

From: [REDACTED]
To: [SizewellC](#)
Subject: Change 19
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From Dr Annette Abbott [REDACTED]
Unique Reference 20026263

Dear Sir/ Madam

Sizewell C Temporary Desalination Plant Proposal (Change 19)

I object strongly to this proposal.

The delay in recognising that the source of sufficient potable water supply is unfounded for a huge project as Sizewell C is astonishing. In the driest area of Britain, which is already suffering water shortages, which will be worsened by huge numbers of new dwellings being built throughout the Blyth and Waveney catchment, EDF have now acknowledged only now that vast quantities of potable water are needed during construction Sizewell C.

This non statutory consultation is extremely late in the planning examination, and falls short by 4 days in duration that is required for consultation. EDF did not publicise this until 3rd August which is in the middle of the holiday season. The burden on organisations to respond to yet another change in the application in such a short timescale reflects the apparent strategy of the Applicant to prevent adequate representations to be prepared against the application. Notwithstanding that the Examining Authority allowed this as a "fair and reasonable opportunity to consider and respond to the proposal" the timeline is such that neither Natural England and the Marine Management Organisation have responded and that the Environment Agency has said it is insufficient time to assess all the environmental implications.

It is appalling that there has been no detailed Water Strategy for the Sizewell C & D construction published to date. The need for potable water at the site is a key requirement for the construction of the two nuclear power plants. EDF is remiss in not taking this into consideration until now - there is no excuse as they were warned in 2011 that water shortages were an issue by Suffolk Coastal Friends of the Earth members.

There will be insufficient time before the end of the Examination (14th October) for the Water Strategy to be properly scrutinised.

Northumbrian Water Ltd cannot meet the Applicant's water requirements :- '...the Blyth Water Resource Zone, within which Sizewell C falls, does not have 4MI/d of supply headroom that is needed to meet the Applicants requirements'. The suggestion that an alternative source from the River Waveney can be piped 28 Km from Barsham water treatment works and that the River Waveney is a sustainable adequate source is totally not true.

When Northumbrian Water planned the upgrade of Barsham Water Treatment Works in 2017 to meet the needs of the maximum abstraction licence of 326 L/sec (maximum abstraction 28 million litres per day), did they factor in the extra 4 million required for Sizewell C and the extra needed for all the new housing in the area? If so why did they not make clear in their planning application that this was proposed?

East Anglia has the lowest rainfall in the UK, it is very dry and water management is

likely to be under severe stress due to climate change in the future.

It will possibly take till 2026 to build the 28km pipe, hence the further proposal for a “temporary water desalination plant at Sizewell”. As far as we are aware there has been no planning application for this. It has been added as a very late submission to the PINS hearing.

The Waveney is part of the Broadland Catchment. The river levels at Diss are between 0.0m and 0.95 m 90% of the time and at Beccles Quay between 0.0m and 1.1m 90% of the time (measured from mean sea level as tidal). This indicates to me that extracting between three and four million litres per day additional to the current extraction, from the Waveney is unsustainable. EDF and Essex & Suffolk water has not provided the evidence that this is possible. Further have the Environment Agency reviewed the evidence and agreed to this amount of additional extraction from the River Waveney Catchment.

The River Waveney currently completely fails in its chemical status (pollution by agricultural run off including neonicotinoids, pesticides, nitrates) and therefore the water is not potable without a significant amount of processing.

A permit for extraction would be needed and this would be subject to the Water Framework Directive, whereby two main obligations must be met: i)to prevent the deterioration of the water body; ii)to protect, enhance and restore the water body in line with the regional environmental objectives.

We cannot believe that the Environment Agency or Essex and Suffolk Water have recommended this. It will devastate the wildlife of the River Waveney and its associated wetlands, affect the tourism industry on the Broads and affect the local amenity value of the River Waveney for the local people, and affect local businesses including farming along the Waveney. I have lived within 4 miles of the River Waveney for nearly 40 years and my family have enjoyed the area for walking, swimming and canoeing and wildlife watching and photography and would hate to see the water meadows and beautiful landscape and wildlife affected by this- the opportunity to even canoe on the river will be reduced if the water levels are any lower. What studies have been done to examine the environmental impacts of this proposal? We believe that only now are Essex and Suffolk Water are carrying out modelling to determine whether such extraction would be sustainable. What consultation for this has taken place? – None whatever as far as I am aware– the public have a right to be fully informed and consulted and to refuse to allow this.

If the River Waveney is not a sustainable source then the ‘temporary’ desalination plant will not be temporary and an additional plant will be needed to meet the needs of potable water for the Sizewell C construction.

Until such time as a new water source is found to build the plan EDFE would require the fresh potable water to be brought by tanker – up to 40 + 40 lorry movements a day. It will take 4-6 months to build the new plant.

The proposal for a desalination plant is completely unacceptable on many grounds.

By nature desalination plants are extremely polluting – in terms of the chemical and concentrated brine risks to the sea and existing aquifers and contaminating ground water. It will be extremely destructive to the sea life – fish, marine mammals, birds, sea

algae and flora – the biota.

In addition the proposed construction of a desalination plant would of itself be destructive to the surrounding environment (sea, SSSI etc), further lorry movements daily, use of diesel to fuel the plant – air and noise pollution, risk of ground contamination with diesel leaks and spillage, also diesel storage, diesel transport, transport for removal of the salt cakes (to where?) – further lorry movements.

The process of desalination is reverse osmosis whereby sea water is pumped under pressure (1.1 to 1.7 cubic metres a second) through a fine membrane, thus removing the salt and other minerals. The energy used is at around 3-3.5kWh per cubic metre – so will generate further carbon dioxide emissions – which again negates the carbon neutrality claimed for the nuclear power plant. Diesel generators would need a permit from the Environment Agency to operate, and the smell, noise and air pollution have not been factored in. (notwithstanding the huge carbon emissions also generated in the massive concrete needed for the construction of the nuclear installation).

More sea floor dredging will be necessary to install the intake and outflow heads causing more biota destruction.

Noise, fumes (carbon monoxide; nitric oxide; nitrogen dioxide and sulphur dioxide) and particulates from the diesel generators would seriously damage the adjacent Sizewell Marshes SSSI immediately to the west of the platform and Minsmere-Walberswick Special Area of Conservation (SAC) immediately the north and also will have a harmful effect on public health.

There is no mention in the proposal about storage and further treatment of the desalinated water. The waste brine from the desalination plant will be continuously discharged to the sea between the inner and outer sand bars. The brine will be at least 1.6 times more salty than the sea water and despite disperser heads, would collect on the sea floor where organisms would be unable to survive. The volume of brine would be in the order of 6000 cubic meters per day. Brine underflows deplete dissolved oxygen in the receiving waters. High salinity and reduced dissolved oxygen levels can have profound impacts on benthic organisms, which can translate into ecological effects observable throughout the food chain.

Various chemicals are used to keep the head works and membrane 'clean' including anti-scaling acids and biocides against bacteria such as chlorine and copper which would all end up in the sea. The intake head works would be maintained with periodic 'shock chlorination' and if badly contaminated the membrane would need emergency flushing with inhibitors. This is likely environmentally risky and sensitive marine habitats can be irreversibly damaged. Antifouling chemicals may end up in the sea in addition to the chlorine and by products of phosphorus and naturally occurring minerals and chemicals removed from the sea water will be returned to the sea in a more concentrated form causing poisoning to the sea biota.

EDF have said they will mitigate this damage by extending the intake and outfalls for the desalination plant further offshore. They do not say how far out to sea is realistic to extend the intake and outfall pipes. The effect on the benthic organisms and the food chain in the sea will be no different. The North Sea is very shallow in this area at most 50metres deep and therefore the potential environmental damage to the marine ecosystem from brine discharge due to increased salinity, temperature and alkalinity fluctuations will be very serious.

The environmental impacts of the proposed desalination plant have not been assessed adequately and are dismissed as being within the overall effects of the cooling system. This is unacceptable.

When the station platform area is needed for the ongoing construction the desalination plant(s) will have to be moved north over the SSSI crossing to the Goose Hill construction area, a location very close to the Minsmere-Walberswick SSSI needing very long inflow and outflow pipes to be additionally installed.

It is extremely obvious to me that the proposal by EDFE for a Desalination plant is totally unacceptable and seriously flawed. The need for potable water for construction will incur massive further costs to the already huge cost of construction both in financial and environmental terms. Compared with renewable power sources, nuclear power is extremely expensive. Sizewell C and D should never be built.

Yours faithfully

Dr Annette Abbott
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