SONE

Supporters of Nuclear Energy

Newsletter

No 251 January 2020

THIS MONTH:

- Some cuttings from the daily press by James Lovelock and Sir Bernard Ingham.
- The link to "A Message for Society from Science" published in Oxford at the end of 2019 by Wade Allison.
- News of bizarre political decisions that will lead to self harm by EU.
- A discussion about synthetic fuels.
- Sir Christopher Audland KCMG (1926-2019).

Admonishment to start the year from James Lovelock in the *Sunday Times*, 5 January:

"We must stop telling lies about the dangers of nuclear fuel and use it to empower us."

... and blunt observations from Sir Bernard Ingham in the *Yorkshire Post*, 8 January:

"There is not a blind bit of use promoting electric cars unless we can provide clean power. And there is no mystery how to do that. It is to go nuclear. Yet "environmentalists" are fanatically opposed to a source of clean energy that has killed infinitely fewer people than coal, oil or gas exploration and production.

I fully accept that Hinkley Point nuclear power station being built by the French EDF company is a lousy, expensive advert for atomic energy. But we pioneered nuclear power stations that work economically and could do so again if we had a rational energy policy.

Instead, for 30 years or more our politicians and Civil Service have pandered to "environmentalists" with subsidised unreliable wind and solar power so that the safety margin is far too tight for Boris Johnson's go-ahead economy."

An article published in Oxford at the end of 2019 by Wade Allison:

https://www2.physics.ox.ac.uk/sites/default/files/news/2020/01/06/phys-news-autumn-2019-v9-web-002-46111.pdf pages 16/17.

Bizarre news of political decisions that will lead to self harm inflicted by EU

The European Commission unveiled its plan for at least EUR1 trillion in sustainable investments over the next decade. The European Green Deal Investment Plan is the investment pillar of the Green Deal, which aims to make the EU climate-neutral by 2050. The plan aims to help coal-producing regions, like Poland, move away from fossil fuels, but it is not opposed to financing of gas infrastructure. Nuclear power, a low-carbon source of electricity, is not considered 'green' under the plan and this transition fund money will not finance construction of nuclear power plants, despite the fact that the 126 nuclear power reactors in operation in the European Union provide more than half of its low-carbon electricity output. [from World Nuclear News]

This decision is strongly influenced by Green ideology from Austria and Germany The Austrian Chancellor, Sebastian Kurz, said "It is very important for Austria not to support nuclear energy but the funds should be allocated on development of renewable energy sources," Countries in Eastern Europe are among those who oppose this policy.

A discussion about synthetic fuels

Christopher Cockcroft supports the development nuclear reactors and advocates their use for the production of synthetic fuels that he welcomes as being "carbon neutral". In the following email exchange Wade Allison objects to their use because they release carbon, just as bio-fuels and natural gas do. Members of SONE can consider and may reach their own conclusions.

Cockcroft:

I really like the idea of the Synthesis of Liquid Hydrocarbons, especially since the generation/use cycle is a closed loop, apart from the energy:

$$H2O + CO2 + \text{Nuclear Energy} = \text{Propulsion Energy} + CO2 + H2O.$$

But you questioned the need for Liquid Hydrocarbon Fuels.

The simple answer is energy density. I cannot see aircraft being flown without such fuels, since I doubt that: An aircraft could economically carry hydrogen tanks; nor be allowed to carry ammonia around. Similarly, such fuels would be best for heavy trucks and shipping, let alone for long for distance car journeys.

However, I would agree that electric cars would be best for short distance journeys.

Allison:

I will express myself as a number of bullet points:

1. Climate Change. It has certainly happened both carbon-wise and temperature-wise before, most notably 55M yrs ago (PETM https://en.wikipedia.org/wiki/Paleocene%E2%80%93Eocene_Thermal_Maximum). That was not anthropogenic – and maybe it is not this time either. However, it was sufficient then to extinguish many, if not most, life forms. Life might survive such an episode but our civilisation would not. Anthropogenic global warming might not be a problem but it is not worth the risk if there is any way in which we can avoid it, in my view.
2. The ice/oceans/atmosphere are evidently quite unstable to judge from the past. It seems likely that, even if climate change was started by our emissions, it will not return to the way it was until recently, even in the next 100,000 years, even if we cut all emissions to zero and even if we start absorbing carbon (which we cannot do now on a large scale except by photosynthesis or accepting acidification of the oceans). This is a council of despair but may be correct. In which case we might as well enjoy emitting carbon until we snuff it.
3. The fires in Siberia, California, Canada and Australia indicate that even if we all plant trees, they may all burn anyway and return carbon to the atmosphere. The only safe place for carbon is buried - where it was before we dug it up. In the atmosphere or oceans carbon is trouble.
4. Assuming that you are an optimist in spite of the above, any process that emits carbon into the atmosphere is bad and any process that removes it is good. Carbon is carbon. Pretending that carbon taken from the atmosphere or oceans is different from carbon in fossil fuels is certainly mistaken. If there is a process to extract carbon from the oceans/atmosphere, it should be done. However, burning the proceeds is as bad as burning fossil fuels. "It's neutral" is the road that leads to excusing DRAX and its wood chips, imported from US with UK subsidy.

So "No" to Synfuels. Unless you are a complete pessimist [or an industrialist who wants the job].

Cockcroft:

Whereas I can see where you are aiming for in an *ideal* world, i.e. carbon capture with no carbon emissions, I feel that we cannot wait for the ideal to be reached.

Without a very sudden shift in Trade and Travel patterns, we need to offer solutions

NOW which put the Carbon INs and OUTs into balance, whilst at the same time making electricity production Zero Carbon.

If, in the long term, light weight batteries and means of storing hydrogen come to fruition, so be it. But in the meantime, the high energy density of liquid hydrocarbon fuels is still very much needed to keep the world moving.

Hence, offering safe, zero carbon nuclear energy, partnered with wind and solar if necessary, to produce a mix of electricity and liquid hydrocarbon fuels seems to me to be a very sensible aim at this point in time. Any apparent opposition in our camp at this moment could 'muddy the waters' and de-rail the whole effort to achieve this.

[Comment added later:

I do not think that synthetic fuels can be classified with Biofuels: Whereas synthetic fuels can be created by just using water, CO_2 and energy, the latter are increasingly using land gained by clearing forests, or by displacing food production; they do not have the same impact upon the climate or the world's food production. And I certainly do not support the long term use of wood chips when cheap nuclear power is available to displace it.]

SIR CHRISTOPHER AUDLAND

7th July 1926 - 29th December 2019

Prominent Member and Patron of SONE

The death has been announced of Sir Christopher Audland. He died peacefully at home in Cumbria on 29th December 2019, aged 93. Among many postings, from 1981 he served as Director-General of the European Commission Directorate-General for Energy and retired in 1986. He was a keen supporter of nuclear energy and a Patron of SONE.

Wade Allison
Oxford, January 2020

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