 of 167.

EDF further explains how climate change sea level rise will *benefit* the Sizewell shoreline and Dunwich bank:

The Easton-Benacre cliffs are "***likely to remain unprotected***" and therefore ***"cliff exposure will rise with rising sea levels. The likely consequence is a rise in, or maintenance of, sediment supply [to Sizewell and] will slow rates of shoreline retreat and potentially increase accretion rates where it occurs, and over a long period of time it could counter shoreline retreat."***
BEEMS TR311 2.4.3.1. DCO: Geomorphology Appendix 20A, op cit., Page 52 of 167

That this is unsupportable is obvious in that sediment supply cannot be relied on. It is also confirmed by EDF's own research:

- ***"The last 2 to 3 decades of strong erosion at Dunwich were not, however, matched by ongoing accretion in the south***." BEEMS TR223 Table 12, shows a net erosion of the shoreline at Sizewell C foreshore since 1993. BEEMS TR223 Shoreline variability and accretion / erosion trends in Sizewell Bay Edition 3: Updated with 2011 – 2018 data. Page 119. See also Table 12 on Page 115.

2.3 Unsupportable premise 2: The Sizewell-Dunwich banks can be regarded as a permanent wave relief feature for modelling purposes:

> *"Overall, the 'baseline' scenario predicted slightly higher nearshore waves than the other scenarios and was therefore taken forward for assessment for the FRA overtopping model runs."* Note: Baseline scenario means Sizewell-Dunwich banks in situ.
>
> DCO: Main Development Site Flood Risk Assessment Appendices 1-7 Part 1 of 14. Op cit. Section 1.3.13. APP-094.
>
> Cefas/EDF recommends that the FRA modelling should be undertaken using 'present bathymetry' as fixed.
>
> ***"…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."***
> Cefas BEEMS TR319 ed. 2. 'Sizewell – Derivation of extreme wave and surge events at Sizewell with results of the coastal wave modelling, climate change and geomorphic scenario runs.' Page 55.

It is obviously unsupportable to consider offshore geomorphology at Sizewell as unchanging. Also, what is 'present bathymetry' – what date was this 'present bathymetry' decided – what are its constituent parts, does it include the 2m reduction in the Dunwich bank? Why is it logical to focus on 'present bathymetry'?

2.4 Unsupportable premise 3: This 'baseline' approach represents a conservative worse-case modelling so is the safe, responsible approach to modelling:

> *"…Therefore, the baseline scenario was taken forward for wave overtopping assessment for the Sizewell C FRA, as it is more **conservative.**"*
>
> Note: The Baseline Scenario means Sizewell Dunwich banks remain in situ. Conservative means 'worse case' safety-case modelling.
>
> EN010012 5.2 Main Development Site Flood Risk Assessment' Para 5.3.17. APP-093.

A best-case geomorphological 'baseline scenario' offering a reduced inshore wave climate cannot be regarded as worse-case.

It is also noteworthy that in the twenty-two DCO main Flood Risk Assessment and fourteen FRA Addendum documents the 'critically important' Sizewell-Dunwich banks do not appear to be explicitly named by EDF. This then, makes understanding how the banks have been used in the FRA extremely challenging.

3. During the DCO question/response process.

EDF now claims the further unsupportable premise that *the 'Dunwich bank is essentially unimportant, and the 'mobile section' has little effect on shoreline processes and offers no meaningful wave relief.*

The Dunwich bank is simply no longer important, the following is EDF's response to the MMO, 'First Written Questions' during the DCO:

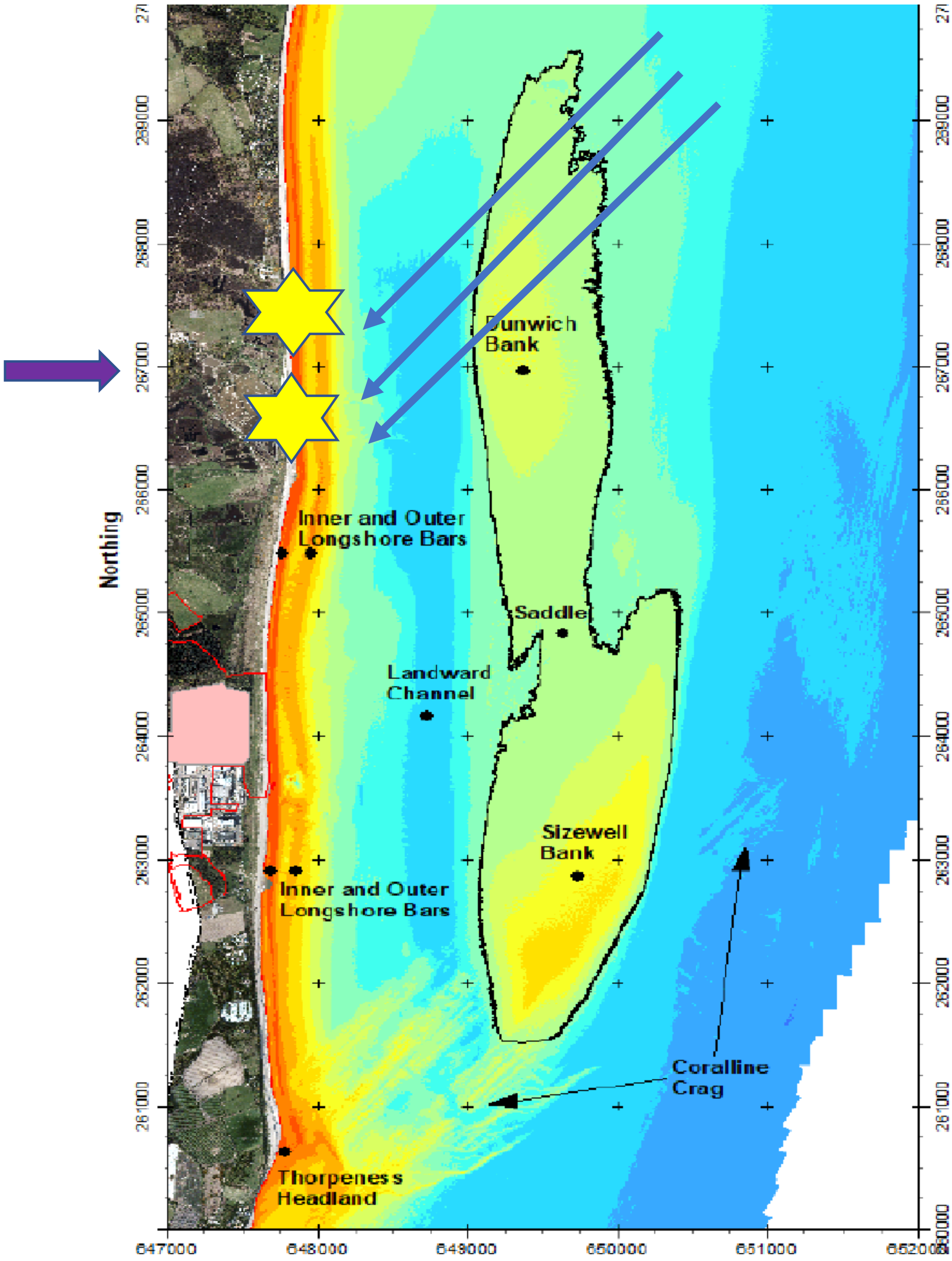
3.1 *"Wave breaking is determined by the ratio of water depth (h) to wave height (Hb), where Hb / h = 0.78. Typical Hb for waves breaking over feature crests are:*
• Sizewell Bank (h = 5-7m), Hb = 3.9-4.5m,
• Dunwich Bank (h = 7-8m), Hb = 5.5-6.2m"
(My comment 1: These data do not appear to be consistent with accepted academic and empirical research- see 'Tucker Carr' referenced below). EDF continues: "*This suggests that wave breaking on the Dunwich bank is very rare because the maximumsignificant wave height recorded in the last 13 years, 2.5 months is 4.72 m (i.e. the more mobile section of the bank does not significantly affect inshore wave climate). Thus, despite recent lowering and reduction in the extent of Dunwich Bank, historical erosion of Dunwich Cliffs is not recurring"* *(My comment 2: see below)* 9.11 Responses to the ExA's First Written Questions (ExQ1) Volume 1 - SZC Co. Responses. REP2-100, Page 40 of 253 (overall PDF page no: 539)

This statement above does not appear to be consistent with academic research or EDF's own research:

My comment 1. The work of **Tucker and Carr** using Waverider buoys installed in the 1970s (and later work by BEEMS, and EDF, including modelling) shows that any incident wave approaching the Sizewell-Dunwich banks from offshore, if higher than a critical value, is forced to break on the offshore banks thereby reducing its height to that value before it hits the Sizewell coastline. This critical value of wave height is 2.12m to 2.52m depending on tidal depth. This feature of the Sizewell-Dunwich bank complex is of primary importance to the inshore wave climate and protection of the Sizewell foreshore. This is acknowledged in the DCO: Coastal Geomorphology and Hydrodynamics, Appendix 20A. op cit., Page 27. Tucker and Carr's work is also acknowledged in BEEMS TR319, page 27.

My comment 2. **Any and all parts of the Dunwich bank are potentially mobile – it has no 'hard geology'**. Dunwich bank does not control erosion of Dunwich cliffs – they are too far to the North. Dunwich bank controls erosion of the Sizewell/ Minsmere foreshore from North Easterly/Easterly gales. This is explained in the map of the Sizewell Dunwich bank below:

The banks and their protective realm – the Sizewell/Minsmere shoreline.



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

- The 'three positive relief features' as suggested by EDF in the DCO. The orange and red lines show the 'inner and outer' nearshore, longshore bars, now regarded in the DCO as significant relief features. The DCO provides 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).

  Note the Marine Management Organization state lowering of 2m:
  "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

- The three 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 loss of 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 support this assumption. See 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. See BEEMS TR223 op cit., Page 119 and Table 12 on page 115.

- The two yellow stars show the locations of breaches – location 267400, date 15/12/03 and 14/2/05 and location 266900, date 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

- The key factors contributing to severe erosion prior to 1925 are considered to be a high energy unidirectional north-easterly wave climate and a low Dunwich Bank (2 – 4 m lower than present day). Volume 2 Main Development Site Chapter 20 Coastal Geomorphology and Hydrodynamics, op cit., 20.4.34.

Overall conclusion:

EDF's varying appraisals of the importance of the Sizewell Dunwich banks are, perhaps, an indication of the insurmountable difficulty in assessing the implications of loss or major compromise of the Sizewell-Dunwich bank system. EDF's decision to ignore much of its own research and not model any changes or degradation of the Sizewell-Dunwich banks in the main FRA and EGA could represent a considerable miscalculation of the implications: namely, in my view, severe erosion will place the exposed landward side of the main nuclear platform at increased flood risk and the northern defences, built on soft Holocene alluvium, could be vulnerable.

Section 1 affirms independently through historical precedent that *EDF's pre-DCO assessment is correct*, and the Dunwich bank is, in fact, the key driver to Sizewell shoreline security. *EDF, then, should provide Flood Risk and shoreline change assessments including the Expert Geomorphological assessment (EGA) that respects its own research pre-DCO.*

This paper should be considered alongside: Sizewell C – Coastal morphology, climate change and the effectiveness of EDF's Flood Risk and Shoreline Change assessments. May 2021, uploaded to the PINS website May 2021. Author Nick Scarr.
https://drive.google.com/file/d/1WF57_g4lnjOvx96nWrXNusTl_DzwDdvA/view?usp=sharing