

# Summary of Concerns and Objections to the Sizewell C Development Consent Order Application

## With comments regarding the 10 Year Consultation and Development Consent Order Examination

On behalf of the following Interested Parties:

Theberton & Eastbridge Parish Council  
Middleton cum Fordley Parish Council  
Stop Sizewell C  
B1122 Action Group and  
Minsmere Levels Stakeholders Group

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# 1. Executive Summary

We encourage the Secretary of State to carefully consider our concerns for East Suffolk, its environment and economy in examining the issues that Sizewell C in particular, plus all of the other energy projects, namely; two Scottish Power off-shore wind farms, expansion of greater Gabbard and Galloper off-shore wind farms, Nautilus (Belgium) and Eurolink (Netherlands) interconnectors and two National Grid interconnectors between Sizewell and Kent, destined for this 10-mile stretch of coast and countryside imply.

Regarding Sizewell C, the following report will highlight our collective dismay at,

- the Applicant's lack of information provision throughout 10 years of consultation
- a poor and incomplete DCO submission requiring 22 changes during the examination and still leaving unknowns and questions unanswered
- inconsistent and missing DCO documentation, including at the very last deadline (Deadline 10)
- critical assessments not started before end of the DCO examination
- lack of engagement of several of the statutory agencies most notably Natural England and Marine Management Organisation at Issue Specific Hearings
- a site too constrained to adequately host a dual EPR installation
- inadequate water supply issues
- uncertainty regarding the geo-competence of the land to host the nuclear platform and coastal defences
- unsustainable relief road and materials transport strategy
- inadequate transport mitigation strategy
- un-allowed claims for biodiversity net gain when SSSI land is developed upon
- exaggerated and unsupportable biodiversity net gain claims
- exaggerated local employment and economic benefits
- unsustainable accommodation strategy
- exaggerated and unrealistic benefits for using reactor waste heat
- significant technical problems with the EPR reactor
- unrealistic expectations for spent fuel removal and decommissioning
- unclear project costs and over-optimistic development schedule
- the inability of the market and the Applicant to commence the Sizewell C project without significant financial assistance from government and consumers and
- the impact on consumers of the Regulated Asset Base financing of the Sizewell C.

In the eleven years that the Sizewell C project has taken to get to this point, whilst legislation, assessment and understanding of the impacts of such infrastructure projects has moved forward, the Applicant still sees this project as a "replica" of Hinkley Point C, even though National Planning Statement EN-6 assessments see Hinkley Point as the most strategically sustainable site out of 11 and Sizewell as one of the least sustainable.

In the early years when Hinkley Point C Development Consent Order and Financial Investment Decision seemed to be in the balance, the Sizewell C consultation saw removal of resources from the project.

Even though Sizewell C will use the same approved reactor design, the different geographical, geophysical and demographical setting has been inadequately allowed for by the Applicant and the development of a Development Consent Order application has been beset by lack of commitment to bring the project to an appropriate level for submission, in a reasonable time frame.

Whilst changes to a National Strategic Infrastructure Project planning application, as complex as this, could perhaps be expected, to have 22 change requests submitted by the Applicant during the examination, requiring three additional public consultations within the 6-month timeframe allowed, demonstrates the inadequacy and under-preparedness of this Development Consent Order application.

Added to this, the fact that the Examining Authority had to insist upon missing coastal defence plans being submitted for the examination to consider, which then underwent four iterations during the examination, poses a valid question as to whether the Development Consent Order application should have been accepted in the first place.

Even now, critical assessments of site suitability are only just being planned and requested through local planning [applications](#).

Apart from the size, complexity and duration of the Sizewell C project along with the inevitable planning conditions and qualifications that the project will likely be considered necessary by the Examination Authority, we are now faced with a company that cannot afford to build the power station and is requesting significant funding and risk transfer to consumers, tax-payers and investors.

It is worth remembering that the Applicant has presided over 6 other reactor developments that have all overrun development schedules and cost estimates. Currently, only one of two completed reactors is operational, Taishan 1 having to be taken off-line for issues with damaged fuel rods and is still under active investigation.

All of these issues are explored in further detail below, but the impact of this project alone on East Suffolk, its residents, economy, fragile environment and coastline, questions whether sufficient mitigations and compensations are being proposed by the Applicant, whilst also delivering benefits to East Suffolk. Suffolk County Council is still not convinced and our MP, Dr. Therese Coffey, cautions whether a project with a long list of conditions will be capable of successful delivery. And that is before considering the eight other energy projects proposed in this area.

## **2. EN-6, Strategic Site Reports and EN-1**

Before going into the Sizewell C details, we urge you to reflect on the Strategic Appraisals of Sustainability Site Reports that were undertaken and published in October 2010 in association with National Policy Statement EN-6. All eleven

proposed potential sites for new nuclear power stations were reviewed at that time and each had a summary table of likely effects and issues covering a broad array of potential impact areas.

Following completion of the eleven appraisals, a decision was taken not to include the existing Dungeness nuclear site, Braystones or Kirksanton in the designated list of potential sites even though Sizewell, Bradwell and Sellafield all assessed as less strategically suitable than Dungeness and are similarly assessed as Braystones and Kirksanton (see: [EN-6 Appraisals of Sustainability](#)).

The Hinkley Point site, where construction is now underway, was assessed as the most suitable of the eleven sites in the strategic sustainability assessments.

Reflecting on the various issues and objections that have been raised during Sizewell C consultations, and throughout the Sizewell C Development Consent Order (DCO) examination, they simply mirror and reinforce what was clearly assessed back when the EN-6 Strategic Appraisals of Sustainability were completed.

Appraisal of Sustainability: Table 6.1	Sizewell			Dungeness			Braystones			Kirksanton		
	Sizewell AoS			Dungeness AoS			Braystones AoS			Kirksanton AoS		
Sustainable Development Themes	Constr.	Oper.	Decomm.	Constr.	Oper.	Decomm.	Constr.	Oper.	Decomm.	Constr.	Oper.	Decomm.
Air Quality	-	-?	-?	-	-?	-?	-	-?	-?	-	-?	-?
Biodiversity and Ecosystems	--?	--?	--?	--?	--?	--?	--?	--?	--?	--?	--?	--?
Climate Change	-	++	-?	-	++	-?	-	++	-?	-	++	-?
Communities: Population, Employment and Viability	+?	+?	0	+?	+?	0	+?	+?	0	+?	+?	0
Communities: Supporting Infrastructure	-	-	-	-?	-?	-?	-?	-?	-?	-?	-?	-?
Human Health and Well-Being	+	+	+	+	+	+	+	+	+	+	+	+
Cultural Heritage	-	-	-	-	-	-	-	-	-	-	-	-
Landscape	--	--	0?	--	--	0?	--	--	0?	--	--	0?
Soils, Geology and Land Use	-	-?	-?	-?	-?	-?	-	-?	-	-?	-?	-?
Water Quality and Resources	-	-	-	-	-	-?	-	-	-	-	-	-
Flood Risk	-	-	-	-	-	-	-	-	-	-	-	-
++	existing sustainability problem; effect considered to be of regional/national/international significance											
+	effect considered to be of regional/ national/international significance											
0	Neutral Effect											
-	Potential sustainability issues, mitigation and/or negotiation possible; effect considered to be of											
--	Problematical because of known sustainability issues; mitigation or negotiation difficult and/or expensive; effect											
Uncertainty												
?	for example because insufficient information is available at the plan stage to fully appraise the effects of the development or the potential for successful mitigation, the significance category is qualified by the addition of '?'											

A question remains as to why the three site rejections based on the Appraisal of Sustainability Reports were not also applied to Sizewell, and possibly Bradwell, given their assessments were very similar to two rejections and clearly less favourable than that of Dungeness. Perhaps, in Sizewell's case, the existence of the only Pressurised Water Reactor in the UK had some bearing on the outcome.

A fundamental premise of the privatisation of electricity generation and attendant National Policy Statements was that new energy infrastructure should be proposed and brought to fruition by the market.

In EN-1, section 2.2 “The road to 2050” it states

- 2.2.1 ....It requires major investment in new technologies to renovate our buildings, the electrification of much of our heating, industry and transport, prioritisation of sustainable bioenergy and cleaner power generation....
- 2.2.2. ....Within a market-based system and with severe constraints on public expenditure in the near-term, the focus of Government activity in this transformation is clear. It should be on developing a clear, long-term policy framework which facilitates investment in the necessary new infrastructure **(by the private sector)** and in energy efficiency.
- 2.2.19 ....While the Government may choose to influence developers in one way or another to propose to build particular types of infrastructure, it remains a matter for the market to decide where and how to build, as market mechanisms will deliver the required infrastructure most efficiently....

By engaging in proposals to potentially underwrite the construction of Sizewell C with the Regulated Asset Base scheme, the consumer, through the government, is going to become potentially liable for an industry which has proven time and time again to be unable to bring such projects to fruition on time and on budget, loading unnecessary risk on to those same consumers.

More recently the provision of £100m towards attaining a Financial Investment Decision is all the more concerning especially as there seems to be a belief that should the project not go ahead that the land could be used for other energy infrastructure such as wind-farm substations or perhaps SMRs. However, Scottish Power rejected a site only hundreds of yards inland of the SZC site because of unsuitable salty air conditions and any developer will still have to significantly raise the SZC site from ~1m to >7.5m above sea level to avoid Flood Risks and provide significant coastal defence features against erosion by the sea.

### 3. Background

As a group of organisations and individuals, we are not, in principle, opposed to nuclear power and have tried to work with the Applicant to find a way to influence the project proposal to reflect the concerns of the local community and ultimately produce an acceptable proposal.

However, after three of the seven consultations it became clear that the options and alternatives proposed by the Applicant were not in good faith and those suggested by local parish and town councils, District and County Councils as well as a variety of NGOs and statutory agencies were, in the main, rejected as they did not fit with the Applicants pre-determined strategy.

As a result, following consultation 3, we all separately and reluctantly resolved to oppose the Applicant's Sizewell C project.

## **a. Challenges in engaging with the Applicant**

Throughout those consultations and continuing into the fourth and fifth consultation alongside the Planning Inspectorate examination, with 22 changes introduced during the DCO examination process, we are still faced with an unacceptable proposal surrounded by issues of insufficient information, unsatisfactory community engagement, obfuscation, and hidden agendas.

For example:

- the choice of the Sizewell Link Road route
- the initial reluctance to provide a Coastal Defence Plan to the examination
- the reason for Sizewell B Facilities Relocation including destroying Coronation Wood
- continuing spurious Biodiversity Net Gain claims
- the issue of potable and non-potable water supply
- unrealistic waste heat and power usage claims
- uncertainty of the suitability of the land to support the dual reactor and coastal defences
- cumulative impacts on our community and environment
- the reliance on an unchanging offshore geomorphology
- a guaranteed low inshore wave climate and low coastal erosion rates
- no plausible basis for the assumption of the resilience and retention of the Dunwich bank, and
- no plausible basis for the assumption of the resilience and retention of nearshore longshore bars over the project lifetime.

Whilst we understand there is a presumption of support for National Strategic Infrastructure Projects from our District and County Councils as well as other statutory authorities, it cannot be at any cost to the hosting community, its existing economy, infrastructure and environment.

## **b. Working with Statutory Consultees**

Despite several Joint Local Authority Group meetings on Sizewell C for both parish/town councils and local NGOs, we feel that the level of enthusiasm and support for the Applicant's plans expressed by the East Suffolk District Council has at times overridden their statutory duty to hold the Applicant to account for their proposals. Issues including Sizewell B Relocation/Coronation Wood, adequacy of accommodation provision through the workers campus and caravan site, coastal defence and light pollution/dark skies policy come to mind.

It is also a concern that both East Suffolk District Council and Suffolk County Council stated at the beginning of the consultation process and throughout this 11-year journey that they would only support the Sizewell C project if there was a clear net benefit for East Suffolk, a goal which has not been proven and is disputed in a number of reports referenced below in the Finance section below.

Throughout the examination the non-attendance of both Natural England and Marine Management Organisation was a source of frustration from all Interested Parties, the

Applicant and the Examining Authority. Questions that would be pertinent, as a result of issues and questions arising during the Issue Specific Hearings, could not be pursued and ended up as multiple exchanges of disconnected written response and counter response or additional questions and responses leading to poor communication and assimilation by statutory and interested parties.

Whilst we understand that the DCO examination is primarily a written examination exercise, excessive reliance upon the written form results in a stilted exchange. The significant numbers of documents generated (>4,000 documents in total) means that issues that cannot be resolved during Issue Specific Hearing sessions are much more likely to be forgotten, simply not followed up or reacted to by those IPs interested in a particular issue.

The statutory agencies' non-attendance is even more frustrating given that almost all the Issue Specific Hearings were held virtually on Teams, with the remainder as blended sessions between Teams and physical meetings at Snape Maltings.

There is simply no excuse for non-attendance even though written submissions were made prior to the Issue Specific Hearings.

## **4. Poor Quality DCO Submissions**

### **a. Inconsistent and missing documentation**

For instance, we are surprised to see plans in the Design and Access Statement Part 2 ([REP10-056](#)) and Estate Wide Management Plan ([REP10-136](#)), submitted as part of the final Deadline 10 submissions to the Examining Authority, that are out of date and, as an example, still show Pillbox Field as an outage car park, with an access footpath to the Relocated Sizewell B training centre car park and laydown area.

The laydown area has been moved onto unused Sizewell A land, car parks have been rearranged and pill box field now has no car parking area and is planted as partial compensation for the destruction of Coronation Wood via local planning application [DC/20/4646/FUL](#), permitted 16 November 2020, as an amendment to the original application [DC/19/1637/FUL](#) permitted on 13 November 2019. However, plans in "6.3/ 10.14 Volume 2 Main Development Site Chapter 2 Description of the Permanent Development Appendix 2A of the Environmental Statement: Drainage Strategy - Clean Version - Part 1 of 3" ([REP10-030](#)) has the updated plans present.

There are also inconsistencies in plotting of power station site soil cores in [AP-291](#) with a cross-section showing parts of Sizewell Marsh SSSI incorrectly as consisting of "Made Ground" and correctly as "Peat" and "Sand and Shingle" in another cross-section.

It is also regrettable that Appendix O, Biodiversity Net Gain Note, in document 9.120 Comments on Earlier Deadlines, Subsequent Written Submissions to Issue Specific Hearings 11-14 and Comments on Responses to Change Request 19 - Appendices -



Part 2 of 4 ([REP10-158](#)) was omitted from this report and this will not be considered by the Examining Authority in its deliberations.

Further details and issues with Biodiversity Net Gain assessments, Appendix O Biodiversity Net Gain Note and continuing misleading public claims by the Applicant are given below.

### **b. Inconsistent and misleading justification**

This state of confusion within DCO documents also parallels the inconsistency of purpose for the relocation given during the application to East Suffolk District Council for the Sizewell B facilities (referenced above), claimed to be vital to ensure the continuing operation of Sizewell B, regardless of Sizewell C being permitted or not.

It is clear, however, that should planning permission for Sizewell C not be granted, the relocation would not be necessary as the existing facilities are operating perfectly adequately for Sizewell B operation now, and would continue to do so for its remaining operational lifetime.

This questions whether interrelated component projects have been 'salami sliced' to avoid being scrutinised as a whole, something that has been found to be unlawful in [previous cases](#) under the EIA Regulations.

In the second [Scoping Report Opinion](#) (paragraphs 2.2.13, 2.2.14 and 3.3.7) from the Secretary of State it was clearly stated that the Sizewell B relocation should be fully examined in the Development Consent Order and yet the local planning application was applied for and passed 13 November 2019.

### **c. Late assessments and adequacy of the DCO Application**

Throughout the 10-year pre-examination, consultation period we have been asking for information about required water supply and the suitability of the site itself to host such an extensive development in such a challenging erosion prone coastal location and on land that is characterised by sands, shingle and peat over a fragile crag formation and London clay layers.

The water supply issue is addressed below in [Section 9](#).

It has recently come to our attention that, only now, is the Applicant starting the process of evaluating the competency of the land below the power station platform and its coastal defence having applied for planning permission ([DC/22/0078/FUL](#)) to undertake Ground Anchor and Soil Mixing tests on the Sizewell C site.

It is as some surprise that a scoping report ([DC/21/5408/EIA](#)) for the work was not commented on by the Environment Agency as the work will be within 10m of Sizewell Marsh SSSI and will involve potential run-off of highly alkaline waste in an area that is predominantly acidic in nature. The adjacent Sizewell Drain feeds into Minsmere and Walberswick Heaths and Marshes SSSI which has overlapping Special Area of Conservation and Ramsar designations.

East Suffolk Council has determined that an Environmental Impact Assessment is not required with only Suffolk County Council Archaeological Service and Suffolk Fire and Rescue submitting any responses.

The application ([DC/22/0078/FUL](#)) to undertake Ground Anchor and Soil Mixing tests on the Sizewell C site, is a necessary pre-requisite study to determine whether the site is suitable to host a dual nuclear power station.

What is more surprising is that this was not determined right at the outset of the process of consultation over 10 years ago, otherwise as a hosting community, along with the various statutory consultees and many interested parties, we have potentially been participating in a completely pointless exercise.

The fact that Sizewell C is proposed close to Sizewell A and adjacent to Sizewell B might suggest that the proposed site is suitable as the underlying quality and structure of the site will simply be an extension of that upon which the existing two power stations are sited.

However, nothing could be further from reality. Sizewell A and Sizewell B are both sited on a raised part of the local crag formation, +5-10m above ordnance datum, whereas the crag formation in the Sizewell C site is some 5-10m below ordnance datum and overlain with made ground, peat, sand and shingle.

As a result, the Applicant has to be able to support the ~60m deep cut-off wall to allow the platform to be excavated up to 40m depth and dewatered whilst construction occurs.

The proposal to use ground anchors into the Crag deposits layer is yet to be tested and with complications introduced by siting the three cooling water tunnel boring access shafts along with a desalination plant pumping shaft outside of the cut-off wall will mean that anchors will not be available at these four locations to ensure the safety of those working on excavations within the cut-off wall.

It is also unknown whether the soil mixing trials will lead to a satisfactory solution to ground strengthening below and horizontally, to avoid lateral collapse, of the Hard Coastal Defence Feature over the operational and decommissioning lifetime of the power station.

The results of these trials and a fully elaborated solution to the issues of ground suitability and stability should have been determined during the consultation period and included in the DCO application. This late engineering trial places the Examining Authority, the Secretary of State and the residents of East Suffolk in an invidious position as no assessment or proffered solution has been available to be examined and assessed.

#### **d. Operational Site Size**

To accommodate the Sizewell C operational site on the available land between Sizewell beach, Sizewell B site, Sizewell Marsh SSSI and Minsmere Levels SSSI, several unacceptable adjustments have had to be made,

- the eastern extremity of the hard coastal defence has moved to the existing sacrificial dune removing over 100m of the Sizewell frontage
- the Sizewell C defence cannot be linked to the adjacent Sizewell B defence
- at the southern end, the defence advances into the existing shingle beach removing space where the rare shingle vegetated habitat has developed
- maintenance of the soft coastal shingle defence will repeatedly damage any rare shingle habitat that regenerates across the Sizewell frontage
- Sizewell B facilities have had to be moved to make space for Sizewell C, and
- 100-year-old Coronation Wood had to be felled to make way for Sizewell C and claimed erroneously to be required for essential Sizewell B operation.

These changes will permanently change the Heritage Coast profile across the Sizewell frontage and have visual impacts to the Sizewell B site due to Coronation Wood's felling.

It is accepted that should the Applicant be granted permission for Sizewell C, the relocation of Sizewell B facilities would be essential, as the two reactor Sizewell C proposal cannot be accommodated without the space that the Sizewell B visitor centre, training centre, outage laydown area and car park currently occupy being vacated.

The highly restricted operational footprint also calls into question some of the more fanciful claims for waste heat enhanced hydrogen generation and direct air carbon capture at Sizewell which are [discussed later](#).

## **5. Transport**

### **a. Failure to take local views into account**

The Examining Authority raised the issue of the sustainability of the Sizewell Link Road with the Applicant during Issue Specific Hearing 2 following the Applicant's

refusal to consider a request from Felixstowe Town Council for a safer access route to the Freight Management Facility close to the A12/A14 junction on the basis that it would add about 2 miles additional journey length to the managed HGV fleet using that facility enroute to the site.

The absurdity of this position taken by the Applicant only becomes clear when you realise that the route choice for the Sizewell Link Road requires all HGVs and Park & Ride buses from the southern Park & Ride to travel ~7 additional miles for each return journey compared with the southern W North route the Applicant “consulted” on and supported by Suffolk County Council Highways department and others.

### **b. Hidden agendas**

Latterly, we became aware during Issue Specific Hearings that perhaps one of the reasons for selecting the Sizewell Link Road route was that the Applicant expects to glean 90,800 tonnes of excess excavated material from this route as backfill (2.4.29 [APP-446](#)), alongside 45,000 tonnes from the Two Villages Bypass, for the Main Development Site which would not be available from route W North due to the flatter landscape. This information was never made available during public consultations.

Normal practice is to seek to balance earthwork cut and fill on highway schemes wherever possible which the Highways Department thought had been achieved.

Statements were also made during Issue Specific Hearings that the project intends to use the Sizewell Link Road route as a haul road for moving the backfill to the Main Development Site ([REP6-074](#)).

As the stated intention is to build the Sizewell Link Road from east to west, it is difficult to see how this will be feasible given the bridges required to cross the East Suffolk line, Pretty Road and Fordley Road, the number of deep cuttings also required along the route, some over 4m below current ground level and the logistics of using a roadway being constructed at the same time as coping with the ~7,000 HGV movements required to move 136,000 tonnes of backfill to the Main Development Site.

In reality, the vast majority of the 136,000 tonnes will have to be transported along the B1122 in the Early Years, and the 45,000 tonnes of backfill that will be gleaned from the Two Villages Bypass will also have to travel up the A12 from Farnham before joining the B1122 at Yoxford. The ~7,000 HGV movements will be shorter than if the backfill materials came from elsewhere, but the majority of these HGV movements will still have to travel on the A12 and B1122.

We question if selection of the Sizewell Link Road route, and the statement that it would be used for moving excess material to the Main Development Site, is an approach to try to minimise aggregate tax levy at the expense of greater environmental impact associated with a longer travel route. We presume that if the scheme proceeds Customs & Excise will question this matter.

### **c. Impact on local villages**

In the Applicant's initial proposal, every road that crossed the route of the Sizewell Link Road was to be blocked to vehicular traffic, severing the villages of Middleton, Middleton Moor, Westleton, Theberton and Eastbridge from direct routes to Saxmundham. Only after significant pressure from Theberton and Eastbridge Parish Council has the proposed Pretty Road bridge access been upgraded from footbridge/bridleway to a fully motor vehicle capable bridge. Moat Road, which is used by children cycling to school via George Road is severed with no adequate alternative provided and using Pretty Road would add several miles to a cycle journey to Leiston.

The case for a motorised underpass for Fordley Road, which is supported by some Middleton residents, has been rejected by the Applicant and Suffolk County Council. Significant concerns arising from the severance of Middleton from Fordley and Kelsale by the Sizewell Link Road remain unaddressed including the diversion of footpaths to unprotected crossing points on the Sizewell Link Road. There are also concerns that have not been adequately addressed that the proposed configuration of the Fordley Road junction with the Sizewell Link Road will encourage rat-running.

### **d. Scheduling of Sizewell Link Road works too late**

Interested Parties and the ExA have all queried why the Sizewell Link Road cannot be provided as mitigation in advance of any work commencing on the Main Development Site, but it has become clear that the Main Development Site has to be prepared to accept the backfill material from the Two Village Bypass and Sizewell Link Road. As a result, the volume of traffic using the B1122 to access the Main Development Site means that the Early Years are close to being the busiest period of road traffic usage for the entire Sizewell C project.

Can the scale of works proposed on the Main Development Site in these Early Years, prior to any relief road being operational, be justified given the impacts on the B1122 corridor without any significant mitigation?

Over the two Early Years, ~3000 Abnormal Indivisible Loads - on average eight or nine per day but clearly weighted towards the first year ([REP2-054](#) Tables 3.1 and 3.2) - will use the B1122, of which ~830 would require police escort, more than one per day for the Early Years period.

There are five points along the B1122 where large Abnormal Indivisible Loads will cause significant hold-ups (East Suffolk Line level crossing, a “z-bend” at Middleton Moor, poor visibility at Mill Street, blind bend and junction at Pretty Road Theberton and a further “z-bend” south of Theberton). No significant mitigation is proposed during the early years apart from a possible speed limit restriction.

The justification for the Sizewell Link Road route selection and rejection of D2 (W North) was questioned by Suffolk County Council Highways Department and was clearly on the Examining Authority’s mind when questioning the sustainability of this choice by the Applicant.

### **e. Has the response from the planning authority been compromised?**

It is notable that the proposed W North junction with the A12, considered by the Applicant, was further north than that originally considered in the Sizewell B D2 proposal, which placed it into conflict with East Suffolk District Council plans for a Saxmundham Village housing development and led to the District Council supporting the Applicant’s choice rather than supporting Suffolk County Council Highways position.

Another reason given for this rejection was the stated requirement for a roundabout to be introduced between W North and the B1121 only several hundred yards after leaving the A12. Such a junction is completely unnecessary given the existing junction between the southern end of the B1121 and the A12 only half a mile away.

## **6. Flood Risk and Coastal Impacts**

The Suffolk Coast is an eroding coast and is subject to unpredictable episodes of erosion along its length including across the Sizewell Bay and frontages both north and south of Sizewell.

Cefas, the Applicant’s own consultants, has stated clearly that [predicting coastal changes](#), with any confidence, beyond a 10-year horizon is effectively impossible. This development will sit in this coastal environment for close to two centuries and, with the added impacts of climate change, it was essential that full scrutiny of the plans for the proposed coastal defences was made available by the Applicant.

### **a. Failure to provide detailed plans**

**It came as a significant surprise when no detailed plans of the coastal defence were submitted with the DCO, and we learned they had not been developed.**

The Applicant felt that the design and scrutiny of the plans could be left to submissions post DCO approval, relying entirely upon a Coastal Processes Monitoring and Mitigation Plan to be submitted to the Examining Authority.

The plan was under discussion, behind closed doors, with East Suffolk District Council and Coastal Protection East and ultimately the Office for Nuclear Regulation.

This approach gave no opportunity for knowledgeable local coastal protection organisations, such as Minsmere Levels Stakeholders Group, Alde and Ore Association and Suffolk Coast Action for Resilience to scrutinise the potential coastal impacts of any proposed hard and soft coastal defence design.

The assertion, by the Applicant, that because there is a paper Coastal Process Monitoring and Mitigation Plan that this is an appropriate location for Sizewell C is seriously flawed.

### **b. Avoiding the tough questions**

The absurdity of relying upon a Coastal Process Monitoring and Mitigation Plan without reference to an actual coastal defence plan was clearly apparent to the Examining Authority, and the Applicant was instructed to provide clear plans to the examination during pre-examination hearings.

This was welcomed, but the Applicant is now on iteration 4 of said plans and there remain questions to be answered regarding:

- the technical viability of ground strengthening beneath the 14-16m high Hard Coastal Defence Facility
- confirmation of the actual position of the Hard Coastal Defence Facility toe relative to the existing sacrificial defences and beach, especially at the southern end
- the validity of the Soft Coastal Defence Facility modelling ([REP8-280](#))
- the impact of the loss of the Sizewell B outfall on the shingle beach and outfall salient following Sizewell B shutdown in 2035 or extended date should Office for Nuclear Regulation permission be granted ([REP8-280](#))
- impacts beyond the claimed 3km zone of influence from Minsmere Sluice to the Ness at Thorpeness, and

- the Hard Coastal Defence Facility and 7.3m platform height suitability given the limited timeframe that the Applicant is using (2140 - [AS-170](#)) Flood Risk Assessment beyond 2140 and the Office for Nuclear Regulation decommissioning timeframe prediction of 2190

The potential for the Hard Coastal Defence Facility to become exposed, especially at the southern end ([REP8-280](#)), is of serious concern following Sizewell B's future shutdown as the behaviour of the Sizewell Bay shoreline will alter dramatically at that point.

Active management of the Soft Coastal Defence Facility, through the Coastal Process Monitoring and Mitigation Plan, is unlikely to be able to mitigate the natural drive for the coast to restore its profile to the natural sweep of the bay between Minsmere Sluice and The Ness at Thorpeness.

### **c. Compromised time scales**

As mentioned above, another question about this site's design comes from the use by the Applicant of the 2140 date for end of operations and decommissioning:

- 2140 is being used by the Applicant as that is the last year that the platform height meets Flood Risk Assessment guidelines, and all spent fuel must be removed from site
- the Applicant is reliant upon implausible assumptions that both the Dunwich Bank and inshore sandbanks (that have no stabilising hard geology) will remain unchanged over the lifetime of the project and does not account for wave and still water inundation occurring from the north, west or south sides of the platform as the Hard Coastal Defence Facility does not totally surround the site (see [REP2-393](#), [REP7-219](#) and [REP10-345](#))
- to meet the 2190 date specified by Office for Nuclear Regulation, the platform itself would have to be raised at least 0.5m based on current Flood Risk Assessment guidelines using RCP8.5 (reasonably foreseeable) or 2.6 m using H++ or BECC Upper (credible maximum) ([AS-170](#)) to avoid overtopping and standing water issues on the main platform.
- in the event of increased coastal erosion, caused by any loss or major degradation of the protective offshore geomorphology, the wave overtopping could more directly affect the landward side of the main nuclear platform, which is unprotected by sea defences. For more details, see "Sizewell C Main nuclear platform flood resilience in the next century" by Mr. Nick Scarr submitted since the close of the examination.



#### **d. Decommissioning and high-burn fuel**

From EN-6 the earliest expectation that high level waste can be moved to a Geological Disposal Facility from any new nuclear build, such as Hinkley Point C or Sizewell C, is 2135:

- currently **spent fuel is not classified as high-level waste** and the Nuclear Decommissioning Authority has confirmed that until spent fuel is reclassified as such, or the proposal for the Geological Disposal Facility is changed to accept spent fuel in Dry Fuel canisters, all spent fuel will remain on site or at an above ground facility
- in the case of Hinkley Point C and Sizewell C, high-burn spent fuel will take longer to cool to a point where it will be suitable for transfer to Dry Fuel canisters: see [Nuclear Decommissioning Authority '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.](#)
- there is no practical experience of managing the high-burn fuel from a European Pressurised Reactor (EPR), with Taishan 1 and Taishan 2 being the only currently operating EPRs and Taishan 1 is currently off-line following fuel rod failure associated with vibration in the reactor base
- the Nuclear Decommissioning Authority suggests a decommissioning date of between 2180 and 2230, assuming a 60-year operation from 2035, although the Office for Nuclear Regulation suggested that by using a lower dry fuel canister loading, this could be reduced to 90 years from cessation of operations i.e., 2185, closer to the lower end of the Nuclear Decommissioning Authority assessment, but not as early as 2140
- the 2140 date used by the Applicant, just 5 years after 2135, does not give sufficient time for spent fuel from Sizewell C to be moved to the Geological Disposal Facility, a process predicted by the Nuclear Decommissioning Authority to take 10 years, especially when there is no practical experience of the cool down of this fuel or the elapsed time before it becomes suitable for encapsulation into dry fuel containers for disposal at a Geological Disposal Facility and
- conventional spent fuel from Sizewell B and high-burn fuel from Hinkley Point C will also be in the queue for Geological Disposal Facility transfer ahead of Sizewell C's fuel.

Overall, the Applicant is over-optimistic regarding timelines for bringing the site to being fully decommissioned and free of spent fuel and waste by 2140 and is being constrained by its ability to provide a platform at a height that will meet the Flood Risk Assessment demands of the 2190 date given by the Office for Nuclear Regulation.

#### **e. Inadequate and constrained site size**

Any requirement to raise the main platform further to meet those requirements may also require further changes to the height and seaward extent of the Hard Coastal

Defence Facility and Soft Coastal Defence Facility, further endangering coastal processes and exacerbating the impact on the Heritage Coast and beach frontage at Sizewell. Considering the 2190 Flood Risk Assessment assessments in the Applicant's submissions and Mr. Nick Scarr's paper, referred to above, the current Hard Coastal Defence Facility protection is also inadequate as it does not fully enclose the site.

The Applicant freely admits that moving the platform to the west with further incursion into Sizewell Marsh SSSI is not possible or acceptable.

There are also significant concerns regarding the existing position of the Hard Coastal Defence Facility toe at the southern end of the Hard Coastal Defence Facility and how that could be impacted and exposed as Sizewell B is retired and the beach relaxes (erodes) back to its natural embayment profile ([REP8-280](#)).

## 7. Environmental Impact

The environmental impact of the Sizewell C project has already been significant, even though no planning permission has been granted or funding arranged. The 110-year-old Coronation Wood was felled in December 2020, to make way for those Sizewell B facilities that would need to be moved should Sizewell C be approved and funded.

### a. Biodiversity Net Gain and Environment Act 2021

Appendix O to [REP10-158](#), submitted by the Applicant **after the close of the examination**, states that the Biodiversity Net Gain assessment was prompted by requests from Natural England, RSPB and Suffolk Wildlife Trust.

The Applicant also points out, in Appendix O, that it is not a requirement of the Nationally Significant Infrastructure Project DCO process for such an assessment to be made and that the Main Development Site is the "the key driver of the overall net change in biodiversity units associated with the proposed development as a whole".

EN-1 recognises there may be some short-term impacts from the construction and development phase of new energy infrastructure, but new large nuclear power stations are likely to take 12-14 years to complete and have a peculiarly long and intense impact given the nature of such complex concrete and steel engineering.

Improvements and developments in Defra's Biodiversity Metric assessment tool since EN-1 and EN-6 were first published have led to the incorporation of Biodiversity Assessments using Biodiversity Metric 3 for future developments. Section 99 and Schedule 15 of the Environment Act 2021, that received assent in November 2021, by default, requires at least 10% net gain to be demonstrated by Nationally Significant Infrastructure Projects as well as other developments. Indeed, since July 2021 Biodiversity Metric 3 is considered to be the current and up-to-date Biodiversity Metric assessment tool.

The applicant's position on Biodiversity Net Gain throughout the consultation, application and examination phases (essentially that 'it doesn't need to demonstrate it in any event'), has thus been overtaken by events and its approach to the matter is revealed as having been backward facing from the outset.

### **b. Low confidence in EDF stewardship**

Coronation Wood was stated to be a visual shield for the Sizewell B Dry Fuel Store project in July 2011. It is part of the EDF Energy Estate at Sizewell, which was supposed to be maintained by EDF as part of that planning approval.

However, according to both EDF and East Suffolk District Council it was in poor condition. One can only conclude that EDF has been delinquent in its maintenance obligation and East Suffolk similarly in its enforcement of planning statements made by EDF during the Dry Fuel Store application and during post approval monitoring and regulation processes.

No matter what condition Coronation Wood was in, it will be replaced by modern buildings and a car park and will no longer be able to function as a screen for Sizewell B's Dry Fuel Store or contribute to biodiversity. The replacement Sizewell B buildings will be a significant and permanent intrusion on the Suffolk Coast & Heaths AONB. This relocation project, although already started, was also required to be justified by the Sizewell C DCO based on feedback in the Scoping Opinions of [June 2014](#) and [July 2019](#).

What is in no doubt is that despite EDF's bold statements of planting 10 saplings for every tree in Coronation Wood, it will still take at least 100 years to achieve a replacement for Coronation Wood even in poor condition. It is also a fact that the vast majority of the 10-fold replacement will be thinned out or will not survive the journey to maturity and, in comparison, the replacement area plan is scattered and cannot be considered as equivalent to the loss of the Coronation Wood block of trees.

The need to avoid the destruction of older established woods and habitats is well-accepted in environmental conservation, as the replacements take too many years to mature and to contribute the same level of biodiversity and ecological system services as those lost, be they in good or poor condition. It would have taken much less time and be far less damaging to the environment to have maintained Coronation Wood than pursue the misguided strategy of early removal and wistful future replacement even before Sizewell C gains approval.

### **c. Exaggerated Biodiversity Net Gain claims**

The Applicant claims 19.6% Biodiversity Net Gain ([REP1-004](#)) for the relocation of Sizewell B facilities, but the Biodiversity Metric 2 calculator used by the applicant (despite being superseded) is unable to account for four years when the construction area has no biodiversity as it is a construction site. So, in this case the construction will take 4 years, but the replacement woods will take decades to mature to achieve their final additional biodiversity contribution. Even if the full additional contribution was to start at year 5, it will take at least a further 20 years to pay back the loss of biodiversity and ecological system services experienced for those 4 years of construction and there remains a permanent and significant visual impact within the landscape of the AONB.

Notwithstanding the above, the Applicant claims publicly that 19% Biodiversity Net Gain will be the result of the Sizewell C project.

Julia Pyke, Sizewell C Director of Financing, is reported in [Eurasia Review](#) and [World Nuclear News](#), stating "planned efforts should lead to a 19% increase in biodiversity at Sizewell in comparison with not building Sizewell C".

This was also stated by the Applicant's QC during the DCO examination during Issue Specific Hearing 7.

However, as discussed above for the Coronation Wood and Sizewell B Facilities Relocation case, this is a misleading statement on multiple levels:

- Biodiversity Net Gain calculations using Biodiversity Metric 2 calculator do not take into account the 12-14 year development phase when the Main Development Site will be a construction site with no biodiversity or ecological system services contribution
- the 19% (10.1.2 [REP1-004](#)) claim relies on all the Biodiversity Net Gain from off-site areas and any assessed Associated Development Sites to be applied against the Main Development Site construction area loss

- for the Main Development Site and adjacent off-site areas, the claimed Biodiversity Net Gain is 18.03% (8.1.2 [REP1-004](#)) with the construction area showing a 26% biodiversity loss and the smaller adjacent off-site areas showing a 128% biodiversity gain.
- The transfer of the 128% to the Main Development Site, to achieve the 18.03% figure, leaves the off-site areas theoretically un-improved. This mathematical treatment is allowed but actually leaves the AONB significantly damaged from the shore to its inland border
- taking the 12-14 year construction phase 100% biodiversity loss for the Main Development Site into account, it will take between 32 and 40 years following construction site restoration to pay back the biodiversity loss of the construction period. This is equivalent to between 50% and 67% of the 60 year operational life of Sizewell C ([REP6-075](#))

**Biodiversity Metric 2 calculator cannot be used to assess areas of Sites of Special Scientific Interest, ~12 hectares of which will be permanently destroyed during this development. The loss of SSSI is thus conveniently ignored in the 19% net gain claim by the applicant**

- **NE guidance states Biodiversity Net Gain should NOT be claimed where SSSI losses are incurred during a development.**
- the Applicant's Biodiversity Metric 2 calculations examine the Sizewell Link Road, Two Villages Bypass, Sizewell B Relocation and Yoxford Roundabout developments only
- no account of biodiversity loss is made of the two Park & Ride Sites nor the Freight Management Facility, all three of which will convert arable land, field margins and hedgerows to hard landscape car parks for the 12-14 years of the development ([REP5-288](#)) and have near zero contribution to biodiversity during that period
- insufficient details of the assessment foundations, in particular the base calculations in the Biodiversity Metric 2 spreadsheet were not made available to the examination within the DCO documentation
  - these were only latterly made available after considerable and persistent pressure at the eleventh hour of the examination following a Statement of Common Ground meeting, requested by the Examining Authority, with Interested Parties, namely, Mr. Collins and Bioscan
  - the meeting took place barely a month before the conclusion of the examination, and the full information required for independent review was subsequently made available barely two weeks before the close of the examination
- although hindered by the late release of this information, following a quick walk-over assessment of some of the Main Development Site area, those same Interested Parties (including expert ecologists) consider the Applicant to have undervalued baseline assessments and be over-optimistic about potential end-states following post-development habitat restoration or development
- transposition of the Applicant's Biodiversity Metric 2 spreadsheet for the Main Development Site including its off-site areas, provided following the Statement

of Common Ground meeting, into the Biodiversity Metric 3 spreadsheet, to be used for applications subject to the Environment Act 2021, showed that at best the Biodiversity Net Gain would amount to 2-3% ([REP9-044](#)) as a result of the biodiversity loss from 12-14 years of development. This is short of the statutory requirement for NSIPs

- The 25% loss of biodiversity on the Main Development Site in Biodiversity Metric 2 assessment rises to 41% in Biodiversity Metric 3 assessment due to changes and updates in this latest version of the biodiversity metric
- changes and refinements made to condition assessment criteria within Biodiversity Metric 3 for some existing habitat areas (e.g., established conifer and mixed plantation woodland) increase the biodiversity value of these areas compared to the assessment within Biodiversity Metric 2, potentially resulting in further reduced Biodiversity Net Gain assessment using Biodiversity Metric 3
- trading rules violations raised by the Biodiversity Metric 3 assessment referred to the loss of coastal shingle and dune habitat that are 95% losses and no equivalent replacement is (or can be) proposed, although the Applicant claims that following completion the shingle habitat will redevelop naturally as experienced with Sizewell B
  - the salient upon which the vegetated coastal shingle developed for Sizewell B will not be maintainable following the cessation of operation of Sizewell B and its salient maintaining outfall (see Coastal Impacts section above)
- **Biodiversity Metric 3 cannot be used to assess Sites of Special Scientific Interest as the Biodiversity Metric 3 calculations also do not properly assess such environmentally sensitive and unique habitats (~12 hectares of which will be permanently destroyed during this development), and**
- for such reasons, the **Secretary of State can have no confidence that the reality of the development will have any net gain of biodiversity**

#### **d. Optimism Bias**

In Issue Specific Hearings 7 and 8, the Applicant was challenged to explain why they did not “recognise” the 25% loss of biodiversity across the Main Development Site on-site area nor the 95% loss of biodiversity across the coastal shingle and dune habitats that were a result of the Biodiversity Metric 2 assessments made by themselves ([REP6-075](#) and [REP7-241](#)).

The Applicant stated that it believed its Outline Landscape and Environment Management Plan would achieve significantly better outcomes than predicted by the Biodiversity Metric 2 assessment, a position that is further stressed in late submitted Appendix O.

However, based on the collective experiences that have gone into developing Biodiversity Metric 2 and Biodiversity Metric 3, you would expect that whilst setting ambitious targets is a valid approach, realism says that there is likely to be a strong correlation to the overall assessments made by Biodiversity Metric 2 or Biodiversity Metric 3. This is corroborated by the independent expert ecologists Tom Langton and Dominic Woodfield (Bioscan) who appeared as Interested Parties in the examination.

Such confident expressions by the Applicant are characteristic of optimism-bias, especially when considering that the Biodiversity Metric 2 and Biodiversity Metric 3 assessment underpinnings are based on wide ranging real-life experiences.

It is worrying that the Applicant contends that it can buck the trend in such a manner. Indeed, there is a real chance that it will not reach the Biodiversity Metric 2 assessed levels or those it contends will be attained through implementation of the Outline Landscape and Environment Management Plan.

The Applicant completely disregards the Biodiversity Metric 3 outputs, which form the basis of implementation of the statutory requirements under Environment Act 2021 section 99 and Schedule 15 and which indicate that the project fails to meet the statutory target, despite admitting in the Statement of Common Ground meeting that their consultants did look at its outputs.

It is widely accepted and evidenced that, where a natural landscape is bisected by a road, the area to each side has its biodiversity impacted for several hundred metres.

Following restoration of the Sizewell C main development site there will be:

- a Sizewell C site access road that will permanently bisect the entire width of the AONB, with vehicle movements throughout the day and very busy at shift changes
- reduced effectiveness of what was previously a quiet contiguous area of fields, hedges and woodland between Sizewell Marsh SSSI and Minsmere & Walberswick Heaths and Marshes SSSI (with additional international designations) which is destined to become mainly lowland acid grassland and heath
- a very mature pine plantation, with significant understory, will be replaced by a car park for ~900 Sizewell C workers and security gatehouse to the Sizewell C site

It is no surprise therefore that the Biodiversity Metric 2 assessment for this area of the Main Development Site shows a permanent 25% biodiversity loss (Biodiversity Metric 3, 41% loss). It is highly unrealistic that any Outline Landscape and Environment Management Plan implementation will be able to improve on that outcome.

Also, the shingle and dune habitat frontage of Sizewell C:

- will be completely removed and replaced by the Hard Coastal Defence Facility and Soft Coastal Defence Facility, and
- the Soft Coastal Defence Facility will be subject to maintenance over the lifetime of the station which will further disrupt and chance of the existing vegetated shingle to re-establish itself at a similar level to that which exists today
- when Sizewell B is finally closed, the shingle frontage across the whole of the Sizewell A, B and C frontage will be subject to erosion as the coast inevitably returns to its natural embayment profile, and
- the southern tip of the Sizewell C Hard Coastal Defence will be under threat of exposure due to its position on the beach frontage ([REP8-280](#)).

It is worth noting that the scheme to provide compensatory Fen Meadow and Wet Woodland habitats, for that which will be lost at Sizewell Marsh SSSI, has a built-in failsafe condition should the sites at Halesworth, Benhall and Pakenham not provide the required compensation. This condition reflects the possibility that such efforts may not succeed, but no such failsafe is available for any failure of restoration or creation on the Main Development Site or across the beach frontage.

Separately, the question of whether any efforts funded by the Fen Meadow failsafe will be able to provide satisfactory compensation, perhaps decades after the damage is sustained, is similarly fraught with uncertainty and by which time the mounting losses to biodiversity and ecological system services will likely never be reclaimed.

Overall, the Sizewell C development will be an environmental and biodiversity disaster for what is one of the most biodiverse areas in the UK and an area celebrated for that fact, with concomitant tourism and economic benefits.

**The continuing claims of the Applicant for 19% Biodiversity Net Gain are, therefore, specious and greenwashing of the worst kind when the Applicant is clearly cognizant of the limits of the Biodiversity Metric 2 calculations and yet continue to claim publicly that the only way to improve this highly biodiverse area is to build Sizewell C.**

The reality is that continuing the ecologically sensitive management of the unchanged EDF Energy Estate, in collaboration with Suffolk Wildlife Trust, would be a far better outcome.



## 8. Community Impacts

We have engaged with the Applicant for the full ten years of consultation and throughout the examination and are still discussing some issues regarding early years transport impacts and changes. However, we have been unsuccessful in persuading the Applicant to change several other aspects of their proposals.

### a. Failure to take local views into account

Collectively, we have pressed for a relief road to relieve pressure on the B1122, the Applicant's delivery route of choice, in proposals up to Consultation 3. Our suggestion was that the Applicant implement the proposal for D2 (W North) that was originally scoped for the Sizewell B development.

So, whilst the Applicant lauds the Sizewell Link Road as a success of our pressure for a B1122 relief road, it conveniently forgets that this route is not supported by Suffolk County Council or any of the residents or parish councils along its route.

Also, the number of residents impacted, and fragmentation of farms is far higher than that for D2 (W North), making this route selection even more damaging. The result of the Sizewell Link Road is two parallel roads, both of which Suffolk County Council is concerned will become its responsibility for maintaining, with the Sizewell Link Road providing little long-term benefit, given its more northerly junction with the A12.

Considering our objections to the Sizewell Link Road route, Theberton and Eastbridge Parish Council has persuaded the Applicant to upgrade its Sizewell Link Road plans to ensure Pretty Road has a vehicle bridge across the SLR. This will be the only vehicular access that will be maintained, across the SLR route, out of five existing roads and lanes.

The Applicant has also made much of reducing the footprint of the workers' campus from both sides of Eastbridge Lane to just the area to the east of Eastbridge Lane. This ignores the fact that this single-site campus for 2,400 workers is completely isolated in a rural environment and in a totally unsuitable location for such a large number of workers. At maximum capacity, the campus is approximately 45% of the total population of Leiston and around ten times the combined population of Theberton and Eastbridge, the two closest villages.

### b. Exaggerated benefit and impact claims

[See page 29](#) for discussion of the Applicant's exaggerated claims of economic benefit for the local area.

### c. Impacts on low-cost rental accommodation

We have repeatedly requested a split campus, like that at Hinkley Point C, where the major site is at a brownfield site in Bridgewater (a town of ~40,000 residents, c.f. Leiston ~5,400) 10.6 miles from the Hinkley Point site. Despite several other options, in and around Leiston, suggested by [Boyer and Cannon in a report](#) commissioned by

Suffolk County Council, the Applicant has insisted on there being only a single and now inadequate site at the Main Development Site entrance on Eastbridge Lane.

The Applicant's accommodation proposal has failed to make additional provision for the increase in the maximum workforce from 5,400 to 7,900 (plus 600 Associated Development Sites workers) at consultation 4. This increase was initially described as being for traffic modelling purposes only but became firm in this consultation and at about the same time as a request was made at Hinkley Point C for a similar increase to the on-site workforce.

We are also disappointed in the acceptance of this increase by East Suffolk District Council without any additional accommodation provision by the Applicant beyond the 3,000 provided by the campus (2,400) and caravan site (600). We believe this will place intolerable pressure on the local low-cost rental sector and that the housing fund provision by the Applicant, whilst going to fund additional staff at East Suffolk District Council, will not be able to negate the pressure or provide the additional level of accommodation required by such a dramatic increase (2,500) in workforce numbers. There is already some evidence of increasing rental costs in Leiston even though no planning permission has yet been granted.

#### **d. Inconsistent impact mitigation policy**

Disparities and inequalities between the Property Price Support Scheme offered for Hinkley Point C ([REP5-205](#)) and at Sizewell C are significant, and the Applicant has so far been unable to satisfactorily explain to those living close to the development boundaries either at the Main Development Site or at any of the Associated Development Sites why there is such a dramatic difference. At Hinkley Point C there is a clear area defined for potential application of the scheme that is approximately two kilometers from the Main Development Site boundary. For Sizewell C the scheme is almost completely defined by the Main Development Site boundary and Associated Development Sites boundaries.

Discussions between Theberton and Eastbridge Parish Council and the Applicant about this scheme have been active now for over 12 months and have yet to bring forward a scheme that has any clarity, or approaches that offered at Hinkley Point C. We have also been unable to engage with East Suffolk District Council and solicit their support on this matter, despite a reference being made to such a scheme in the s106 Heads of Terms documentation ([APP-600](#)) provided by the Applicant.

Unfortunately, the Property Price Support Scheme is not referenced in the final Deed of Obligation, which replaced the s106 agreement during the DCO examination, and a commitment to provide the scheme details to the Examining Authority through the PINS website was not fulfilled.

A copy of the scheme, as of August 2020, is provided along with this report.

## **9. Water Resources**

East Anglia is one of the most water-stressed areas of the UK. We are perhaps both blessed and cursed with having one of the lowest annual rainfall levels in the country, but this means that much of our water comes from aquifers that are under increasing strain as demand outstrips the ability of rainfall to replenish our existing usage.

It is, therefore, not surprising that the Environment Agency is reviewing and reducing abstraction licenses not only for individual farmers but also for the local water company, Essex and Suffolk Water. The Blyth area, within which the Sizewell C development falls, is already struggling to satisfy the existing needs of the area, including Sizewell B.

### **a. Lack of planning and foresight**

We have been requesting details from the Applicant of Sizewell C's water needs and for confirmation that those needs can be catered for within the water management plans of the local supplier Essex and Suffolk Water. We have been assured for the entire consultation period right up to 6 weeks before the end of the examination that water supply was not going to be an issue, even though any level of detail on how this was to be achieved was missing.

So, despite the Applicant's previous confidence, it came as no surprise when, 6 weeks before the end of the examination, Essex and Suffolk Water reported that it could not supply sufficient water for the development or the operational phase of Sizewell C without a 20 km pipeline and pumping station to bring water from an adjacent water management area, and even that solution was subject to Environment Agency approval as part of their abstraction review. The time required to provide sufficient water for the construction phase was deemed too tight and resulted in the Applicant having to revert at the last minute to an on-site desalination plant, which comes with its own environmental impact concerns.

We subsequently learned that changes to Essex and Suffolk Water abstraction limits mean that the existing water supply in the adjacent area is even unable to satisfy the much lower requirement for Sizewell C operation without additional water supply from new treated wastewater or permanent desalination facilities, neither of which are currently within Essex and Suffolk Water's infrastructure plans.

For such a conclusion to arise so close to the end of this decade-long process, and the Applicant's insistence that Essex and Suffolk Water are obliged to make such a supply available, smacks of incompetence and an unacceptable level of arrogance by the Applicant. Essex and Suffolk Water strongly contests that it has a statutory obligation to supply water to the Applicant. EDF and the Applicant know full well the stressed nature of water resources in the area, having operated Sizewell B for all of these years. It is certainly a situation well appreciated by the local population.

## 10. Finance

Whilst there are several issues with the financial impacts of this development on the local economy, we firstly consider the impacts of water supply and general finance for the project.

### **a. Additional uncosted impacts**

The financial implications for Essex and Suffolk Water of creating the additional water supply infrastructure does not appear in the £20bn cost estimate that the Applicant has placed on this development and is not currently budgeted by Essex and Suffolk Water or approved by the regulator.

If this infrastructure is to be built primarily for Sizewell C, we contend that the costs should be fully reflected within the cost base of the Sizewell C development.

### **b. Escalating costs**

Separately during the examination, we have asked for an updated cost from the Applicant to be provided following an increase in the quantities of materials required by the Applicant to construct Sizewell C, alongside increased costs for both steel and concrete.

Nothing has been forthcoming from the Applicant, with commercial confidentiality being quoted as one reason and time to develop an update as another. It simply isn't credible for the Applicant to claim that it was incapable of providing an update to the materials costs during the examination. We can only assume that the new cost is simply too embarrassing to be released, given Hinkley Point C is already at £23bn at last count and, no doubt, increasing.

Add in the construction overruns and cost escalations that all EPRs being built (Olkiluoto, Flamanville and Hinkley Point C) or that have been completed (Taishan 1 and 2) and increased costs over £20bn are inevitable.

The chances of experiencing a 30% cost saving, as agreed in the [Nuclear Sector Deal](#), as a result of Sizewell C being a "second" of a kind is receding into the fiscal distance, if it was ever a real possibility.

The commercial confidentiality argument, considering this is effectively a monopolistic development with only one developer is absurd. With the developer also asking for government financial assistance, in the form of a Regulated Asset Base (RAB) funding mechanism and now an additional £100m loan to bring the project to a Financial Investment Decision, such diversionary tactics can only be considered as a ploy by the Applicant to conceal what is becoming an unacceptable spiraling cost of development which will never provide value for money and the fact that they simply have no funds to continue.

These costs will be seen as unacceptable by the electricity consumer base who will have a RAB levy dumped on their energy bills, to subsidize an Applicant who has

stated many times that they are unable to finance the Sizewell C development themselves.

### **c. Impacts on East Anglia's workforce**

Continuing with local considerations, many impacts will be felt by local businesses particularly in the hospitality, care and local trades sectors. Local developers are concerned both for the impact on their workforce at a time when increased government targets for housing are already stressing the sector and they fear a drain to the Sizewell C development ([REP5-305](#)).

Sizewell C will also compete for skilled workforce in East Anglia's important offshore wind industry. These fears have been expressed off the record by local companies and organisations in the sector.

Indeed, the Applicant's own figures expect at least 725 of Sizewell C's employees to be taken from existing local businesses, imposing a significant financial and emotional burden on them to recruit and train new staff.

Levels of unemployment in the local area are low, so the scope for "back to work" schemes are also low and the potential for recruitment in this area from the larger county towns of Ipswich and Norwich or towns such as Felixstowe, Lowestoft or Great Yarmouth will be severely hampered by accessibility issues, given the distance to the Sizewell C site and difficulty in reaching the Park & Ride sites.

### **d. Exaggerated benefit and impact claims**

Many claims are made by the Applicant about employment benefits of the development, but independent assessments of the claims and benefits that are espoused by the Applicant are challenged as inflated or unrealistic ([REP2-449c](#) and [REP2-449i](#)).

Based on the experience of Sizewell B there are legitimate concerns that Sizewell C would lead to considerable workforce displacement and negative economic impacts on established businesses.

The investment needs of the area used to support the Applicant's case are also questioned. Analysis of multiple socio-economic indicators across the nuclear sites named in EN-6 legislation has concluded that similar projects in Hartlepool, Moorside, Wylfa, Heysham and Bradwell would all bring greater proportionate economic benefit to their local area than Sizewell C. See ([REP2-449f](#) and [REP2-449g](#)) and a more recently updated "[levelling up](#)" [analysis of the eight potential nuclear sites](#).

## 11. EPR Design and Current Experiences

There is no experience of operating an EPR in Europe.

### a. Lack of practical regulatory experience

The only two fully operational reactors are in China, at Taishan, and recent experience with Taishan 1 is concerning. The openness of the Chinese operators to scrutiny is questionable given the fact that it took an EDF employee in the USA to alert CNN to the fuel rod failure at the facility only 30 months into its operating life.

It took a further number of weeks for EDF to persuade the Chinese partner and authorities to close [Taishan 1](#) down and investigate the issue.

The incident was not shared in a timely fashion with other nuclear authorities around the world and the hesitancy to shut the facility down raises difficult questions about the veracity and timeliness of information coming from the investigation at Taishan 1.

### b. Design and operational issues

Subsequently, there have been reports from a [whistleblower](#) that the fuel rod failure is more extensive than is being reported publicly and that a [known vibration problem](#) within the base of the reactor vessel below the fuel assemblies may be a problem endemic to the EPR design. Questions raised by the issue at Taishan 1 and the vibration problem can be found in a [CRIIRAD letter](#) to ASN (French nuclear regulatory authority).

At Olkiluoto, according to IRSN (French Institute of Radiological Safety) documentation, the vibration problem in the primary circuit of the Olkiluoto 3 EPR was first observed during cold tests although CRIIRAD state that it was also present in scaled mock-ups during design testing.

### c. French regulatory concerns

The vibration problem in the EPR has resulted in the following exchanges with ASN:

- the suggestion to ASN by EDF that the vibration problem is fixed with a damper on the pressurizer in the primary circuit
- this was rejected by ASN until EDF presented a full understanding of the vibration cause, which does not seem to be the case at this time
- EDF has since told ASN that changes to the reactor to fix the vibration issue cannot be made as it would endanger the integrity of the reactor
- EDF have recently proposed a change to the fuel rod assembly design and manufacture that will make the fuel rods more secure within the assembly at the base of the reactor
  - this solution confirms that it is at the base of the reactor where the vibration in the cooling water flows is causing the mechanical damage to the fuel rods

**This proposition by EDF does not directly address the cause of the problem, as requested by ASN**, which is turbulent flow of the cooling water entering the reactor from multiple inlets and having to change direction to vertical flow through the reactor core.

Like the damper proposal, this proposal attempts to avoid damage to the fuel assemblies by making them stronger. **The turbulent flow and vibration will still exist at the base of the reactor and will continue to stress and potentially damage the fuel assemblies.**

- ASN has recently [informed EDF](#) that the Flamanville 3 reactor and the EPR2 design “must not be affected, or to propose provisions to prevent degradation of the fuel”
- ASN have been clear that Flamanville 3 cannot be given the go-ahead to load fuel until such time as the Taishan issue is diagnosed and rectified to ASN’s satisfaction at Flamanville 3 and EDF have now postponed the proposed date of fuel loading into 2023, adding a further €300 Million to the cost
- Flamanville also has issues with the carbon content of the reactor casting and will have to replace the reactor head, originally expected to be in 2023 based on a startup date of 2021
- Flamanville is also in the process of rectifying the integrity of some of the welds of pipework within the reactor circuits which are difficult to repair
- Questions are now being raised in the press as to whether Flamanville 3 will ever be started.

#### **d. Olkiluoto 3 in Finland**

In Finland TVO, the owners of the Olkiluoto 3, have just taken the EPR to first criticality and testing will continue over the coming months before full commercial operation starts in mid-2022. It will be instructive over time to see if any further light will be shone on the EPRs fuel and vibration problem, although a bitumen damper has been fitted to the pressuriser at Olkiluoto 3.

Considering the vibration problem is clearly being created below the fuel assemblies in the reactor core. A bitumen damper remote from the source of the problem is unlikely to prevent issues at the problem source, so may not improve the performance of the fuel rod assemblies.

As there is a significant likelihood that damage to the fuel assemblies will still occur, given their proximity of the source of vibration, it is no surprise that ASN have already rejected this proposed solution by the Applicant.

## **12. Consequences for UK EPRs**

The Office for Nuclear Regulation is currently of the opinion that the vibration problem is not systemic to the EPR, which is at odds with the whistleblower account and both EDF and ASN's responses discussed above.

Given the lack of practical experience outside of China of operating an EPR and the as yet unresolved cause and extent of the problem at [Taishan 1](#), it is difficult to understand how the Office for Nuclear Regulation can have any confidence in this opinion.

#### **a. The on-site spent fuel problem**

A recent experience at Sizewell B is worth considering as it involves the consequences of a spent fuel rod leak, as has happened at Taishan 1, and raises a concern should the EPRs at Hinkley Point C, or an approved Sizewell C, go into operation.

Following a period in the Sizewell B fuel cooling ponds, a spent fuel rod was loaded into a Dry Fuel Cask for storage in the Dry Fuel Store at Sizewell B. The cask was sealed and flushed dry with Helium gas. Measurements were made on the gas inside the cask, and it was found that at least one of the fuel elements was leaking radioactive gases into the cask. This gas leakage is what was detected at Taishan 1 in the reactor itself and led to the current shutdown and problems with that EPR.



This cask cannot be sent to the Dry Fuel Store until such time as the leaking fuel element(s) are removed from the cask. This is an operation that has not been done before in the UK and so the cask remains in the cooling ponds at Sizewell B until such time as the cask can be opened and the defective fuel rod removed.

The Fuel rod will then have to remain in the cooling ponds and cannot be moved into a Dry Fuel Cask in this condition. It is not clear what the final solution to managing this fuel rod will be.

A Dry Fuel Store is proposed at Sizewell C and the cooling ponds are sized with the expectation that spent fuel will be cooled to the point that they can be placed into Dry Fuel casks. If leaking fuel rods are a significant issue and cannot be moved into Dry Fuel casks, there is a danger that the cooling ponds will have insufficient capacity as they are sized against a low (but not zero) expectation of fuel rod failure.

At Hinkley Point, no Dry Fuel Store was proposed with the DCO application and a request to make an application change to reduce the cooling ponds size and add a Dry Fuel Store was rejected as it was considered a material change. It is likely that a separate application will be made for Hinkley Point C later once the station is operational. However, the issue raised above for Sizewell C, should a larger number of fuel rod failures occur, applies equally for Hinkley Point C whether or not a Dry Fuel Store application is made.

### **b. EPR - a failed design**

When Hinkley Point C was agreed and Sizewell C proposed as the “follow-up” development, one of the conditions of the UK’s offer of loan guarantees was that the Flamanville 3 reactor would be successfully operating. With Flamanville 3 development now suspended, Olkiluoto 3 will be the first operating EPR in Europe, assuming the current testing and fully operational connection to the grid is successful in the middle of 2022. However, the design of Olkiluoto 3 is modified with a vibration damper fitted and so will not necessarily reflect performance at Hinkley Point C or any additional reactors at Sizewell if there are design and implementation differences.

The French government, which is 80% owner of EDF, has indicated that it is interested in building six new EPR2 reactors (*not* EPRs) at a quoted cost of £46bn, compared to the current £23bn forecast for the two Hinkley Point C EPRs and unknown cost for two EPRs at Sizewell C. It has also expressed interest in SMRs alongside continuing expansion of its renewables programme.

So, it is evident that the French government has lost interest in the existing EPR design and may yet have an unstartable reactor on its hands at Flamanville.

ASN has told EDF that its EPR2 design (which uses the same reactor as the EPR) must not have the vibration issue that affects the EPR when it is submitted for ASN approval. [The report](#) states “IRSN recommends that Framatome identify the origins of the high vibrations of the expansion line of the pressurizer observed on various EPR reactors and present, at an early stage of the design, the changes required on future EPR2 reactors to overcome this vibration problem”.

Whilst there are several expressions of interest from countries such as Poland and India, until the Taishan problems are resolved, it is unclear whether these expressions will result in projects being contracted.

With EDF and the French government now focusing on EPR2, the existing EPR is clearly a design that even EDF has now consigned to the history books as too complex and yet a question still remains as to whether the primary vibration problem can be resolved in either design.

Why would the UK consider commissioning a further two of these failing, expensive and overly complex discredited designs?

### **c. Who pays?**

Whilst Hinkley Point C is being built on EDF and China General Nuclear's books and will not receive any public or consumer funds until the reactors are producing electricity to the grid, this will not be the case for Sizewell C, should RAB be used as a funding approach.

Any approval of this development, with its currently flawed and rejected EPR design, using RAB as a funding mechanism, will transfer risk of cost escalation and construction delay financing onto taxpayers (via the government), third party investors (such as UK pension funds) and the UK consumer through the RAB levy.

A RAB-type levy approach - called Early Cost Recovery - used in the USA has resulted in consumers being left with billions of dollars of costs for nuclear plants that have catastrophically overrun and/or have never been completed.

## 13. The Applicant's Additional Benefit Claims

Alongside the spurious claims of 19% Biodiversity Net Gain, there has also been increase in the claims that further benefits are possible through:

- District Heating
- Thermally enhanced Hydrogen generation
- Carbon Dioxide sequestration by thermally enhanced Direct Air Capture

For either of the thermally enhanced proposals, both of which are currently being evaluated, it would be preferable for any plant to be as close as possible to Sizewell to avoid the installation of long, thermally lagged pipework from the secondary/tertiary cooling system of the reactor to the production site.

In all three cases there will also be a discussion to be had with the Office for Nuclear Regulation regarding modification of the reactor cooling system alongside the seawater cooling planned for Sizewell C, despite the Applicant's Mr. Cadoux-Hudson stating there would be no changes to the design of the EPRs for Sizewell C.

### a. District heating

It is perhaps instructive that the initial stories about District Heating have already subsided and, despite EDF being part of the [Leiston Net Zero](#) project, that District Heating does not form any part of those proposals. District Heating suffers from the same issue as the thermally enhanced proposals and is constrained by the fact that reactors do not operate continuously, thus there is a potential issue should one or both reactors be off-line for an extended outage period. There are also significant issues trying to retrofit District Heating into existing/older properties with poor thermal efficiency and/or restricted access. It is a technology that potentially works well in purpose-designed accommodation or large commercial developments with heat requirements, but there is still an issue of a replacement heat source at outage times and at the end of life of the reactors.

### b. Hydrogen

Initially there was a flurry of stories about hydrogen generation for the Port of Felixstowe to power some of their on-site vehicle requirements. Once the suggestion that this could be based at the Sizewell site had been rejected (little available space and potential issues with Office for Nuclear Regulation approval given that both hydrogen and the oxygen byproducts are potentially explosive), it became obvious that the hydrogen generation units would probably be based at Felixstowe and the only requirement was for electricity from the grid which could be supplied by EDF but could just as easily be contracted to any other commercial supplier.

There have also been suggestions that Sizewell C construction vehicles and potentially Park and Ride Buses could be powered by hydrogen generated at, or close to, Sizewell from power provided by Sizewell B. However, there are few, if any,

details of this in the DCO proposals and the assumptions and Environmental Impact Assessments are all based on conventional internal combustion power.

### **c. Direct Air Capture (carbon dioxide)**

Direct Air Capture, whether thermally enhanced or not, will require a significant footprint to operate at scale and, assuming the thermal enhancement is viable, will need to be reasonably close to Sizewell C. The closest potential site would be Land East of Eastlands Industrial Estate once the use of this land for the Sizewell C development is finished. The land is arable at present and the stated intention is to return it to arable use, so it would require a change of use and appropriate planning permission. This may be difficult due to the nature of Direct Air Capture, which uses high volume air fans as part of the carbon dioxide extraction process, and the proximity of the site to residential and commercial properties in Leiston.

## **14. Conclusion**

Given growing concerns over the EPR design, the escalating costs and schedule overruns experienced at all nuclear reactor developments and especially at EPR developments, it is time the UK government stopped this experimental dalliance with the “not-so-new” EPR that is showing itself to be significantly flawed as a design, potentially problematic in operation and still with unknowns in managing its spent fuel.

Add to those the issues the proposition to build two more reactors in an environmentally sensitive biodiverse location, on an eroding coast with significant flood risk during a time of sea level rise, a lack of suitable infrastructure to deliver the millions of tonnes of materials to the site, potential impacts to the existing economy, a timeframe that makes it too late to make any significant contribution to 2030 or 2050 decarbonization targets, and the conclusion must be that the money can be better spent on generation projects that are quicker to deliver and fit better with the flexible grid that the UK needs and is being pursued by the Electricity Supply Operator at the National Grid.

**Sizewell C is the wrong project, in the wrong place at the wrong time.**

Please refuse to grant permission for the development as it is not in anyone’s interest to permit what could easily become the third and fourth white elephants in the UK and, in Sizewell C’s case, with a significant bill falling squarely on the tax-payer and consumer through the use of the Regulated Asset Base financing proposal, should it be approved and subsequently applied to Sizewell C.