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Today, the cliffs at Dunwich are in visible retreat in the face of withering and accelerating climate change and sea level rise predictions. Within a century, according to the Environment Agency, Sizewell, to the south, will be an island. There are already hundreds of tonnes of spent nuclear fuel stored on that future island representing an unimaginable amount of radioactivity. The legacy inventory of UK's nuclear waste awaiting the arrival of a programme which will safely and securely deal with it, isolating it from the biosphere for centuries, amounts to 500,000 cubic metres, five times the volume of the Albert Hall. The overwhelming majority of that waste is low level and only mildly contaminated, but 3% of that waste is lethal and remains so for extraordinarily long periods of time. An estimated 538,100 terabecquerels (TBq) of iodine-131, caesium-134 and caesium-137 was released over the course of the Fukushima disaster[1]. The operator, the Tokyo Electric Power Company, said the meltdowns released a total of about 900,000 terabecquerels of radioactive substances into the air during March 2011[2]. CoRWM estimated that the entire inventory of radioactivity contained in legacy waste – that which we have already created – is approximately 78 million terabecquerels. By 2055, the date to which SZB may operate, it is entirely possible – indeed probable – that there will be thousands of tonnes of SZB spent fuel on the site: Sizewell C alone will add 4,000 tonnes. It is difficult if not impossible to estimate the amount of radioactivity that will have accumulated on the Sizewell site by the time a repository is available to receive the waste

[1] https://www.sutori.com/item/an-estimated-538-100-terabecquerels-tbq-of-iodine-131-caesium-134-and-caesium

[2] https://www.nytimes.com/2012/05/25/world/asia/radioactive-release-at-fukushima-plant-was-underestimated.html

[redacted]

because the availability is still in doubt due to technical uncertainties about our ability to genuinely isolate it, to the lack of confidence we can have about the health effects of exposures to even low levels of radioactivity and to the absence of a willing host community and the lengthy process involved in securing a suitable site. But one thing is sure: even today the radioactivity on the site is huge and it will grow quickly over the years if SZC is granted planning permission.
The period of time in which radionuclides in the spent nuclear fuel are considered harmful is expressed as half-lives, the time it takes for half of the radioactivity to decay. Normally, ten half-lives are required to pass before a radionuclide can be considered 'safe' and in a stable form.
There are over 200 nuclides decay products of uranium. Some are:
Strontium 90 (half-life 65 days)
Tritium (half-life 12 years)
Americium 241 (half-life 432 years)
Carbon 14 (half-life 5,730 years)
Plutonium 240 (half-life 6,560 years)
Caesium 137 (half-life 5,730 years)
Plutonium 239 (half-life 24,100 years)

Is it remotely justifiable for a government at any level and of any hue to support the construction of another plant on an eroding coast when we know that Sizewell will be an island in the biological blink of an eye, that there will be no facility ready for receiving that all lethal radioactive spent nuclear fuel within that time, possibly ever, and that the possibility of further Fukushima, Chernobyl, Three Mile Island or, indeed a repeat of the 1957 Windscale Fire accident is ever present? Remember that all accidents are by their very nature and definition unforeseen. What on Earth drives us to complicate our lives so dramatically and with such lack of wisdom and clarity of vision, to blight so many lives and to create so many risks and fears when there is more energy falling on the Earth's surface than we could ever use and when we don't even have to invent anything in order to harness that energy?

[redacted]

We hear that nuclear power has been and remains a core part of the energy policy for the UK because it will help us combat climate change. EdF routinely and wilfully repeat this trope with their claim that nuclear is ‘zero carbon’. May I point out, in closing, that in order to use uranium in the reactor in the first place, the following steps have to take place:

Mining, milling, enrichment, fuel fabrication – all steps produce carbon.

The reactor must be housed in a building: 12 million tonnes of aggregates will go into the construction of Sizewell C – carbon heavy activities involving endless transport from the West to the extreme opposite side of the country.

The spent fuel has to be stored over decades, possibly centuries, possibly millennia. More carbon debt.

A repository for the long term disposal of spent nuclear fuel will require a huge excavation at a depth of between 200 and 1000 metres of colossal size and take decades to construct. Waste will be clad in copper or stainless steel and transported from all over the country to the repository. It will have to be carefully emplaced and the repository backfilled with millions of tonnes of material. Should it fail, it will have to be emptied, the fuel repackaged and re-emplaced.

How can such a process ever, in the wildest dreams of the nuclear industry or its cheerleaders, be portrayed as ‘zero’ or even ‘low’ carbon?

Thank you.

Pete Wilkinson

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