Re: u3a Second Nature 014 (Mar 2024 No. 2)

John Baxter <u3asecondnature@gmail.com> 4 April 2024 at 16:39
To: John Baxter <u3asecondnature@gmail.com>

u3a Climate Change & Environment Network

Bulletin 014

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u3a Climate Group Leaders on Facebook

This Facebook group is off to a slow start, with 13 members. For it to be effective it probably needs to be three times as big. The group description is:

A group for discussion of the practical aspects of running a climate group in u3a - goals, objectives, activities, talks, possible topics for discussion at meetings, what works and what doesn't.

I hope that this forum will be useful particularly in supporting new groups (and maybe failing groups). You don't have to be a group leader to contribute: if you have ideas to share then I'd urge you to join us . You can find the group here.

Nuclear Power (contd from Bulletin 013)

David sent me this:

Thanks for your Bulletin 013 very informative as usual ...

Great start David, thanks.

... particularly the section on nuclear power and I agree with your comments. You could have mentioned the potential for small modular reactors (SMRs) that can be mass produced in a factory at a fraction of the cost per MW of large power stations like Hinkley Point C. Considering that most of the UK's nuclear power stations are due to close by 2030, except for Sizewell B in 2035, we need lots of new nuclear power to replace them. The Rolls Royce design is an oversized SMR design being 470MWe but designed to run for 60 years without replenishment of the fuel. SMRs could replace the old nuclear reactors that are closing and retain the generating and distribution equipment, as well as used as an energy source close to where it is needed. And SMRs are a big export opportunity. Another clean energy source that runs 24/7 is ocean current or tidal energy as there are many sites around the UK coasts that could host the water turbines: see Orbital Marine in Scotland.

Good points, but I decided that the piece on nuclear was long enough without going into SMRs. Tidal Stream is promising but still at an early stage: in Allocation Round 4 in Aug 2022 government offered contracts for 41MW of tidal stream at a strike price of £178.54; AR5 in Sept 2023 contracted for 53MW at £198. (For comparison, the strike price for offshore wind in AR4 was £37.35). These high strike prices I assume reflect R&D costs and the risk that generators are taking with this relatively new technology.

On-demand Renewable Electricity

In Issue 013 I wrote *wind gives us 'as available' power and gas gives us 'on demand' power and in my view they are fundamentally different things. I think what this means is that we can't decarbonise by replacing gas with wind until there is no gas generation left: we need to replace gas with zero-carbon on-demand sources of power.* In the light of this comment I thought it would be interesting to look at some of the on-demand sources that we have now, starting with Energy from Waste (EfW). Not everybody agrees that this is renewable or acceptable, but let's assume for now that it is.

Energy from Waste

For a list of UK power stations I go to DESNZ's Digest of UK Energy Statistics (DUKES). DUKES is not very informative about EfW, showing only seven plants where the primary fuel is Municipal Solid Waste (MSW), a total of 471 MW of capacity. The largest plant here is Viridor's EfW in Runcorn at 91 MW. I know that

there are a lot more out there, so I made my own estimate by looking at Veolia's website. Veolia burns around 2.5m tonnes of waste pa to generate 1,600 GWh - that's equivalent to 183 MW. As it claims to have almost a quarter of the UK market that makes the market around 830 MW. By comparison, DUKES contains 125 hydro stations totalling 1,466 MW (83 of these stations being 10 MW or less). It's been a few years since I looked at anaerobic digesters (ADs) and at that time we had 489 of them with a total capacity of 429 MW. We should have more now, so let's assume 500 MW from that fuel type. I find it useful to think of capacity in units of Hinkleys (H), where one H is the planned capacity of the Hinkley point C nuclear station. For on-demand renewables then we have:

On-demand renewables			
	MW	H	Source
ADs	500	0.16	My estimate
Biomass (excl Drax)	741	0.23	DUKES
EfW	830	0.26	My estimate
Hydro	1,466	0.46	DUKES
Subtotal	3,537	1.11	
Max gas demand 2023	26,109	8.20	Gridwatch
Pumped hydro	2,900	0.91	DUKES

That's around 1.1H of on-demand renewables in the estate, and we need at least another 8.2H to replace the gas. We also have 0.9H of pumped hydro, but this is storage - the electricity first has to be made somewhere else.

Here are some of the common responses when EfW comes up for discussion:

You wouldn't want to live next to [an EfW plant] no, neither would I. They don't have to be ugly however: Amager Bakke is an EfW plant visible from downtown Copenhagen. It was the *World Building of the Year* at the 2021 annual World Architecture Festival and comes with a dry ski slope, a hiking trail, and an 80m climbing wall.

They emit CO2 and quite a lot of CO2 for the amount of electricity they produce: but remember, this is really a waste management technology. A good percentage (half ?) of that CO2 is from biofuel - paper and card - and the rest is fossil from plastics. There are pilot CCS projects announced that would capture CO2 from the incinerator plume and send it for storage - CCS could make EfW (and other biomass plants) carbon negative, one day.

They emit other nasty stuff but EfW is monitored and regulated - limits were set by the EU Waste Incineration Directive and subsequent Industrial Emissions Directive. A widely-reported statement from the Environment Agency says ‘during the Millennial celebrations in London the emissions from one 35-ton firework display equalled 120 years of dioxin emissions from the SELCHP waste incinerator’ and that ‘in a year, the whole Energy Recovery industry produces about one-sixth of the dioxins produced by one Bonfire Night’. (Reader beware: I have not been able to track down the original source of these comments).

EfW I think is another of those "least worse technologies". SELCHP in Bermondsey takes 420,000 tonnes of waste a year: to replace it we would have to find a hole in London that can take this material, and persuade the locals to accept it. My main reservation is that these plants have maybe a 30-year life and once they are built we have to go on feeding them - if the waste management industry is tooled up to deliver to an EfW there is little incentive for it to increase recycling rates or otherwise reduce the volume of waste. The same applies to ADs of course.

One person found this helpful

One person found this helpful is a Radio 4 show hosted by Frank Skinner. It's a great title, I wish I'd thought of it first.

Emails that you send me in response to content in Second Nature me may be used here, and edited in the interest of brevity (or occasionally levity). Please make it clear if you don't want me to do that. I keep your emails in a Gmail folder to which only I have access. I delete them when I don't need them any more.

Anne emails me to say *I hope you don't mind but I adapted some of [your] verses for use in my home-made Valentine's Card. It went down very well!*

All great poets steal, Anne: you have my blessing.

In Sandhurst, Berkshire a Green Fayre is planned for 21st September: "biodiversity, energy saving, EVs and recycling to raise awareness to residents". The organisers would like local u3as to be represented, or to a speaker or a presentation. A stand costs £25. Contact Hazel Hill if you are interested,

Archie emails to say *I often get asked why should we bother trying to reduce Global Warming because the UK's proportion is very small and won't make a difference compared to those of China, Russia, USA and India. We should concentrate on measures to encourage them to reduce their contributions to Global Warming (eg stop buying goods made in China). What are your comments? PS I don't have any details showing the relative impacts of different countries on Global Warming.*

Archie, how you respond depends on how much time you are prepared to invest in these people. For a quick response, I sometimes use the dog poo analogy - I have a small dog that poops in the park, and I don't pick up after it because my neighbour doesn't pick up after his much bigger dog. Most people would say that we all share the park and everybody should clean up after their dog.

You might also point out that we are not comparing like-for-like here: India and China each have more than 20 times our population. Our World in Data reports per capita emissions from fossil fuels and industry in 2022:

- China 8 tonnes
- India 2 tonnes
- Russia 11.4 tonnes
- UK 4.7 tonnes
- USA 14.9 tonnes.

So we can't really blame India. Good luck with not buying anything made in China.

I went into the China Question in Issue 002 of this newsletter. (The table that should have appeared in 002 is in Issue 003). You will also find this in 002:

China is making huge strides in renewables. It now has 228 GW of utility-scale solar, more than the rest of the world combined, and another 379 GW under construction. It has 310 GW of wind power, more than the next seven countries combined. It hasn't lost its appetite for coal unfortunately, with more coal stations being approved in Q1 2023 than in the whole of 2021.

The China Question is one of "the three buts" - our excuses for doing nothing. They are:

- but China - there is no point in us stopping our emissions until China stops
- but population - there are too many of us now, and
- but anyway, it's too late.

I've tried to deal with all of these in past issues of Second Nature.

In response to the item about Sabrina the weather presenter **Jo** writes *my 26-year-old daughter buys only second-hand clothes. I wonder how many of this generation do the same? How feasible would it be for our generation to get into it? Clothes swopping events can be very sociable and loneliness-busting.* I volunteer in a Oxfam shop and we see young people (usually women) who say that they only buy second-hand; and others (usually older) who say that they buy all their Christmas presents second-hand. It's not the norm by any means but also not uncommon.

I exchanged several emails with **Margaret** on her "soapbox subject", soft plastics. She writes:

What happens to soft plastics after we deposit them at the supermarkets for recycling? How are they treated and re-used? I believe in re-cycling soft plastic because my waste bin is only half full after two weeks before collection (previously was full before re-cycling soft plastics). However, I am failing to convince members of the u3a to recycle soft plastics because I am asked "where do the soft plastics end up for re-cycling and re-using and are we wasting energy doing the re-cycling?". Sceptics say that the soft plastics are just thrown into an incinerator.

PS I have just completed the Big Plastic Count and these are some of my results – the majority of plastic in the count was soft plastic. No matter how much I try, the intrusion of soft plastics is massive on a weekly basis, it cannot be avoided when buying food.

I worry that a lot of recycling is actually greenwash. In Issue 006 of the newsletter I said:

Recycling is an industrial process, not always beneficial. The soft plastics that you may be taking back to the supermarket have to go to a sorting plant, then a washing plant, before going somewhere else where they can be remanufactured, probably into bin liners - and that's if they even get to a recycler; in 2022 Bloomberg put trackers in three plastic bags and dropped them in Tesco supermarket recycling bins. One bag ended up in Poland and one in Turkey near the Syrian border.

I'd recommend the Bloomberg piece, which was an eye-opener for me.

I'd encourage you to write to the supermarket, if that's where you recycle, and ask them what happens to it. I'm told that 'back of shop' plastic - the stuff that wraps pallets - is sought after by recyclers, because they know what they're going to get. The problem with post-consumer material is that it is such a mixture.

There has been some progress towards a Global Plastics Treaty. In March 2022 the fifth session of the UN Environment Assembly adopted a resolution to develop an international legally binding instrument on plastic pollution, including in the marine environment. The first session of the Intergovernmental Negotiation Committee (INC1) took place at the end of 2022; INC3 in November 2023 produced a draft international treaty. INC4 is scheduled for 23-29 April in Ottawa. As international negotiations go, this is breakneck speed.

Unfortunately microplastics and nanoplastics are already everywhere: this article is a good backgrounder.

As for the plastic that already exists, recycling is one option (but only helps I think if it leads to a reduction in the production of new material, otherwise it's just kicking the can down the road); EfW is another. Recycling can itself be a major source of microplastic, one study reporting that 13% of the plastic processed at one plant was escaping as microplastic in the waste water.

In u3a you might get a better return on effort by urging members to cutting down on the plastic that they use rather than recycling. At Baxter Towers we manage fine without buying carrier bags, bin bags, garden waste bags, rubble sacks, freezer bags, sandwich bags, and cling film. We generally use paper tape not sellotape, and we buy toilet paper from WCAG or Naked Sprout and it doesn't come wrapped in plastic. Most of the bags that do find their way into the house are reused for something.

In the Press

The Guardian reports on an investigation by Which? which tested bamboo toilet roll and found that some brands didn't contain much bamboo. Full marks to Which?, but we shouldn't need to micromanage our consumption like this - we are entitled to expect that products are as-advertised.

An episode of BBC Radio 4's 'Sliced Bread' looks at the environmental impact of hand washing the dishes as against using a dishwasher. If you want not to know the answer look away now ...

It turns out that (assuming a full load) a dishwashers over its life uses less water and less energy than hand washing, even after you take into account the energy used to make the machine. If you feel guilty about having one of these machines, you are absolved.

At Baxter Towers we are particularly smug about this, because our dishwasher is a rescue. For white goods, befriend a nice couple that has just had a new fitted kitchen and they will be happy to let their old machines go to a good home.

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See also the u3a Climate Change & Environment website.

A note on sources: I am a Guardianista (and a Guardian Supporter) and I frequently forward links to content from that newspaper. This is for practical reasons, not political ones - unlike your favourite newspaper Guardian content is not behind a paywall (you may have to register, but you won't have to pay). I also link to content from The BBC, The Conversation, Ensia, Nature, and other sites that I like and feel are credible.

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