

Ian Galloway Oral representation

At face value the implementation of a desalination plant appears to be a pragmatic remedy to a significant project planning oversight, i.e. the restricted supplies and availability of potable water in East Anglia.

That said, whilst it is broadly recognised that Seawater Reverse Osmosis (SWRO) demonstrates significant improvements over thermal techniques, membrane processes are still associated with various environmental issues such as high energy demands, chemical dosing and brine disposal.

So, although SWRO has a lower total energy requirement and is shown to have an overall lesser environmental burden using agglomerated impact factors such as Eco-indicator, Eco-Point etc., the global warming potential (GWP) arising from typical water consumption in the Arabian Gulf region, sourced very nearly totally from SWRO, is equivalent to more than 15% of the total GWP associated with the typical European lifestyle.

Moreover, per capita marine aquatic eco-toxicity potential (MAETP) arising from typical use of SWRO sourced water is up to five times greater than the MAETP resulting from all other annual activities combined.

Consequently, there remains a pressing need to further improve SWRO processes.

For example in the salt separation process, where the semipermeable membranes hinder the movement of dissolved salts, whilst allowing the processed potable water product to pass. Yes, there have been myriad changes in; the material sciences area, in membrane and duct design and other more esoteric fields.

However, time and time again it becomes evident that the feed water to the Reverse Osmosis membrane should be of the best obtainable quality to avoid excessive fouling and the subsequent increases in energy use.

This can be achieved in combination through; both effective intake design and location, as well as pre-treatment systems involving; the extraction of suspended matter, adjustment of the pH, disinfection to prevent biological growth and the addition of chemicals to prevent scaling.

And it is against this backdrop I ask:

Q1 Has the Applicant sought to optimise the location of the proposed desalination plant's water intakes in order to reduce the potentially detrimental environmental impacts arising from poor quality water being imported for processing by SWRO?

Q2 If so, has the Applicant sought to optimise the proposed water intake location, can they provide details of alternative locations surveyed and the range of water quality results obtained? If not, why not?

Q3 Is the Applicant certain that the Sizewell Site is the most suitable location for SWRO Plant on the East Anglian coast and therefore, the site least likely to adversely impact MAETP?

Q4 Is the Applicant able to provide independent evidence confirming the choice of Sizewell for a SWRO as the least ecologically damaging location?

Q5 Based on the proposed seawater intake location, can the Applicant provide full information on the proposed chemical treatments to be applied throughout the planned SWRO process(es), the dosing rates, concentrations and periodicity as appropriate.

Q6 Has the applicant undertaken modelling to identify the potential environmental impacts of the SWRO plant outflow arising from the combined treatments, the projected 'zone of influence' and the likely impacts on MAETP and other appropriate factors (i.e. Eco-indicator, Eco-point, etc.).