



Supporters of Nuclear Energy

Newsletter

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Erratum: The 2019 AGM will be held on 21 October at the Institute of **Civil** Engineers, Great George St., not Chemical Engineers as stated in Newsletter 243.

There is a Facebook Group, **Atomic Advocates, UK**. “A forum for organising and coordinating nuclear energy advocacy in UK” that members might be interested to join. Some members of SONE are already members of the Group.

A Good News Month – mostly

There have been a few seminal moments in industrial history when a whole new vision of the future appears. I think of Brunel’s Great Britain, Stephenson’s Rocket and the repeal of the Red Flag Act in 1896 when a new more realistic idea of safety on the roads allowed an avalanche of new development to begin. On that occasion the huge steam engines which genteel opinion had thought might frighten the horses were suddenly competing with all manner of smaller cars with the revolutionary internal combustion engines recently developed in Germany and France. These were an immediate popular success though initially expensive. Subsequently prices came down, production increased dramatically though many competitors went bankrupt after making just a few models.

Today, concern about climate change and the inadequacies of the pre-industrial renewables are pressing people to realise that change is coming. There is evidence that the story of climate change may be undersold <https://phys.org/news/2019-03-ipcc-underselling-climate.html> but that only adds to the case for nuclear. Public opinion has some way to go before general acceptance might be claimed but there are signs of progress everywhere. In the USA, where many still think that concern over the climate is a hoax, a bill to support the development of advanced nuclear reactors was passed by the Senate with bi-partisan support and loud online cheering from Bill Gates among others.

In the UK there is good news for local developers of small modular reactors. Firstly Professor Ian Fells project, Penultimate Power, has teamed up with the Japanese Atomic Energy Agency <http://walesnuclearforum.com/2019/02/14/an-ambitious->

[nuclear-power-plan-penultimate-power-uk-signs-partnership-with-japanese-atomic-energy-agency/](#) They plan to develop a high temperature (570C) fission reactor to generate electricity efficiently and also provide energy for hydrogen and steel production too. They are starting work on Tyneside before spreading further afield.

The other good news comes from Moltex, UK. They are already working to build a prototype molten salt reactor in Canada, and have now signed a deal to build a reactor in Estonia “by the early 2030s” <http://www.globalconstructionreview.com/news/uks-moltex-energy-signs-deal-install-molten-salt-r/>

In the 1950s nuclear power was developed on a national government basis, in part because of the connection with plutonium production and defence. Today the opposite is the case. Nuclear power is international and motivated by the worldwide commercial objective of providing energy for people and industry without fouling the environment, plutonium now only appearing as a fuel to be consumed, not produced. The international role of nuclear power is one of collaboration, of imports and exports and sharing benefits to all countries. So the future for the UK nuclear industry has to be seen in the context of all the different reactor designs entering the field, worldwide. Details can be found by taking a tour through the pages of the World Nuclear Association. [Click here](#) or search on Google for “WNA small power reactors”. The competition will be hard fought, as it was in earlier days by the makers of cars or by the railway barons. Clearly the Henry Ford principle of dedicated factory line production will drive the price down for nuclear power stations as it did for cars. Meanwhile there are lots of bees around the honey pot on the assumption that the honey will soon flow. [Click here](#) or search with Google for “International SMR and Advance Reactor Summit 2019”. Here is a survey of some runners and riders by a reliable US authority <https://neutronbytes.com/advanced-reactor-development-projects/> Today’s news is that Westinghouse has rejoined the field <https://neutronbytes.com/2019/03/31/westinghouse-launches-new-smr-effort/>

And the not-so-good news? A youthful but poorly informed “renewables” movement is gathering momentum around the world. It started in the USA as the Green New Deal, suggesting some political link to Roosevelt’s New Deal. However they need guidance – some are in favour of nuclear power and some against. The movement has spread and uses the advocacy of a young Swedish girl who speaks well. We should welcome it when youth speaks up but engage and challenge them whenever possible, at home, in schools in social media. They have gained unlikely allies in the shape of the fossil fuel interests who see a long term interest in providing the back-up that renewables need some 60-70% of the time. Those interests, largely gas, are right to see that they would have no future in partnering nuclear power instead. But

the partnership of renewables and gas would exceed the required carbon emission target which may have to be close to zero. This important development will need further discussion.

A recommendation for a new book

A Bright Future by Joshua Goldstein and Staffan Qvist, sub-titled

“How Some Countries Have Solved Climate Change and the Rest Can Follow”.

Goldstein is a professor of international relations; Qvist is an engineer and applied physicist. With their background they are eminently suited to address the subject. And indeed the book is well written and interesting.

The authors are concerned about climate change and the effect that national policies have on the emissions and energy prices. It contrasts what has happened in different nations as far as electricity is concerned. It points to the success of policies based on hydro and nuclear power in Sweden and France and laments the failure of those in Germany where the closure of nuclear plants for ideological reasons has not been compensated for by the effect of huge investment in wind, solar and biofuels. The result has been high electricity prices and continued high emissions associated with a heavy use of coal. This failure has occurred by prioritising popular sentiment ahead of science, a mistake that did not happen in France or Sweden. The authors do not attempt to cover the experience of other countries to the same depth and the UK is barely mentioned. What is more important is the easy ride they give bio-fuels. A large fraction of the energy that passes as “renewable” involves the combustion of biofuels, an industry that lays waste the environment and releases as much carbon dioxide as burning methane. The book skips rather too quickly over the reasons for the fear of radiation and nuclear, and the reasons why these fears have no scientific basis – these after all are the problems that need to be overcome through wider appreciation of history and biology respectively.

However, these are points of omission rather than errors. The book establishes convincing conclusions and is well worth reading. It may not be the whole story but I can strongly recommend it.

And a appalling book that nobody should read

- but I have and here is my review as posted on Amazon:

https://www.researchgate.net/publication/332383736_Wade_Allison%27s_Review_of_the_book_Manual_for_Survival_by_Kate_Brown

A note on Emergency Planning Zones

Traditionally the authorities in the United States have set the size of the zone around a nuclear power plant to be very large in order to appease public concern about accidents. However the new SMR designs that aim to be “walk away safe” should not need such provision, they claim. But then even for existing plants the safety records show that such zones are unnecessary. Anyway, a similar requirement was never applied to fossil fuel and chemical installations for which the safety records have been far worse. In Europe existing power stations have been built with more modest footprints. For instance, at Gosgen, Switzerland, a 970 MWe plant is accommodated on a 14 hectare site. However with the newer fail-safe SMR designs, smaller cooling requirements and the benefit of waste heat, the case for siting nuclear power plants close to urban centres becomes increasingly positive. Existing coastal sites with low population density are unnecessarily remote and at a disadvantage. However, such changes in siting policy depend on educating and reassuring the public which nobody has ever really undertaken, but that is true for other countries too.

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Oxford, April 2019

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