The Nuclear Option

Column

by Chris Cragg

If nuclear energy is going "to save the planet", then perhaps it had better get on with it. As climate scientists proclaim that humanity has less and less time to deal with the issue of climate change, reducing ever more the projected time when it will have catastrophic effects, the nuclear industry has seemed ever more certain of its role in our salvation. This is going to be the reason for its revival.

However a new study – "International Perspectives on Energy Policy and the Role of Nuclear Power" – put together by Lutz Metz, Mycle Schneider and Steve Thomas for the Royal Institute of International Affairs in London, should perhaps provide food for thought. It may just be that the global nuclear industry has more public relations officers than it actually has engineers. The introductory chapter alone has some pretty depressing numbers.

A few examples suffice. As of January 1st 2009, the International Atomic Energy Agency (IAEA) lists 44 reactors as under construction, ten more than in 2007, but actually ten less than at the end of the 1990s. However no fewer than 11 of those listed as "under construction" have been in that position for over 20 years. Equally 21 of these projects have no official start up target date. No new reactor came on line in 2008.

It gets worse. In 2001, the US Department of Energy launched its Nuclear Power 2010 program. The objective was 'to complete and construct and deploy multiple commercially viable new nuclear plants by 2010', or at minimum one light water and one gas-cooled reactor by that date. Well folks, we are half way through 2009. Doesn't time slip by!

Meanwhile in France, the Flamanville-3 project has run afoul of the safety inspectorate, ASN, over something as basic as the concrete. Further north in Finland they have had similar problems with hard stuff. Olkiluoto-3 is now believed to be two years late and 50% over budget. The inspectors bluntly talk about 'incompetence' with regard to the preparations for concreting the base slab.

Well everybody knows that getting a reactor off the ground isn't easy and concrete is clearly part of that process. However there is a little more to it than that. There is only one fabrication plant in the world – notably in Japan – that can forge the pressure vessels for the new Generation-III reactors like the European Pressurized Water Reactor. Sure, other steel companies are talking about creating larger forging facilities, but they need a concrete and viable nuclear program to proceed and in any case it will take time.

Then there are the people. As one head-hunter in the sector has pointed out, the average age of people qualified in nuclear engineering is 55. The US nuclear industry needs to recruit around 26,000 new employees over the next decade, just to keep the existing plant going. In the UK the Nuclear Installations Inspectorate has been accused of poaching staff from the companies it is planning to inspect.

Finally, it is to be noted that the UK Low Carbon Transition plan proposes that nuclear provides 8% of UK energy generation in 2020. It currently provides 13%. This is a situation replicated throughout the world. The study suggests that if you make the assumption that the reactors will run for 40 years, or rather higher than the lifetime of those that have been shut down already, then to sustain the existing contribution of nuclear energy would need 70 new reactors to be built and started up by 2015, or one every month and a half. Whatever the contribution of the nuclear industry in combating climate change it seems unlikely to be a speedy one. ■

Chris Cragg is a freelance journalist who has written about energy matters for the past 25 years for numerous magazines and newsletters. He edited the Financial Times Energy Economist for 14 years and spent four years working for BP.