NUCLEAR POWER

EXTRA:

BARRY BROOK'S ON-LINE FURTHER REBUTTAL
to IAN LOWE'S REBUTTAL (in the book)

WHY WE SHOULD SAY YES TO NUCLEAR POWER

THIS CONTINUES THE AUTHORS' DEBATE ON THIS HOT TOPIC, & IS PART OF WHY *vs* WHY™ *NUCLEAR POWER*

BARRY BROOK:

The nuclear renaissance is happening, and the bastion of atomic energy over the next two decades will be Generation III reactors. This is not idle speculation – it is already happening in the world's fastest-growing economies.

As of April 2010, over 50 of these next-generation reactors are under construction in 13 countries. [1] Twenty-two new nuclear power plants are being built in China alone, which is targeting 70 gigawatts of extra nuclear power by 2020. This includes two sodium-cooled fast reactors (BN-800) [2] of the "Generation IV" design that Professor Lowe thinks "looked too hard".

If nuclear energy were too costly and slow to deploy, as Professor Lowe argues, why would China, South Korea, India and Russia risk their precious finances on such foolhardy ventures? The answer, these governments say, is that their investment in nuclear power is both prudent and timely, and so they are willing to put their money where their mouths are. This is reality and trumps the hand-wringing concerns of disengaged critics.

With regard to the economics of new nuclear power, Professor Lowe argues that my calculations are "unrealistic" and represent nothing more than "wishful thinking on a grand scale". He says this is because I assume that a nuclear power station will last for 60 years and deliver power 90 per cent of the time. Well, I can allay his concerns with some examples from real-world experience.

For the period 2006 to 2008, the 104 reactors operating in the United States reported an energy availability factor of 91.4 per cent. In Korea, Finland and Switzerland, it was 91.9, 93.3 and 92.8 per cent, respectively. [3]

Even the Chinese, who are still accumulating experience in optimal operations, reached 86.6 per cent.

Furthermore, while the reactors built in the United States in the 1960s and 1970s had a nominal design lifetime of 40 years, more than 60 of them have since been granted licence renewals, extending their operating lives out to 60 years. Others are expected to apply for similar extensions. This is actual performance data, not speculation.

Professor Lowe touts a crystal-ball-gazing exercise by some Stanford University researchers as offering a pathway to a renewable energy solution. I have critiqued that study heavily elsewhere, [4] but the bottom line is this: if non-hydro renewable energy were truly as cost-effective and could be built on the scale these authors would like you to believe, why has no nation yet followed this energy pathway?

Denmark has done the most in this respect, with 20 per cent of its average energy coming from wind power. Yet, despite this investment in renewables, the Danes have the highest carbon intensity for electricity production in Europe, at 881 grams of carbon dioxide per kilowatt hour. [5] The lowest carbon intensity – 83 grams of carbon dioxide per kilowatt hour – is in France, which draws 80 per cent of its electricity from nuclear power.

Yet again, real-world experience says far more about energy truths than any ivory tower speculation.

FOR IAN LOWE'S ON-LINE FURTHER REBUTTAL TO BARRY BROOK'S REBUTTAL (IN THE BOOK) PLEASE VISIT: WWW.WHYVSWHY.COM

[1] World Nuclear Association, *Plans For New Reactors Worldwide*, February 2010. See: http://www.world-nuclear.org/info/inf17.html

[2] World Nuclear Association, *Nuclear Power in China*, 27 April 2010. See: http://www.world-nuclear.org/info/inf63.html

[3] International Atomic Energy Agency, http://www.iaea.org/ (direct link to data table is: http://goo.gl/79aD)

[4] Critique of 'A path to sustainable energy by 2030', 3 November 2009. See: http://bravenewclimate.com/2009/11/03/wws-2030-critique/ (The article authors responded in the Comments section)

[5] David Mackay, Sustainable Enrergy – without the Hot Air, UIT Cambridge, 2008. See: http://www.inference.phy.cam.ac.uk/withouthotair/cI/page_335.shtml