

I've Heard this Song Before!

By Rosalie Bertell and Alexey V. Yabokov

So many times nuclear power has put forth its ugly head as the savior of the world! Remember the discovery of *ACID RAIN*? Nuclear power was not the most likely culprit in this dramatic loss of trees and lakes. Therefore it was touted as the savior technology! It was soon clear that even though nuclear power did not emit sulfuric acid or its precursors, it did emit beta particles which reacted with the nitrogen in the air causing nitric acid. In fact, the atmospheric nuclear testing may well have been the original culprit bringing about the acid rain crisis. Certainly during those years the pH of our lakes was shifted toward acid, and the many industrial processes and automobiles then added to the disaster.

Next the nuclear power stepped forward in the 1970s to save us from *OPEC and high gas pricing*. The crisis quickly went away, not because of nuclear power, but because the people learned to conserve energy.

Now we have nuclear power standing front and center to save us from the horrors of *climate change and global warming*! The thinking is again faulty, as so many have shown, but this time the hype and PR is somewhat more overwhelming. Is nuclear power REALLY our only sane choice, or is this a LAST DITCH STAND for a failed industry?

These claims for nuclear power are at best specious, at worst disastrous. Take carbon emission. There is a blithe notion that nuclear power is clean. It emits no CO and therefore does not contribute to global warming. This argument has been systematically taken apart over the past five years by two independent experts, Jan Willem Storm van Leeuwen and Philip Bartlett Smith. One is a chemist and energy specialist, the other a nuclear physicist, who between them have several lifetime experiences in the nuclear industry. What they have done is look at the entire life cycle of a nuclear power station from the mining of the uranium to the storage of the resulting nuclear waste. Their conclusions make grim reading for any nuclear advocate.

They say that at the present rate of use, worldwide supplies of rich uranium ore will soon become exhausted. Perhaps within the next decade, nuclear power stations of the future will have to rely on second-grade ore, which requires huge amounts of conventional energy to refine it. For each ton of poor-quality uranium, some 5,000 tons of granite that contains it will have to be mined, milled and then disposed of. This could rise to 10,000 tons if the quality deteriorates further. At some point, and it could happen soon, the nuclear industry will be emitting as much carbon dioxide from mining and treating its ore as it saves from the so called clean power it produces thanks to nuclear fission.

At this stage, according to an article in Prospect magazine by the energy writer David Fleming, nuclear power production would go into energy deficit. It would be putting more energy into the process than it could extract from it. Its contribution to meeting the world's energy needs would become negative! The so-called reliability of nuclear power, which its proponents enthuse over, would therefore rest on the growing use of fossil

fuels rather than their replacement.

Even worse, the number of nuclear plants required to meet the world's needs would be colossal. At present, about 440 nuclear reactors supply about 2 per cent of demand. The Massachusetts Institute of Technology calculates that 1,000 more would be needed to raise this even to 10 per cent of need. At this point, the search for new sources of ore would become critical. Where would they come from? Not friendly Canada, which produces most of it at present, but places like Kazakhstan, hardly the most stable of democracies. So much for secure sources of energy! We would find ourselves out of the oil-producing frying pan, right in the middle of the ore-manufacturing fire.

These arguments have to be met before other, more searching questions are answered about what the society suffers from routine emissions of radioactive materials into air and land, where we intend to store waste, what we are going to do to prevent unexpected radioactive leaks, and how we should protect nuclear plants against terrorism. The truth is that this form of energy is, in the end, no more safe, reliable or clean than the others. That may well mean turning our backs on it; and confronting reality rather than myth. Some good, however, may come from the debate. The decision to go nuclear will, ironically, make the case for renewable energy stronger rather than weaker.

There has been a growing sense that the Government has lost faith with wind, wave and tidal power, on the grounds that the public has turned against them and that their efficiency is doubtful. Wind turbines in particular have been subjected to sustained local campaigns and derisive columns from the pro-nuclear lobby. They have one great advantage however they are **genuinely renewable**, and they are reversible. A wind turbine, unlike a nuclear reactor, can be removed once it has come to the end of its natural life. A wave machine can simply be towed away.

Nor, in comparison to nuclear power, are they gravely inefficient. Of course a wind farm depends on wind, which may or may not blow, and a wave machine similarly is weather-dependent. But both need to be part of the world's energy jigsaw puzzle. It is absurd, for instance, that the Government is withholding the millions of dollars of investment that is needed to turn wave power into a commercial proposition. Experiments in the Orkney Islands have proved so promising that the Portuguese Government has bought the technology and is hoping to exploit it industrially in its own waters. Why can't we do the same? It is only years of government subsidy which has made the nuclear option seem to be cheap!

Nuclear power generation is not trouble-free, and the more you look at it, the more enticing the other choices become.