Some nuclear extras

1. Nuclear waste to be *imported* to Hinkley…

I was surprised to learn up at Springfields that the current plan for **Hinkley's waste is at least 60 years storage on-site, because of its very high level of radioactivity**. But in addition, the news in North Somerset is that Magnox wants to move some of its **older waste *to* Hinkley, from Dungeness, Oldbury, Sizewell and Hinkley A. Much of this will be transported long-distances by road.** Who asked us? For further info, see South West Against Nuclear and Stop Hinkley.

Of all the catastrophes we are leaving the next and future generations, this seems the **most immoral** – made so much worse by the fact that we are about to embark on a **third generation of nuclear plants without having solved the problems of the first two… Plus the new threat of rising sea levels, threatening all our coastal infrastructure.**

2. Why is our government so keen to continue our nuclear build-out?

It is clear from evidence to select committees that it's largely driven by our weapons programme. However, the National Audit Committee revealed this month that our nuclear weapons are **catastrophically overwhelming our defence budget**. Our current nuclear defence, including four new Astute and four new Dreadnought submarines (to carry Trident), takes a **quarter of the equipment budget but the cost of defueling and dismantling *what we have* is sinking the whole budget.** Nine out of 20 of our out-of-action nuclear subs **are still awaiting defueling** and this won't begin till *2023 at the earliest*, because of budget and security issues. The government has been slammed for its lack of strategy by the NAC. Given the growing focus on cyber-security, it seems that our whole nuclear programme – civil and military – reflects an 'incumbency' thinking and a failure to adapt to new security threat, and to the need for genuinely low carbon fuel.

3. Why nuclear isn't low carbon

When calculating the CO2 per kWh of electricity, the calculation is done only of emissions at the power plant, **not the full life cycle analysis.** Even when LCAs are done, they vary in standard and generally miss the critical point – **the low density of uranium in the ore we are mining.**

Here are some figures from the World Nuclear Association. **Already a significant proportion of the world's uranium comes from Namibia where we throw away 99.99% of the rock…**

Very high-grade ore (Canada) – 20% U	200,000 ppm U
High-grade ore – 2% U,	20,000 ppm U
Low-grade ore – 0.1% U,	1,000 ppm U
Very low-grade ore* (Namibia) – 0.01% U	100 ppm U
Granite	3-5 ppm U
Sedimentary rock	2-3 ppm U
Earth's continental crust (av)	2.8 ppm U
Seawater	0.003 ppm U

When I checked the site recently, I was interested, and surprised, to see that **Canada's best producing mines are now well below 20% uranium. Since the UN tells us that 50% of greenhouse gases come from resource extraction, a failure to assess uranium mining is a major, and wilfull, oversight.**

Canadian uranium reserves and resources[c]

Mine	Province	Operator	tonnes U	tonnes U_3O_8	Average ore grade U_3O_8[d]	Category
McArthur River	Sask	Cameco	142,000	167,700	9.60%	proven & probable reserves
			1850	2180	3.8%	measured & indicated resources
Cigar Lake	Sask	Cameco	82,720	97,550	15.9%	proven & probable reserves
			32,500	38,340	16.24%	measured & indicated resources
Millennium	Sask	Cameco	29,200	34,400	2.39%	indicated resources
			11,150	13,160	3.19%	inferred resources
Rabbit Lake	Sask	Cameco	15,270	18,000	0.79%	indicated resources
McClean Lake	Sask	Orano	284	335	0.38%	proven & probable reserves
			5903	6961	0.57%	measured & indicated resources
Midwest	Sask	Orano	19,500	23,000	2.3%	indicated resources
Dawn Lake	Sask	Cameco	6885	8120	4.42%	indicated resources
			23,000	27,000	16.2%	probable resources

4. The latest bill for Fukushima

Reports now indicate that the clean-up of this site is likely to take 30- 40 years, with a **final bill of almost $1 trillion**. These 'black swan' events (we've had 11 major ones) are never included in the costs….

5. **Japan's nuclear reactors fail to comply with safety standards and are shut down – again**

In my last news email I mentioned that Japan had announced it would build no new coal plants or expand its existing. Great news. But this month the **Japanese nuclear regulators have shut down virtually all nuclear plants for a failure to comply with security regulations.** The more I learn about the nuclear industry, the more I am struck by their complacency and lack of long-term strategy. Japan's shutdown will undoubtedly mean a return to coal which is disastrous; renewables are still less than 20% of energy production. It seems that the reliance on a return to nuclear has possibly slowed real progress towards clean tech.

6. **France is to delay its nuclear shutdowns by a decade**

Under Hollande, it was legislated that between 17 and 25 French nuclear power plants would be closed by 2025. But Macron has now back-tracked and only 2 – 4 will close by 2028 and only 14 by 2035. The reason? It's the same accountancy trick that doesn't include the sourcing of uranium, the processing or the waste management when assessing greenhouse gases, making nuclear appear very low-carbon.