WRITTEN REPRESENTATION

SIZEWELL C PLANNING EXAMINATION

SUBMITTED BY WAYNE JONES - RR 20026801

Deadline 7 Comments

As a result of my contribution to Issue Specific Hearing 6 , EDF and CEFAS have entered a submission as part of the document 9.53 , the section entitled 1.5 Climate Change In Tide . This is my reply to that document .

As you are probably aware , part of my submission rests on how tidal range may be affected by sea level rise , and in particular , how a combination of high tide and storm surge might compromise sea defences on the Sizewell C and Hinkley C sites ,

Although unqualified academically in these areas , I am as familiar as a lay person may become on tidal and meteorological issues by virtue of having completed the Royal Yachting Associations' Offshore Skipper course in sea navigation and meteorological data interpretation in 1992 . Earth Sciences in relation to the ocean and weather was a strong feature of this course , run by an experienced mariner and college lecturer ,

At 1.51 , EDF states - 'UKCP18 (Ref. 3) states: "Mean sea level rise results in a direct increase in both low and high waters. However, since the propagation of tide and surge is dependent on water depth, there is also a potential for mean sea level change to have a more spatially complex effect on local tidal range and the extent of storm surges above the high tide. '

In response I want to point out that water depth is a parameter in open water where clearance is to be considered over marine obstacles such as wrecks , submerged rocks and sandbanks , the latter being particularly relevant to the North Sea off the Southern English

coastline .Tide would not be noticeable therefore reliance is placed on chart data in many situations . When considering how mariners might respond to expected changes in sea level because of climatic effects , safety would require conservative assumptions to be paramount ,

This , I believe , would be the intention of the research carried out , and probably using satellite data to confirm sea level heights at different states of tide .

At 1.52 , EDF states - Pickering et. al (2012) (Ref. 4) investigated the effect of sea level rise (SLR) on the tides of the northwest European Continental Shelf, focusing primarily on the M2 tidal constituent (the dominant semi-diurnal tidal component at Sizewell). This study investigated a 2m SLR scenario.

At 1.53 it states - Under the UKCP18 RCP8.5 95th percentile scenario (the most extreme plausible scenario, but considered unlikely to occur), SLR of 2m as assessed in Ref 4 would not occur until post 2150.

At 1.54 it states - Figure 2 shows that the increase in tidal range along the Suffolk coast that would be expected from a 2m SLR is approximately 5cm.

In reply , I wish to point out that much has changed in terms of SLR prediction since 2012 , the date of the research publication , and that EDF can no longer rely on the convenience of a prediction that identifies a benchmark sea level rise figure beyond the span of it's site occupancy . It is also important to realise that tidal range is not the same thing as tidal reach , and that giving a figure for tidal range in open water does not indicate tidal height that might be expected in relation to shoreline . My consideration of tidal range in relation to EDF's sea defences necessarily compares to relevant chart datum at the time of construction . Both high and low water marks would be expected to rise and at different rates . Range indicates the measurement between those points , not the relationship to chart datum as described as height above sea level (ASL) . EDF's defences are heights ASL .

At 1.55 EDF states - A 5cm increase in tidal range is very small compared with the existing tidal range at Sizewell of approximately 2.1m (between Mean High Water Spring and Mean Low Water Spring). A 5cm increase equates to a tidal range increase of just 2%.

In reply , EDF have fallen into the trap of relating a postulated tidal range increase from open water , calculated on the assumption of an increased water depth slowing the tidal current , to an expected tidal reach increase at shore relating to present chart datum and hence to it's own defence construction at Sizewell C . In other words – this is telling us precisely nothing .

At 1.56 EDF states - Increased tidal range does not necessarily result in increased tidal currents because increasing depth brought about by SLR tends to reduce currents.

At 1.57 EDF states - Overall, the effect of minor increases in tidal range is not considered to be likely to make a material change to the impacts and extents of the activities under the EIA as part of the coastal geomorphology assessment [APP311]).

In reply , EDF are really missing the point here in entering this in answer to the representations I have made . All my representations relate to tidal and skew surge effects at shoreline which is necessarily only descibed as shallows – depth doesn't come into it . The effect of water in shallows can best be seen where a fast moving river enters a deeper or much wider section and starts to slow , but on reaching another shallow or narrow section will begin to speed up again due to the pressure of the water mass – precisely the effect I have described as being the dominant effect in both tide and surge as the sea approaches the coast and not to be confused with the wave forming action relating to fast moving tsunamis where the friction of water on the sea bed results in the surface water moving more quickly .

At fig 2 . EDF present a map showing the Bristol Channel as a dark blue deeper water region where , according to their evidence , the effects of tide will be lessoned by sea level rise . I spent my earliest summers crossing the Severn at it's mouth on the ferries which ran before the bridges were opened and I can assure you that a couple of

metres of water will be irrelevant to the tidal flow in this locality . I want to re-iterate that only measurement over a period in which an actual substantial rise in sea level can be observed will give the necessary data required to predict tidal increase which I believe will be of an exponential nature , and that satellite data will probably be unreliable for measuring at the shore , therefore the tidal gauges will be more suitable . I do not like predicting myself but it is within the realms of possibility that a 2m sea level rise could occur by 2100 , and that a tidal height increase of 50 cms might accrue on the highest astronomical tides and combine with regular storm surges of 2 ms and above , making a total combined extra height above 4.5 ms before considering backing up and contribution from storm rainfall run off . However , there are many many people who thought they could predict the ocean all through history now laying on the bottom of it .