



Together Against Sizewell C

Deadline 10 Submission TASC IP no. 20026424

TASC comments on, and oral representations at, ISH15

(Temporary Desalination Plant [DP])

Before covering the actual agenda items we first would like to draw PINS' attention to procedural matters of concern: (i) TASC remain disappointed that Natural England and the MMO were, yet again, absent as, in our opinion, this has resulted in the Examination being less robust than it should have been, and (ii) TASC are disappointed that Mr Brock considered it necessary to treat TASC'S marine expert, Dr Peter Henderson in a less than respectful manner. After Dr Henderson had been waiting approx. 5 hours to make a contribution, the agenda item on which he was due to speak was initially overlooked by the ExA which led to Dr Henderson truncating his statement. When he subsequently raised a short issue omitted in his first statement, he was criticised by Mr Brock. We note that this treatment of Dr Henderson was a repeat of what happened to him at the earlier ISH7 hearing he attended on TASC'S behalf. A most unfortunate state of affairs which creates the impression that the non-statutory interested parties are not afforded the same respect as the Applicant.

2. Water Supply update:

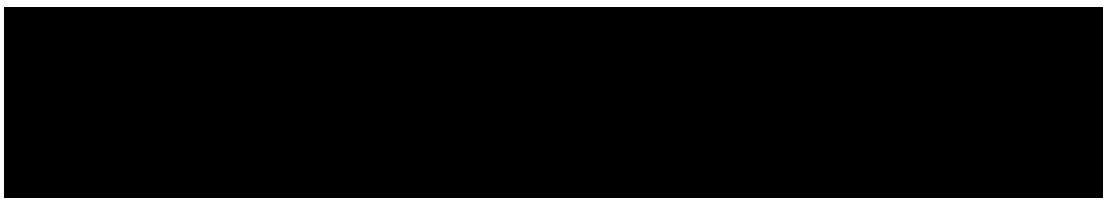
Following the discussion at ISH11, the parties to provide an update on the Water Supply Strategy with particular reference to:

Period prior to the temporary desalination plant being operational;

Pete Wilkinson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

In January 2021, the applicant dismissed the idea of desalination as a source of its potable water supply. As set out in TASC'S consultation response we asked the following questions in this regard:

- **Could the Applicant explain why there is now a proposal for the very technology it had previously discounted?**
- **Can the Applicant explain what has changed in respect of its assessment regarding the adverse impacts of desalination of seawater and why it now claims that the discharge of brine is acceptable?**
- **Will the Applicant publish the original assessment of the impact of desalination which supported its view in January 2021?**



In TASC's view, these questions are centrally relevant to the issue of water supply in that it appears at face value that the applicant is pursuing a solution to its problem in which it has no confidence or faith as an appropriate technology.

In terms of specific matters, TASC ask:

- **what is the definitive location for the source of the tankered water? Without this there can be no assessment of the impacts e.g. on designated wildlife sites and water management zones;**
- **will transfer of water to a tank or container be required and if so, where will that storage tank be sited and how big will it be?**
- **will the tankered water need to be purified and/or chemicals added?**
- **if so, what chemicals will be required and where will the chemicals be stored?**

Period of operation of the temporary desalination plant, including the transfer of the temporary plant to the Temporary Construction Area;

Chris Wilson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

TASC are concerned that document ES 4th Update REP7-030 is riddled with the words 'assumption' and 'assume', thereby providing no confidence in the accuracy of what is set out in the document. A prime example is para 3.2.32 that says the Applicant 'assumes' the DP relocated in the TCA will not require diesel generators; given the proximity to the SSSI and RSPB Minsmere's SPA and Ramsar Site this 'assumption' is inadequate, TASC say certainty is required.

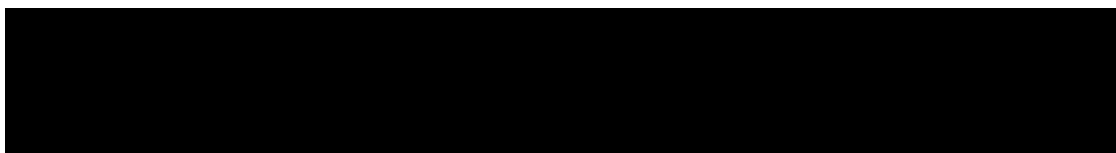
REP7-030 para 3.2.25 says "*Once constructed, the modular desalination plant would initially be capable of producing up to approximately 2,600m³ of potable water per day. In the event that the water transfer main is not complete by the fourth year of construction, additional modules would be added to the plant to create the ability to produce up to approximately 4,000m³ of potable water per day.*"

- **How many additional modules and when will they/it be constructed?**

Current indications are that the desalination plant will be required for duration of construction so -

- **will it still be modular or one/two larger plants from the beginning?** (Para 3.2.27 says, 'The assumed technology [again the word assumed is used!] is *Sea Water Reverse Osmosis (SWRO) desalination. The plant would consist of up to approximately nine containerised plant modules with associated chlorination units, equipment and other tanks. The plant is assumed to operate up to 24 hours per day.*)
- **How long will it take to transfer to the Temporary Construction area take?**

TASC are concerned about the potential leakage of saline water into the SSSI. The documentation states that it is 'assumed' that "the pipework will run across the SSSI crossing above the soffit level of the bridge."



- **Why has it been decided to locate the DP so close to RSPB Minsmere?
What alternative locations have been assessed?**

Looking at Figure 1-2 phase 2 indicative location in document 9.117 [REP9-026], it shows the DP pipework crossing the roadway to the BLF and taking a route around the edge of the site.

- **How will these pipes be protected to remove the risk of accident from construction activities, which would put nationally and internationally designated sites at risk of pollution?**

TASC would also like clarification of the length of time the diesel generators will be in operation. Para 1.1.3 of 9.116 [REP9-025] ‘SZC Desalination Plant Greenhouse Gas Assessment’ says, ‘the plant has been assumed to be operating from a diesel-fuelled generator for approximately 244 days’, yet in para 1.1.5 in 9.117 [REP9-026] ‘SZC Desalination Plant Air Impact Assessment’ it says, ‘It is assumed that the required 2 x 800kW diesel generators would be operational on the main platform site for a maximum period of three years.’

Period when Temporary Construction Area is being reinstated and operation of the Proposed Development.

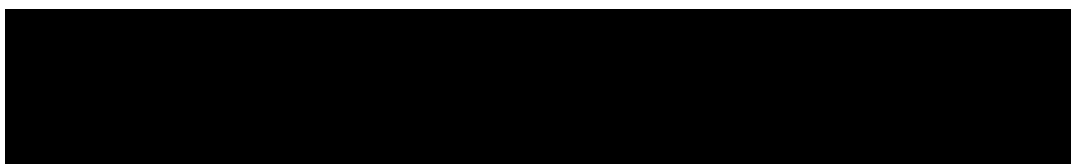
Pete Wilkinson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

- **How long is the decommissioning of the DP proposed to take and is there a requirement that it must be removed by a certain stage, presumably no later than when construction is finished?**

The fact that after a decade of community members expressing their concerns over the source of sustainable potable water supply for SZC in one of the driest regions of the country, the Applicant cannot demonstrate there is one, TASC believes, calls into question the competency of the Applicant and whether the DP will actually be temporary. If approval is granted and construction is allowed to proceed without a definitive source of potable water for the entire 60 years of operation, the Applicant could end up with a permanent DP by default. Based on EDF’s past actions, such as those evidenced at HPC where they are attempting to renege on their agreement to install an acoustic fish deterrent, TASC believe there needs to be a requirement for prompt removal of the DP to ensure it is temporary.

The Applicant should make clear any aspirations it has to operate the DP on a permanent basis for the operational phase of SZC to 2095, or beyond in the likely event of an over-run in construction time. TASC point out that the added demand on scarce water sources over such a long period of time will have consequences for domestic and agricultural requirements as climate change impacts make the availability of potable water uncertain. TASC consider that it would be untenable that domestic supplies anywhere, not just Suffolk, should ever be allowed to be put under intolerable pressure due a need to meet SZC’s operational requirements for potable water.

3. The Environmental Assessment and the environmental implications of the proposed temporary desalination plant including matters relevant to the Habitats Regulations Assessment:



(a)The additional environmental assessments and supporting documentation submitted in connection with the proposed temporary desalination plant.

Pete Wilkinson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

- The Applicant’s desalination documents repeatedly refer to estimated impacts to be of ‘minor adverse effect’- where are the assessments leading to these conclusions provided in the DCO documents?

Dewatering, dredging and other activities which require disturbing the sediments, will cause resuspension of any radioactive particulates released by SZA and SZB, into the marine environment. Radioactive particles in the water body can be dangerous to health, particularly if inhaled or ingested if re-suspended either by white water ‘spume’ or by the action of the tides, wind and sun.

- **What safeguards does the applicant intend to put in place to prevent this happening or to monitor such releases to the atmosphere?**
- **How will the effluent be monitored and by whom?**

In Rep7-030, at 3.4.2 and 3.4.3, the Applicant informs us that the DP will create up to 14 tonnes of ‘dewatered sludge cake per day’, classed as non-hazardous waste.

- **What radionuclides will be contained in the sludge?**
- **What is the classification of the sludge cake (i.e. LLW, VLLW, free release?)**
- **What is the disposal procedure and final destination of this material?**
- **What will be the impact of the desalination plant’s operation have on SZB, particularly on its cooling water system?**

Emma Bateman, on behalf of TASC made an oral contribution, the basis of which was included in the following:

In June 2021 the Climate Change Committee produced the UK’s Third Climate Change Risk Assessment (CCRA3). This identified eight priority risk areas in need of urgent attention. The primary threat is from “*Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards.*”¹

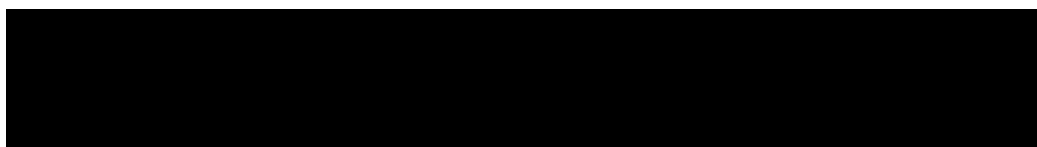
Overall, the abundance and distribution of UK terrestrial and freshwater species has declined by 13% since 1970. Climate change has the potential to cause irreversible losses in some species and habitats², and we are already at the point where more than one in five water ecosystems in England are at risk from irreversible damage because too much water is being taken from them.³

The introduction of a completely new water supply strategy in the form of a desalination plant that has rapidly extended from providing a temporary supply for the first 3 or 4 years to

1 [Independent-Assessment-of-UK-Climate-Risk-Advice-to-Govt-for-CCRA3-CCC.pdf](#)

2 [Independent-Assessment-of-UK-Climate-Risk-Advice-to-Govt-for-CCRA3-CCC.pdf](#)

3 [Metering will save us water sooner - NIC](#)



a supply solution for the whole construction period and perhaps beyond has left interested parties with little time to gather the required research to respond comprehensively. This attempt to secure a water supply has been carried out in a manner that is opposite in every way to the guidance set out in planning inspectorate advice note 18 on the water frame directive which states:

3.2 Applicants should ensure that sufficient information concerning compliance with the requirements of the WFD [Water Framework Directive] is submitted with an application. Applicants are therefore strongly advised to use the pre-application consultation process to obtain advice from the EA and/or NRW (as appropriate) to verify that all relevant water bodies have been considered, together with all potential effects on these water bodies, and whether the requirements of the WFD have been met, before an application is submitted.⁴

4.6 The WFD screening stage and any subsequent WFD assessment should commence early in the pre-application process. In particular, Applicants should consider early discussions to inform their evidence gathering process⁵

Instead we have the opposite scenario, with the Environment Agency and Natural England, primary consultees, scrabbling around trying to keep up with the 19 changes.

In a briefing note for ISH 15, Natural England outlined the misgivings and highlighted shortcomings in the applicant's monitoring and data. It is clear that Natural England feel that they do not have sufficient accurate data to make an assessment.

2.1 “Natural England would expect further information to be provided by the Applicant and/or water company with definitive identification of sources of supply and the environmental implications.⁶”

2.2 [W]e would expect a similar level of scrutiny on the impacts of utilising other sources of water supply as mentioned in the Water Strategy document (e.g. the tankered water supply prior to the operation of the temporary desalination plant). Without such evidence, Natural England is unable to advise on whether or not this key element of the project proposals may have impacts on wider protected sites in the Northern/Central WRZ which are not currently assessed within the Development Consent Order (DCO).⁷

*3.1 We would like to draw the ExA’s attention to the Applicant’s Environmental Statement (ES) Addendum Fourth Addendum [REP7-030] which outlines further work undertaken to assess the impacts of the proposed temporary desalination plant and new water supply strategy. **We note that several impacts which have been brought forward through the screening process are deemed to need no further assessment as they have been captured in the original assessment work. However, in many of these***

4 [Advice Note Eighteen: The Water Framework Directive | National Infrastructure Planning \(planninginspectorate.gov.uk\)](https://planninginspectorate.gov.uk/advice-note-eighteen-the-water-framework-directive/)

5 [Advice Note Eighteen: The Water Framework Directive | National Infrastructure Planning \(planninginspectorate.gov.uk\)](https://planninginspectorate.gov.uk/advice-note-eighteen-the-water-framework-directive/)

6 [EN010012-007827-EN010012_368644_SZC_Natural England's Briefing Note for ISH15.pdf \(planninginspectorate.gov.uk\)](https://planninginspectorate.gov.uk/EN010012-007827-EN010012_368644_SZC_Natural%20England's%20Briefing%20Note%20for%20ISH15.pdf)

7 [EN010012-007827-EN010012_368644_SZC_Natural England's Briefing Note for ISH15.pdf \(planninginspectorate.gov.uk\)](https://planninginspectorate.gov.uk/EN010012-007827-EN010012_368644_SZC_Natural%20England's%20Briefing%20Note%20for%20ISH15.pdf)

instances very little justification is given for these decisions, making our review of these conclusions impossible at this stage.

3.4 *Natural England was assured by the Applicant that this is a worst-case scenario and would not reflect the routine operating situation, therefore the likelihood of this significant impact occurring would be low. **It is difficult to understand how the addition of multiple diesel generators which would be running for a greater duration annually would not change these scenarios and require no further detailed assessment.*** 3.5 *Natural England advise that further justification and consideration is given to this issue and others where no further detailed assessment has been undertaken.*

4.2 *Natural England's primary concern is the level of detailed assessment given to air quality impacts on Minsmere and Walberswick Ramsar, SPA and SAC.*⁸

The Marine Management Organisation is another crucial Interested Party which also expressed reservations about the rushed process.

*The MMO would like to take this opportunity to raise our concerns regarding the timescales of the final deadlines for this Examination. Whilst we are working to provide our advice in line with the requests for each deadline, **there appears to be a number of outstanding matters that have yet to be fully addressed.** The MMO makes its best efforts to provide the most robust advice as possible but with the remaining deadlines falling less than a week apart, the concern is that this is not enough time to undertake our final considerations to their fullest*⁹

The Environment Agency has a duty to ensure that the requirements of the Water Framework Directive can be met throughout the project. To fulfil this obligation it is necessary to have a thorough understanding of the effects of the plans on all relevant water bodies. However the submissions from the Environment Agency have consistently outlined areas in need of further assessment, and they have made it clear that the current research and monitoring is inadequate.

*“Our detailed comments are contained in Annex A of this response. In summary, we have significant concerns with the Draft Fish Monitoring Plan as proposed. These concerns relate to the duration of monitoring, proposed methodologies used to consider impacts and how agreement is reached in deciding to provide further mitigation and/or compensation for impacts to fish.”*¹⁰

“Currently there is no agreement to the estimated numbers of fish and other biota predicted to be impinged at SZC, or the degree of mitigation offered by the proposed SZC intake design, or agreement on the significance of those losses. Given these issues there needs to be a process to mediate or resolve disputes with in MTF [Marine Technical Forum]”.

8 [EN010012-007827-EN010012_368644_SZC_Natural England's Briefing Note for ISH15.pdf \(planninginspectorate.gov.uk\)](#)

9 [EN010012-007480-DL8 - Marine Management Organisation - Other- Full Submission.pdf \(planninginspectorate.gov.uk\)](#)

10 [EN010012-007727-DL8 - Environment Agency - Comments on Deadline 7 Submission - 9.89 Draft Fish Monitoring Plan - Revision 1.0.pdf \(planninginspectorate.gov.uk\)](#)

“There is a substantial amount of information still to be submitted by the Applicant.”¹¹

‘Eels and Migratory Fish Monitoring and Mitigation’. We are concerned there is little time to resolve these issues prior to the close of examination and ensure that the obligations on the Applicant are legally secured.”¹²

With regard to the position of the Marine Technical Forum, it is unsettling that the experts cannot agree on fundamental aspects of the effects of the project on marine life, for instance, how many fish would be killed.

Even the applicant has not been able to do all the necessary work to produce the required figures in the short time span allowed.

2.1.4 At this stage, the carbon focused [Life Cycle Assessment] LCA has not been updated to include the desalination plant as the time required to do so (including updating the calculation, report and undergoing the verification process) would not be possible in the short amount of time this addendum has been prepared.¹³

In addition it is not explicit whether the calculations for the desalination plant cover just the first plant or both of them, because the desalination plant is to be deconstructed and rebuilt after the first few years. The applicant’s desalination plant greenhouse gas emissions assessment states that:

“Reusable items and materials were not included in the embodied carbon calculations as it was assumed these are temporary materials and will be reused after construction.”¹⁴

The construction of the desalination plant requires significant quantities of materials including 10,009 tonnes of aggregates.¹⁵ It is described as a modular plant so it is unclear where these aggregates will be used and whether they are classed as reusable, though the applicant implies they can be 'reused if required', which indicates that they may not have been included in the embodied carbon calculations.

2.1.5 Decommissioning of the on-site plant would involve removal of the containerised plant modules via wagons and mobile cranes. Associated tanks would be stripped down to foundations and removed off site. The remaining concrete foundations would be broken up and crushed for storage on site and reused if required.¹⁶

The applicant has said that there would be little significant environmental effect as a consequence of the desalination plant, but the concerns expressed by the various NGO's

11 [EN010012-007718-DL8 - Environment Agency - Site Water Supply Strategy – Revision 2.0.pdf \(planninginspectorate.gov.uk\)](#)

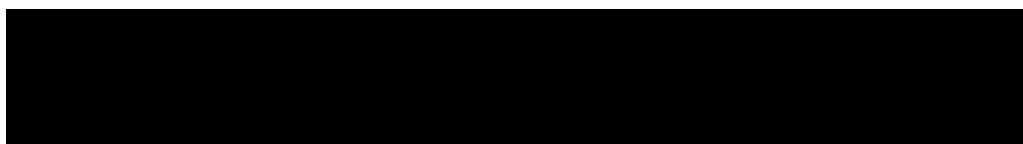
12 [EN010012-007723-DL8 - Environment Agency - Comments Change 19 - Temporary Desalination.pdf \(planninginspectorate.gov.uk\)](#)

13 [EN010012-007810-Sizewell C Project - Other- Sizewell C Desalination Plant Greenhouse Gas Emissions Assessment.pdf \(planninginspectorate.gov.uk\)](#)

14 [EN010012-007810-Sizewell C Project - Other- Sizewell C Desalination Plant Greenhouse Gas Emissions Assessment.pdf \(planninginspectorate.gov.uk\)](#) para 3.2.1

15 [EN010012-007810-Sizewell C Project - Other- Sizewell C Desalination Plant Greenhouse Gas Emissions](#) 3.3.1

16 [EN010012-007165-Sizewell C Project - Other- SZC Bk8 8.14Ad2 Ch WFD Assessment Report Second Addendum.pdf](#)



throw into doubt the claims that the current proposals for a plant have been subjected to a vigorous environmental assessment.

The applicant frequently compares the predicted emissions from the desalination plant to the figures for the Sizewell C project as a whole, and claims that in comparison the figures for the desalination plant are negligible. It seems unreasonable to compare the desalination plant emissions to the entire Sizewell C project and pronounce them insignificant. This would be the largest building site in Europe, and any single segment is negligible compared to the vast overall quantities.

“2.1.4 The conclusion to this addendum shows the estimated GHG emissions of the desalination plant are negligible relative to the estimated total construction and life cycle emissions of Sizewell C.”¹⁷

We see that in the latest Statement of Common Ground with Northumbrian Water Limited (NWL), the applicant has agreed to withdraw the threat of using the Water Industry Act to force NWL to supply the water, and NWL has committed to supplying the water (subject to Protective Provisions). It appears that the river Waveney remains the preferred water source. The SOCG confirms the plan to use the river Waveney if the WINEP modelling suggests there is sufficient headroom remains a possibility.

“If subject to the results of the additional “WINEP” modelling the EA confirm the new annual licensed quantities of water for NWL’s River Waveney abstraction and the EA’s associated WAGS licence, and NWL also confirm there is sufficient water resource in the Northern Central WRZ to meet forecast demand from existing customers; as well a forecast demand from future customers NWL remain committed (subject to the terms of the Agreed Protective Provisions) to supply Sizewell C’s long term water”¹⁸

If the river Waveney forms part of the plans for the long term solution after the temporary desalination plant, it should be regarded under the Water Framework Directive assessment for the desalination plant because creating new supply infrastructure to serve Sizewell C is certainly going to affect the Waveney if that is the source of the water. The scope of the WFD assessment should be wide and include all affected bodies of water as Natural England outlined in discussing the environmental impact on the source for the tankered water.

“4.3 Natural England also raise the potential for there to be further European sites impacted by water abstraction which could be scoped into the assessment depending on where tankered and eventually mains water is sourced from.”¹⁹

The aim under the WFD is for all rivers and water bodies to achieve high or good status.

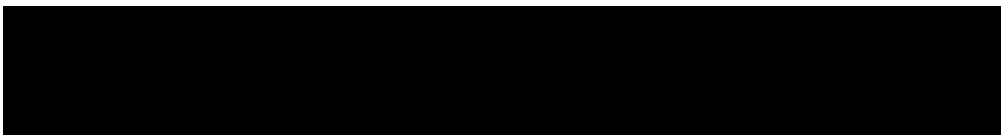
The Water Framework Directive regulations state that, subject to a list of conditions,

*19 (2) “A failure to prevent deterioration **from high status to good status** of a body of surface water is not a breach of the environmental objectives set for it under regulation 12”*

17 [EN010012-007810-Sizewell C Project - Other- Sizewell C Desalination Plant Greenhouse Gas Emissions](#)

18 [EN010012-007801-Sizewell C Project - Other- Statement of Common Ground - Northumbrian Water Limited.pdf \(planninginspectorate.gov.uk\)](#) table 2.1

19 [EN010012-007827-EN010012_368644_SZC_Natural England's Briefing Note for ISH15.pdf \(planninginspectorate.gov.uk\)](#)



The status of the River Waveney falls below good and is currently classified as only 'Moderate'.

4.5.2.1 *“Environmental Baseline Beccles-Marsh Lane WRC discharges to the River Waveney. The River Waveney currently has an overall water body status of ‘Moderate’, with the alternative objective to maintain ‘Moderate’ status by 2021.”*²⁰

The section from the WFD above indicates that the exemption can only apply to rivers that are already at good status. It would make sense that surface water bodies that are only moderate should not be allowed to deteriorate further, and that the development must not permanently exclude or compromise achievement of the WFD objectives to restore the river to a 'good' status.

The applicant has been at pains to stress the temporary nature of the desalination plant. Given the uncertainty over the delivery of a permanent supply and the recent suggestion from NWL that the applicant should consider developing their own permanent supply, it is reasonable for interested parties to question whether it is possible that the status of the desalination plant will be altered from temporary to permanent once the reactor is built. Some of the environmental assessments make it clear that the temporary nature of the desalination plant is a factor in the assessment of environmental effect. For example the MMO has stated:

*“The MMO understands that the proposed temporary desalination plant is intended to supply water during the construction phase only. Should the plant be required to supply water into the operational phase then MMO considers further detailed assessment will be required”*²¹

We believe that it is inconceivable that Sizewell C would be allowed to fail once £20+ billion has been sunk into it, and a water supply would be demanded, even if it proved to be detrimental to the environment and other users. We are concerned that once in place, there would be a presumption that the plant should be retained even if the further assessments revealed a greater degree of impact than anticipated.

In the course of the Appeal to allow the Hinkley Point C developers to remove the requirement to install an Acoustic Fish Deterrent, a Statement of Case was put forward on behalf of the Environment Agency. It outlined the regulatory position of assessment under the Habitats Directive including emphasising that it is not sufficient to conclude that it is unlikely that the development will have an effect on relevant receptors. Instead the competent authorities can agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned.

*“The competent authority may only grant consent for a project following an appropriate assessment if it is “convinced” that the project will not adversely affect the integrity of the site concerned. Where doubt remains as to the absence of adverse effects on the integrity of the site, the competent authority will have to refuse authorisation.”*²²

20 [Mark Stevenson Report Chelmsford City Council Water Cycle Study 2016-11-17 \(eastsuffolk.gov.uk\)](http://eastsuffolk.gov.uk)

21 [EN010012-007835-20211004 MMO submission in lieu of attendance at ISH 15.pdf \(planninginspectorate.gov.uk\)](#) 3.1.1

22 [Environment Agency Statement of Case final 171120.pdf \(environment-agency.gov.uk\)](#)

Case law referred to by the Environment Agency and other interested parties in the course of the appeal highlighted that a positive assertion that no harm would result from the changes to the plans is required rather than an absence of proof of harm.

The statement of case lists over 20 examples wherein the Environment Agency states that it is “**not possible to conclude no adverse effect.**”²³

The responses to the plans for the desalination plant clearly demonstrate that the competent bodies are under pressure to approve plans that they have not had time to thoroughly scrutinise. This is not in keeping with the obligations under the Habitats Directive.

Examples of case law are given by the Environment Agency and other IP's which illustrate that producing comprehensive environmental assessments is imperative.

Case C- 127/02 Waddenzee which reads at paragraph 61:

*“Article 6(3) of the Habitats Directive, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field.”*²⁴

Case C-441/17 Commission v Poland (Białowieża Forest), where it was held that there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the area in question on the date the decision is made by the authority.²⁵

Case C-323/17 People Over Wind & Sweetman, where it was held that an assessment may not have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works on the protected area concerned. (CD Ref SEI 12).²⁶

Case C-404/09 European Commission v Kingdom of Spain, it was held that for a breach of Article 6(2), it is sufficient “to establish the existence of a probability or risk that that operation might cause significant disturbances for that species”. (Paragraph 142) (CD Ref SEI 14).²⁷

The applicant asserts that the environmental assessments that have been undertaken to date are sufficient for the desalination plant to be approved. However, as is the case at Hinkley, CEFAS are responsible for monitoring and analysing the marine data relied on at Sizewell C. CEFAS were criticised for producing unreliable data during the Hinkley AFD appeal.

*(a) the scientific evidence of the commercial arm of CEFAS, on which the Appellant relies to support its case, is incorrect, incomplete, erroneous in parts and significantly flawed; and on that basis the assessments carried out cannot be relied upon to the degree of certainty required;*²⁸

23 [Environment Agency Statement of Case final 171120.pdf \(environment-agency.gov.uk\)](#)

24 [DEFRA file sharing service \(sharefile.com\)](#)

25 [DEFRA file sharing service \(sharefile.com\)](#)

26 [DEFRA file sharing service \(sharefile.com\)](#)

27 [DEFRA file sharing service \(sharefile.com\)](#)

28 [DEFRA file sharing service \(sharefile.com\)](#)

*(b) allowing this appeal based on flawed CEFAS assessments would amount to a breach of Article 6(2) of the Habitats Directive / Regulation 9 of the Habitats Regulations and Article 6(3) of the Habitats Directive / Regulation 63 of the Habitats Regulations;*²⁹

Taken in conjunction with other reservations expressed by statutory consultees and NGO's over the poor quality of monitoring and testing carried out by the applicant, the criticism of CEFAS throws doubt on the adequacy of the assessments undertaken to ensure compliance with the Habitats Directive.

We believe that it is obvious that despite the copious number of briefings, updates and findings produced by the applicant in the hope of giving the impression that a thorough environmental investigation has been undertaken for the desalination plant, in reality this is a hasty desperate measure introduced without adequate assessment or investigation into the consequences for the local environment and water supply. The applicant has failed by a wide margin to prove that the desalination plan would have no adverse effect on the integrity of the site and so the desalination plant, along with the rest of the Sizewell C plans should be definitively rejected as not fit for purpose.

Transport implications, including the Heavy Good Vehicle (HGV) deliveries and any Abnormal Indivisible Loads (AILs) associated with the water tankers during the early stages of Sizewell C construction, and the construction and demolition of the temporary desalination plant.

- **What route will the tankers take to the site, and from where, in the early months while the desalination plant is being constructed?**

TASC were extremely concerned to hear that it appeared HGV movements in the 'early years' appear to exceed those in the peak period.

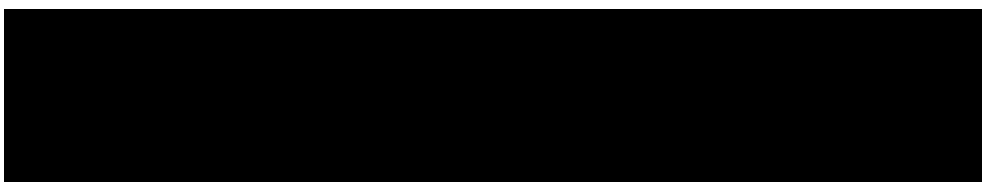
Noise and vibration, including that associated with the additional construction plant and activities within the main development site and additional activities within the marine area and having regard to any additional impacts upon relevant internationally and nationally designated sites.

Chris Wilson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

Particularly as the indications are that the desalination plant will likely be required for the entire 12 years of construction activities, TASC consider that the noise and vibration impacts should not be dismissed so readily by the Applicant, particularly given the nationally and internationally designated sites adjacent to the site and the potential impact on wildlife, such as bats.

- Therefore, TASC consider detailed noise and vibration assessments should be conducted by the Applicant to determine whether the cumulative levels exceed those that are deemed acceptable.

²⁹ [DEFRA file sharing service \(sharefile.com\)](https://www.sharefile.com)



(α) Air quality, including those associated with the introduction of additional on-site diesel generators within the main development site and any additional impacts upon relevant internationally and nationally designated sites.

Jenny Kirtley, on behalf of TASC made an oral contribution, the basis of which was included in the following:

Doc 9.117 REP9-026 refers to the 2 diesel generators being modelled in isolation, but TASC consider that the cumulative impact from other activities on the development needs to be assessed. TASC are concerned that there is no assessment of PM2.5s and PM10s:

- **why have these not been modelled?**
- **TASC consider that the Applicant needs to undertake an assessment on the human health impacts from the diesel generators and other aspects of the DP operation.**

TASC have consulted Jenny Bates, an air pollution campaigner at Friends of the Earth HQ who has advised us as follows:

“The developer does not seem to have updated their air quality assessment on ambient air quality relevant for human health to incorporate the proposed diesel generators to power the proposed desalination plant, as they have for habitat sites – this must be done.

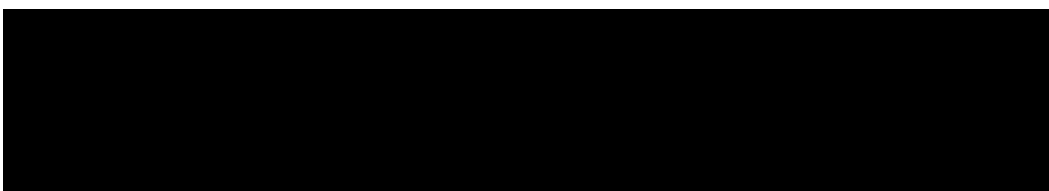
“The World Health Organisation’s (WHO) International Agency for Research on Cancer (IARC) has declared diesel exhaust to be carcinogenic to humans, a cause of lung cancer, in the same category as smoking, and thus emissions from diesel generators must be taken extremely seriously.

“The re-assessment must include not only NO2 concentrations, but also Particulate Matter, including both PM10, and PM2.5 which must at least be done using the surrogate of PM10 levels assessed against PM2.5 criteria.

As the aim is to protect health, criteria for assessment of pollutants should be not just be current UK legal levels but the new WHO guidelines recently revised to protect health.”

- **TASC request that there is a requirement for the diesel generators to be removed once the electrical supply is connected.**

Coastal Geomorphology, including any effects arising from the introduction of new infrastructure and construction activities within the marine environment, with particular regard to the effect of intake and outfall headworks on coastal processes and any additional impacts upon relevant internationally and nationally designated sites.



Landscape and visual implications, including the impact of equipment associated with the temporary desalination plant, with particular regard to any additional landscape impacts on the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) associated with the construction and siting of a containerised desalination module.

Chris Wilson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

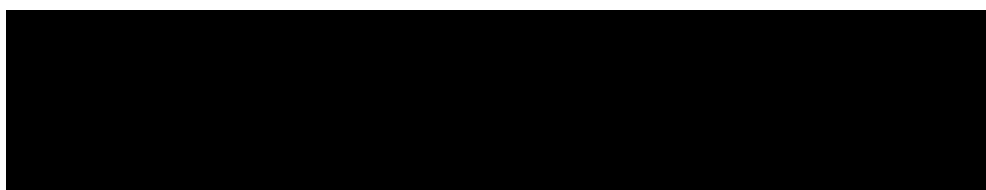
It seems the applicant is effectively saying the impact from construction is so bad that any additions aren't worth considering. The DP will be there from the beginning, possibly permanently at the end of the day. So, it seems reasonable that there will be additional impacts that need to be assessed, particularly to meet the requirements under EN1 to minimise the impacts on AONBs.

REP7-030 Para 3.2.29 says "*The plant would initially be located in the main platform area (see Volume 2, Figure 3.1 of this Fourth ES Addendum). The height of the equipment is assumed to be up to 10m above ground level. Mobile crane units and a directional drilling rig are likely to be required to install plant and drill the intake and outfall tunnels. The rig is assumed to be temporarily sheet piled into the ground for stability.*" Similarly with other aspects of the SZC project, in this case the Applicant's inability to source a sustainable water supply, means that the AONB will, once again, suffer the consequences incurring further adverse impacts. The Applicant's documents infer that because it is a building site anyway that adding another activity will have no noticeable adverse impact. However, this conclusion made by the Applicant appears to have been made without assessment of the impact on, and with no reference to, the site being in a nationally designated landscape. TASC consider that this large 85 x 70 metre structure, together with the cranes etc used during its construction and associated other works, add yet another 24/7 noisy, polluting process to the AONB and the surrounding environment of protected sites, demonstrating that the entire SZC project is not suitable for this location. The addition of a DP will not conserve or enhance the landscape qualities of the AONB nor contribute to the tranquillity, scenic beauty and relative wildness of the AONB and therefore adds more weight to why TASC believe the ExA's recommendation should be refusal of planning permission for SZC.

- **TASC request that the Applicant supplies visualisations of the DP in both locations, particularly from the beach, the tank traps and the Coastguard Cottages on Dunwich Heath.**

Marine historic environment implications, including the impact of horizontal directional drilling and dredging with particular regard to buried archaeological remains.

Marine water quality, sediments, and ecology, including the Water Framework Directive and any effects arising from the introduction of new infrastructure and construction activities within the marine environment, and impacts of use, abstraction, discharge and hypersaline water on relevant internationally and nationally designated sites.



Dr Peter Henderson, on behalf of TASC, made an oral contribution, the basis of which was included in the following:

I am a marine biologist with extensive experience working on wedge wire screens for the protection of water intakes in both the USA and the UK. I also have an in-depth knowledge of the ecological issues linked to power generation having worked in the field for over 40 years. I lecture and hold the position of Senior Research Associate in the Department of Zoology, University of Oxford, UK. I am an ecological consultant and research scientist with 40 years' experience combining theoretical, applied, and field research, with extensive experience of the management of major ecological assessment projects including preparation and presentation of material for public enquires and liaising with conservation bodies and engineers. Projects undertaken include conservation planning for large tropical nature reserves, ecological effects studies of nuclear power station intakes, conservation studies of rare freshwater life and effects of climate change and drought. I have written 7 books including the standard textbook Ecological Methods.

I itemise below a series of points relating to marine impacts of the proposed desalination plant.

1. The efficiency of wedge wire screens.

Wedge wire screens are only protective to marine life if they are not fouled. This is because fouling creates velocity hot spots and small organisms, and young fish will be killed if they are drawn against the screen in these hot spots. We are told that they will use air burst anti fouling. However, there are no details of how this will be operated and maintained. Fouling will occur without good anti fouling procedures; far more information is required. I suspect they will have difficulty maintaining air burst cleaning away from the shore and it may be at best only partially effective for the reasons I describe below.

Wedge-wire screens have a proven ability to reduce both impingement and entrainment mortality at low volume intakes (to $2.5 \text{ m}^3\text{s}^{-1}$). Their effectiveness is related to (1) the slot width, (2) through-slot velocity, (3) existence and strength of ambient cross flow to carry organisms away from the screen, (4) the amount of biofouling and (5) the amount of ambient debris. As will be discussed below, the effectiveness of wedge-wire screens is linked to water velocity across the screen.

Wedge-wire screens with slot widths of 5 to 10 mm have been used to effectively eliminate impingement at freshwater cooling water intakes. They have rarely been used at marine or estuarine facilities, probably because of fears that biofouling and screen blockage would lead to operational problems. Small-scale trials of Johnson wedge-wire screens at Fawley in the 1980s showed that standard steel wedge-wire screens developed a fouling community (Bamber and Turnpenny, 1986). Even a Johnson 715 alloy (70% Cu: 30% Ni) screen that leached copper and thus poisoned organisms that had settled, experienced some fouling.

It is clear that the reductions in impingement and entrainment possible using wedge-wire screens will be determined primarily by the slot width, the water velocity across the screen and the mix of species present at the particular locality. In marine locations

the problem is that 2 mm slot widths which will greatly reduce entrainment losses of early fish life-stages when clean, are highly vulnerable to fouling. Trials in the USA show that for good protection, across screen velocities of 0.25 feet per second (fps) which is about 0.3 ms^{-1} are required. These are quickly exceeded when fouling occurs. This risk is clearly noted in the Design Criteria for Fish Screens in Virginia Gowan & Garman (1999) where on page 32 it states: “*Screens partially clogged with debris have hot spots where through-screen velocity exceeds approach velocity criteria.*” Reduction of the filtering area could occur if (1) there were high levels of debris in the water, e.g. seaweed, blocking the screens that were not efficiently removed by airburst cleaning, or if (2) biofouling occurred. Biofouling is the process by which a community of organisms gradually grow on the surface of the screen leading to the blocking of the mesh. Either possibility would lead to an increased in through-screen velocities. This is because as the biofouling blocks the slots the water must pass across a reduced cross-sectional area. If the volume of water pumped is to remain constant, the velocity must inevitably increase. I consider the possibility for increased through-screen velocity as a result of biofouling to be a very significant concern.

Biofouling is a constant threat to the functioning of screens and must always be considered. To quote from the EPRI (1999) report on Fish Protection at Cooling Water Intakes TR-114013:

“From an engineering viewpoint, a primary concern with coarse or fine-mesh cylindrical wedge-wire screens at many projects is the ability to prevent or control biofouling. Biofouling of interior surfaces by organisms such as mussels, barnacles, bryozoans and zebra mussels is particularly problematic since these surfaces are not easily accessible for manual cleaning by divers.”

All waters hold potential fouling organisms. For many filter feeding species, filter screens, with their steady gentle flow, are an ideal habitat. Occasional airbursts to clean the screens is unlikely to be effective against biofouling, however, because these organisms, unlike dead material such as leaves, are adapted to attach very firmly to the material. Further, the young stages can settle and grow inside the intake screens and air-burst is designed to remove material from the outer surface of the screen. It has also been found that airburst will not clean all the surfaces of a wedge wire screen. For example, the Evaluation of Delta Wetlands Proposed Fish Screens, Siphons and Pumping Stations report, produced for Dept. Water Resources, California, December 2001 states that:

“The periodic burst of air can lift debris if there is a strong sweeping flow to carry away debris, but it does not replace periodic manual brush cleanings by divers. The advantage of this type of screen is that the screens are quite durable, if protected from heavy river debris, and do not have moving parts. The disadvantage is that the air cleaning is only marginally effective at cleaning the debris from the underside of the screens.”

Biofouling can be reduced if the screens are constructed from copper-containing alloys rather than stainless steel. In the Great Lakes, for example, where zebra

mussels are a problem, a cupro-nickel alloy has been used. There is nothing in documentation to suggest whether the screens would be made of an alloy effective for repelling organisms. Moreover, in the event that a copper-nickel alloy were used, this would inevitably result in the leaching of small amounts of copper into the environment. The possible impacts of heavy metal leaching from such screens would be another impact to consider.

For wedge wire screens to be effective, there must be a sweep velocity greater than the through-screen velocity along the surface in order to carry debris and animals past the screen. The need for a sufficiently high sweep velocity is made clear in the EPRI (1999) report on Fish Protection at Cooling Water Intakes TR-114013:

“Another factor that may limit application of wedge-wire screens in some environments is the lack of ambient currents to sweep organisms past the screen and carry backwashed debris away. This is an important requirement of this technology. Therefore, it may not be practicable to consider in water bodies without at least a low velocity cross-current.”

I have not read of a tidal velocity analysis undertaken to allow the view that the sweep velocity will be sufficiently high to allow the wedge wire screens to function as required.

2. Chlorination

The intake pipe would inevitably foul without anti fouling procedures. The normal method on intakes is continuous low-level chlorination. This is not proposed. Periodic shock chlorination, as proposed, will use a far higher and highly toxic dose of chlorine to kill organisms living along the pipe work. What will happen to this chlorinated water? Will it be discharged to the sea? If so, what impact will it have on sea life?

3. The impact of brine discharge

Desalination produces a brine solution which they propose to discharge to sea. The problem is that high salinity water is denser than sea water and will flow along the seabed killing the benthic flora and fauna. They claim that by rapid mixing with the receiving waters they reduce the impact. However, it is very difficult to fully mix waters of differing density and we are given no details of the design or efficiency of these diffusers. The normal approach is to look at various designs and then undertake modelling to show the distribution of high salinity water. They have not done this work, or have not reported upon it. The proposal is quite unacceptable without a full study. There are specialist software programmes that do this modelling.

The ability to mix waters also depends on the temperature differential between the discharge and the receiving water. We are told the discharge will be at ambient temperature so no problem. But, is this air or sea ambient? On the East coast there can be a huge difference as anyone who swims regularly can testify. There is a hint in the text that they also do not believe the brine discharge will mix well. They state that the

intake and outfalls would be... “*sufficient distance for the intake to minimise re-entrainment of the brine water.*”

A final point of clarification is required. They describe the passive wedge wire screen as having a “2 mm mesh size”. I think they mean a 2 mm slot width as wedge wire screens are made with strips of metal and not a square 2mm mesh.

Prepared Wednesday, 06 October 2021

At the ISH, Dr Henderson asked the following questions setting out matters that appear to be absent from the Applicant’s documentation but need to be clarified to enable an informed opinion to be made on these proposals:-

- **Noting that a 2 mm wedge wire screen will only be protective for marine life if it does not become fouled and develop velocity hot spots, how will the air burst system to clear passive debris off the screen surface be activated?**
- **Air-burst creates noise- has the impact on marine life been assessed?**

Because air burst cleaning cannot remove living organisms such as mussels and barnacles, biofouling organisms will be removed by shock chlorination. This is short-term chlorination at a high concentration which quickly kills marine life.

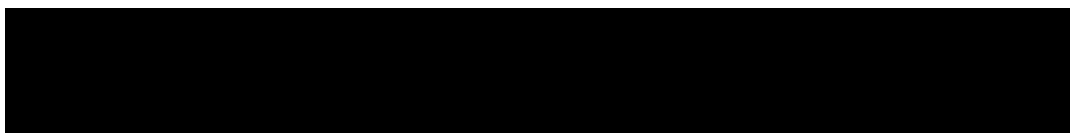
- **What chlorine concentration will be used?**
- **What will happen to the toxic chlorinated water?**
- **What is the chlorine source? I note that there is no mention of the installation of an electro-chlorination plant?**
- **If chlorine is to be transported to site has the movement of a dangerous chemical by road been assessed?**
- **The brine discharge is stated as being at ambient temperature. Is this air ambient or water ambient?**

At some times of the year these temperatures can be quite different. This is important because the CORMIX modelling was undertaken assuming no temperature differential e.g. water ambient. Water of different temperatures are difficult to mix so temperature differentials are important when considering whether the diffusers will successfully mix the brine with the receiving water.

2 mm wedge wire screens are rarely deployed as a mitigation measure in fully marine environments because they are so vulnerable to fouling and becoming blocked. Council for EDF incorrectly asserted that the cylindrical wedge wire screen was a standard fitting and not a mitigation device to reduce impingement and entrainment of marine life.

- **If it is standard fitting, can EDF point to any deployment of a 2mm screen in a fully marine environment or from personal experience describe their use as a standard fitting on a water intake in a fully marine environment?**

Their use in fresh waters is more common as they are less subject to biofouling and are more accessible for cleaning.



Terrestrial ecology and ornithology, including any additional effects upon marine birds and mammals and upon relevant internationally and nationally designated sites.

Any other relevant environmental implications, including any additional in-combination or cumulative impacts.

Pete Wilkinson, on behalf of TASC made an oral contribution, the basis of which was included in the following:

- **What residual contaminants will need to be assessed as part of the decommissioning process?**
- **What quantities of chlorine and other chemicals will be used, say per 1million litres of potable water produced, and what proportion of the outfall will be chlorine and other chemicals and what proportion of these, if any, will be in the ‘dewatered sludge cake’?**

TASC question the sustainability of the Applicant’s entire so-called water strategy and believe that lack of a viable water strategy for the 60 year operational period, should result in a recommendation that the DCO application is refused. However, if recommendation for approval of the DCO is made, it should be with the requirement that construction activities must not start until there is a proven sustainable supply of mains water for the entire period of operation and decommissioning. This issue is one further example as to why TASC consider the Sizewell C site is not a suitable site for 2 EPR reactors and their infrastructure.

4 General Habitats Regulations Assessment matters not covered under item 3 above:

Physical interaction between species and project infrastructure - effects on bird, marine mammal and fish qualifying features of relevant European sites.

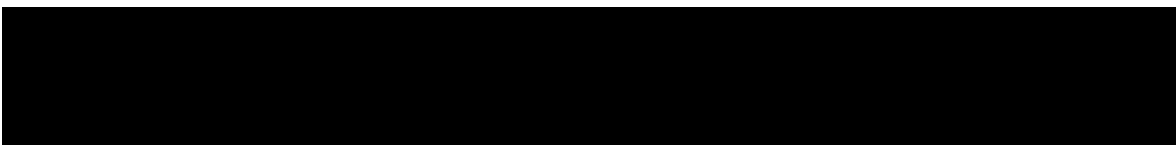
Direct habitat loss and direct/indirect habitat fragmentation effects on marine mammal qualifying features of relevant European sites.

The views of Natural England, the Environment Agency, MMO, RSPB and other IPs on the third addendum to the Shadow HRA report [REP7-279] and any relevant subsequent HRA material.

5 The DCO, DoO and other control documents

Are any changes over and above those in Revision 9 of the DCO and versions current at Deadline 7 of the DoO and other control documents needed?

On behalf of TASC, Chris Wilson made the following contribution:



TASC are pleased to hear that there will be a Requirement within the DCO and other agreements that would ensure that the DP would definitely be temporary. TASC were also reassured by the comments from Mr Jones, speaking on behalf of the Applicant, when he had said that you certainly would not want a DP plant running alongside a nuclear power plant. However, TASC still has the major overriding concern that we are currently looking at a situation where SZC could be built without a guaranteed mains water supply and, unless I have missed it, there is nothing in the DCO agreement that could stop this happening. It just seems ridiculous that you could have a £20billion nuclear power plant built that cannot operate because it does not have a mains water supply.

In response to this, Mr Philpot, on behalf of the Applicant, said that they had already covered this matter extensively in writing, so he wasn't going to repeat this. However, TASC are aware that the Applicant has written copious notes about why they believe they will have a mains water supply to satisfy SZC's operational requirements, but TASC have not seen anything, or indeed heard anything from the Applicant or Northumberland Water Ltd that guarantees a mains water supply for SZC's operational requirements.

TASC were very pleased that Mr Brock reinforced TASC's concerns about the potential lack of a potable water supply, when he made the observation that the ExA were worried by the fact that, if the Applicant had such a robust case for ensuring a mains water supply for SZC, why had they not pursued that to ensure a mains water supply for SZC's construction. TASC were not surprised when Mr Philpot said he would have to take that question away and reply in writing.

As a consequence of the discussions, TASC are concerned that if SZC is built and it turns out that there is not a sustainable supply of mains water for SZC's operation, there will be undue pressure on the water company to supply water, which would have adverse impacts e.g. an environmentally-damaging desalination plant on the Suffolk coastline, that would otherwise be unnecessary.

TASC repeats its view that, without a guaranteed sustainable supply of potable water being available for the full 60 years of operation, the ExA must recommend refusal of the SZC DCO application.

Practicalities of review and submission of any revisions.

6 Any other matters relevant to the agenda

