

Thanks, but we still don't need it

Some of the arguments against nuclear power are no longer valid, but it remains the wrong technology

If someone had worked out how to cause a war within the environment movement, they could not have developed a better means than nuclear power. In public, we will line up to attack the energy review published by the government today. In private we will reserve some of our venom for each other, as we start to ask ourselves whether we have made the right decision.

The UK's dying nuclear power stations are, at the moment, its principal source of low-carbon energy. Electricity produced by a pressurised light water reactor, when all its carbon costs have been taken into account, emits around 16 tonnes of carbon dioxide per megawatt hour. Gas produces 356 tonnes and coal 891. If our nuclear power stations are replaced by thermal plants, the UK's annual output of CO₂ will rise by roughly 51 million tonnes, or 8% of the total. Zac Goldsmith, arguing against new nukes, calls this percentage "miniscule". This is breathtaking. We campaign to prevent electrical appliances being left on standby, hoping to save some 4 million tonnes of CO₂ a year. How can we then dismiss a cut 13 times as great?

Some groups, such as Greenpeace, the New Economics Foundation and the Sustainable Development Commission, have produced reports showing that we can meet the government's target – of a 60% cut in carbon emissions by 2050 – without recourse to atomic power. They are right, but the target is now irrelevant. In the book I am publishing in September, I will show that when you take into account both human population growth and the anticipated reduction in the biosphere's ability to absorb carbon, we require a worldwide cut of roughly 60% per capita by 2030. If emissions are to be distributed evenly, this means that the UK's need to be cut by 87% in 24 years.

In seeking the best means by which this cut can be made across all sectors

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(transport, electricity, heating and construction), I have been forced to set aside my prejudices. I hate nuclear power, but do we need it to help prevent the planet from cooking?

Answering this question means challenging people on both sides of the debate. Anti-nuclear campaigners have a tendency to believe anything that casts the industry in a bad light. Last month's edition of the Ecologist magazine, for example, contends that 14 million tonnes of concrete are required to build a nuclear power station, resulting in a massive release of carbon dioxide. Specifications are notoriously hard to come by, but I have managed to find the figures for Calder Hall A, opened in 1956. It used 72,500 cubic yards of concrete, which equates to 108,000 metric tonnes, or less than 1% of the Ecologist's estimate. Modern power stations are smaller.

We have made similar mistakes over the global supplies of uranium. Noting that the world possesses "assured reserves" of high-grade ores sufficient to last for 40 or 50 years at current rates of use, some environmentalists have argued that if new nuclear plants are built, they will run out of fuel before they reach the end of their lives. But they have confused assured reserves with total global resources. In other words, they have assumed that no further discoveries will ever take place. 40 to 50 years is in fact a very high level of assurance.

There's little doubt that extracting these ores kills. Last month New Scientist reported that the 400,000 uranium miners working in East Germany between 1946 and 1990 were exposed to an increased risk of lung cancer of around 10%. But it didn't say whether this is the case elsewhere, or how it compares to other kinds of mining. One tonne of uranium, according to government figures, produces as much energy as 75,000 tonnes of coal. It is impossible to believe that coal has the lesser impact.

I am forced to admit that an accident like Chernobyl's could not take place in a new nuclear power station. Secondary containment of the reactor core and new safety systems make a total meltdown impossible. Nor do I believe that new reactors would present a useful target for terrorists. It would not be difficult to make the containment buildings strong enough to resist an impact with an airliner.

But there are other arguments which do stand up. The most fundamental environmental principle – one that all children are taught as soon as they are old enough to understand it – is that you don't make a new mess until you have cleared up the old one. To start building a new generation of nuclear power stations before we know what to do with the waste produced by existing plants is grotesquely irresponsible. The government's advisers have determined only that it should be buried. No one yet knows where, how or at what cost.

This is just one of the factors which make a nonsense of the economic projections.

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How on earth can we say what nuclear power stations will cost if we don't even know what their decommissioning entails? The government will assure us today that there will be no subsidies and no guaranteed prices for the nuclear industry. This should allow us to forget about the cost, and leave the market to determine whether nuclear power stations should be built. But in order to guarantee public safety, the government must be ready to rescue our power stations or their waste piles if the nuclear operators are in danger of going bankrupt. To ensure that the operators don't fudge their figures, the government must make it clear that it is NOT prepared to rescue them. It is a paradox that cannot be resolved.

And how does any system – political or technological – cope with the timescales involved? If, as a result of slow leakage into the groundwater, radioactive materials from a burial site kill an average of only one person a year for one million years, those who made the decision to bury them will – through their infinitesimal and unrecorded impacts – be responsible for the deaths of a million people.

It has also become clear that we will never rid the world of nuclear weapons if we do not also rid it of nuclear power. Every state which has sought to develop a weapons programme over the past 30 years – Israel, South Africa, India, Pakistan, North Korea, Iraq and Iran – has done so by manipulating its nuclear power programme. We cannot deny other states the opportunity to use atomic energy if we do not forswear it ourselves.

But perhaps the strongest argument against nuclear power is that we do not need it, even to reach the extraordinarily ambitious target the science demands. With similar levels of investment in energy efficiency and carbon capture and storage, and the exploitation of the vast new offshore wind resources the government has now identified, we could cut our carbon emissions as swiftly and as effectively as any atomic power programme could. In North America, where natural gas supplies have already peaked and are in long-term decline⁽¹⁴⁾, this is a much tougher challenge than in Eurasia; but while our supplies of gas persist we should use them, and bury the carbon dioxide our power stations produce, while developing the electricity storage systems that will eventually replace them. Some of our arguments against nuclear power have collapsed, but it seems to me that the case is still robust.