From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: Re: Credible Maximum Scenario - input into Sizewell C assessment
Date: 29 February 2024 09:10:54
Attachments: image001.png

Dear [redacted]
This lower figure seems about right to me. I was guided in this by work such as:

van de Wal, R.S., Nicholls, R.J., Behar, D., McInnes, K., Stammer, D., Lowe, J.A., Church, J.A., DeConto, R., Fettweis, X., Goelzer, H. and Haasnoot, M., 2022. A High-End Estimate of Sea Level Rise for Practitioners. *Earth's future*, *10*(11), p.e2022EF002751.

They found a global slr of around 1.6m in response to RCP8.5 forcing by 2100; a lower figure than that produced by the structured expert judgments used in IPCC AR6. This probably reflects increased mitigation and also a growing realisation that Antarctica as a whole is perhaps more stable than some research suggested recently.

The caveat is that models have not managed to treat Antarctic instability well and the upper bound with RCP8.5 may still underestimate warming (given the higher Equilibrium Climate Sensitivity alluded to in some of the AR6 projections). The further caveat is that van de Wal assess a global mean sea level projection and I'm not sure whether this has been downscaled to the UK.

As [redacted] was on this paper it would be useful to hear if he has any further insights.

I'm happy to discuss this...or we can wait until the ONR meeting on 18th March.

Hope you are well.
Best wishes,
[redacted]

[redacted]

[redacted]

http://www.ccrm.co.uk

From: [redacted]
Sent: 27 February 2024 16:40:39
To: [redacted]
Cc: [redacted]

Subject: Credible Maximum Scenario - input into Sizewell C assessment

[redacted],

You may remember that I highlighted in our November 2023 Expert Panel meeting that I would seek your input on Sizewell C (SZC) Ltd's updated credible maximum scenario for climate change related to extreme still seawater level early in 2024.

SZC Ltd has proposed a revised credible maximum scenario value from the UKCP09 H^{++} value previously used. The previous and revised values, and their breakdowns, are summarised in the table below. Whilst reports [1] and [2] (cited below) are claimed to be the basis of the revision, SZC Ltd has not provided information as to how the revised values have been derived, beyond one PowerPoint slide (attached). I was expecting a technical note from SZC Ltd justifying the revised value by early 2024 for input into my assessment for nuclear site licence grant. SZC Ltd was not able to provide this technical note in time for my assessment.

Once I have the technical note, I will be looking to arrange a detailed review by the Expert Panel. However, to support my assessment, please can you advise whether the revised figures appear broadly reasonable, i.e., within the region of UK credible maximum sea level rise estimates for 2110 in current studies/literature.

Value	Mean sea level rise (m)	Downward land movement (m)	Extreme skew surge increase (m)	**Credible maximum 2110 (m) [Total]**
Previous value UKCP09 H++ origin	+2.12 (includes downward land movement)		+1.0	**+3.12**
Revised value	+2.4	+0.1	+0.3	**+2.8**

I appreciate that this is a complex area, so I am just looking for a broad steer from yourselves at the current time.

I'm happy to discuss.

Thank you,

[redacted]

References

[1] Climate Science Special Report, Fourth National Climate Assessment, Volume I, USGCRP, 2017
https://www.nrc.gov/docs/ML1900/ML19008A410.pdf

[2] Upper Limit for Sea Level Projections by 2100, S Jevrejeva et al, Environmental Research Letters, Volume 9, 2014
https://iopscience.iop.org/article/10.1088/1748-9326/9/10/104008/pdf

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