

# NUCLEAR REACTION

The controversial issue of uranium mining forms the start of an inquiry by the House of Representatives Industry and Resources Committee into non-fossil fuel energy. *Geoffrey Maslen reports.*

**E**ven buried deep in the ground, uranium is still an explosive element. Number 92 on the periodic table has the capacity to generate enormous heat—and not just in nuclear power plants or atomic bombs but between opponents and supporters of its use as an alternative fuel.

Opponents point to fearful images of mushroom clouds and scenes of utter devastation at Hiroshima and Nagasaki. They couple the haunting pictures with references to the partial meltdown of the American Three Mile Island nuclear reactor in 1979 and the Russian Chernobyl explosion in 1986.

Then there are the widespread concerns over nuclear waste—the Achilles heel of the industry—with fears of contamination from poorly-stored containers and the threat of waste being converted by terrorists into nuclear weapons. Those fears have led to mass protests around the world.

France made a decision 30 years ago to implement a nuclear program from a need to be energy self-sufficient and now has 59 nuclear plants generating three-quarters of the nation's electricity. The French answer to the question of why they chose nuclear energy is “No oil, no gas, no coal, no choice”.

But next year the national parliament must settle on the site of a nuclear waste storage centre. Should the decision meet serious local resistance, the viability of France's nuclear industry may begin to unravel.

For their part, uranium's supporters raise the spectre of global warming caused by the burning of fossil fuels. They talk of ice caps melting, of floods covering vast areas in China, tornados wreaking havoc in America and widespread drought killing off tens of thousands of sheep and cattle in Australia.



The supporters claim the world's 440 nuclear power reactors in 31 countries are generating electricity in a reliable, environmentally safe and affordable way without emitting noxious gases into the atmosphere. Look at Japan, they say, the only country to be struck by atomic bombs yet it has 54 reactors operating.

The world's greenhouse gas emissions could be cut by 7 billion tonnes a year with uranium power generation technology and hybrid cars, argues Alistair J Stephens. As managing director of minerals exploration company Arafura Resources, Mr Stephens says 2.4 billion tonnes of



Ranger uranium mine (NT). Photo: Bob Barker, Newspix

coal are produced annually and this is projected to increase to 7 billion tonnes by 2030.

“Each tonne of coal produces approximately 3.8 tonnes of carbon dioxide as well as sulphur dioxide, ash and other metallic emissions,” Mr Stephens says. “This means that coal use ... creates at least 9.1 billion tonnes of carbon dioxide. If uranium was to replace all coal-fired power generation, carbon dioxide emissions could drop from 9.1 billion tonnes to just 3 billion tonnes, saving 6 billion tonnes of emissions.”

Now Australian politicians have joined others around the globe in calling for the nuclear question to be re-

examined. Federal Education, Science and Technology Minister Brendan Nelson has pointed out that Australia's policy of mining and exporting uranium without using the product itself is inherently contradictory.

Dr Nelson has been joined by Prime Minister John Howard and Resources Minister Ian Macfarlane, while on the Labor side Bob Carr, when NSW Premier, said he wanted the issue revisited. But, in asking whether nuclear power was more dangerous than coal, Mr Carr divided Labor opinion.

Federal Shadow Environment Minister Anthony Albanese is opposed to nuclear energy on the grounds that nuclear waste is an intractable problem. Rising greenhouse emissions are better tackled by a greater investment in renewable energy and programs to reduce energy use, Mr Albanese says. Environmentalists say he is right.

The argument has moved into the letters and opinion pages of the press where pro and anti views proliferate. Uranium's supporters say Australia is one of the most profligate users of fossil fuels in the world—largely because of its addiction to coal as a major source of electricity generation.

Writing in *The Age*, Victoria University political scientist Professor Alan Patience said Australia was in the same league as offenders such as America, China and Russia in terms of releasing toxic emissions into the earth's atmosphere. He claimed it may not be long before mining and burning brown coal for electricity generation will be seen around the world as a crime against humanity.

In response, one letter writer said the nuclear power debate was not actually about nuclear energy: “It is about dragging the biggest, fattest red herring across the fossil fuels versus renewables debate that anyone can find. In some countries a case can be made for nuclear power but in Australia the case is a joke. We are richly supplied in coal, sunlight, wind, wave and hot dry rock energy. Nuclear cannot compete without massive subsidies...”

As the debate was beginning in March, Minister Macfarlane asked the House of Representatives Industry and Resources Committee to conduct an inquiry into the development of the non-fossil fuel energy industry in Australia.

It began with a study of Australia's uranium resources, the global demand for uranium and its strategic importance. Other issues being considered are the potential for reducing greenhouse gas emissions and the current structure and regulatory environment of Australia's uranium mining sector.

The committee has 10 members, three from Labor and seven from the conservative side of politics. Launching the inquiry, Committee Chair Geoff Prosser (Member for Forrest, WA) said Australia possessed enormous deposits of uranium and South Australia's Olympic Dam alone contained 34 per cent of the world's known uranium reserves.

“With higher prices now being paid for uranium on world markets, demand increasing and nations looking for ways to reduce greenhouse gas emissions, the time is right to examine the further development and export

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"There are very significant strategic implications in exporting uranium to new customers in the North Asia region."

Olympic Dam uranium mine (SA). Photo: Colin Murty, Newspix

of Australia's uranium resources," Mr Prosser said.

To date the committee has received 53 written responses, some quite lengthy and informed commentaries but about equally divided on whether uranium should be mined. The submissions have come from a diverse range of individuals, environmental associations, scientific organisations and academies, mining companies, an Aboriginal group, the Uniting Church and the Victorian branch of the Medical Association for the Prevention of War.

Two CSIRO scientists, Dr Rod Hill and Dr Steve Morton, noted in their submission that Australia's production of uranium oxide had risen to more than 10,000 tonnes a year since a big price increase in 2002. They said demand for the ore was expected to rise even more given predicted global energy requirements.

"Australia and Canada dominate the world's known uranium deposits, with all of Australia's production being exported," the scientists wrote. "Over the last four years, Australian exports have provided about 25 per cent of the world's uranium supply from mines and are sold strictly for electrical power generation only."

They argued that Australia could consider extending its technological

operations significantly "along the uranium fuel value chain"—presumably by building one or more nuclear reactors. CSIRO and the Australian Nuclear Science and Technology Organisation (ANSTO) had the necessary research skills to support this, they said.

One of CSIRO's flagship programs is modelling the impacts of various scenarios for energy generation to 2050 as part of an Energy Futures Forum. The scenarios are being assembled by representatives from industry, government, environmental, consumer, employee and social service groups. As the scientists noted, "It is difficult to conceive a more legitimate group to put together plausible scenarios for our energy future".

In its submission, ANSTO reported that the International Atomic Energy Agency was predicting at least 60 more nuclear power stations would come online by 2020, while their share of the world electricity market would increase from 16 to 17 per cent. The organisation drew attention to its own technical expertise in assisting the development of uranium mining operations and in managing highly active waste from the nuclear fuel cycle.

Similarly, the Minerals Council of Australia said it was committed to working with government to

determine policies and strategies, "underpinned by technology", as part of a global solution to greenhouse emissions. But the council noted that different state laws affected uranium mining and that currently it only occurred in the Northern Territory and South Australia.

"Queensland, Victoria and Western Australia have for the time being prohibited certain nuclear activities within their jurisdiction, including uranium mining," the MCA advised. "To be internationally competitive, the minerals industry needs an operating environment conducive to investment, growth and profitability, and founded on sound policy principles."

In his submission, Arafura Resources chief Alistair Stephens said revitalisation of the uranium industry in Australia could see a huge increase in the value of exports. Between 2002 and 2004, uranium exports generated \$400 million a year but, with prices nearly doubling since then, export earnings had jumped to \$650 million.

"If Australia was to supply half of the current world market deficit of 30,000 tonnes, our uranium industry could export 25,000 tonnes worth \$1.7 billion per annum," Mr Stephens wrote.

In reference to China as a likely major buyer of uranium, he said 70 per cent of that populous nation's energy needs came from brown coal, the least efficient and dirtiest fossil fuel for energy generation. As a result, China had nine out of the 10 most polluted cities in the world.

But other submissions contested the claims of the scientists and miners that nuclear power was safe, that uranium exports should be increased and that China would be a welcome major market. Their troubling observations and dire warnings were in stark contrast to the breezily confident assurances of those favouring nuclear power and wanting to ship increasing quantities of uranium to other parts of the world.

People for Nuclear Disarmament NSW disputed that nuclear power reduced the greenhouse gas emission problem or that there were no problems in boosting exports: "It is [our] conclusion that there are very significant strategic implications in

exporting uranium to new customers in the North Asia region, namely China," the submission said. "These implications would argue against any expansion of mining and exporting Australian uranium."

Likewise, the Medical Association for the Prevention of War was seriously concerned by the inquiry itself and its terms of reference. The association said the committee's first priority should be shifting Australia towards a sustainable, renewable energy future.

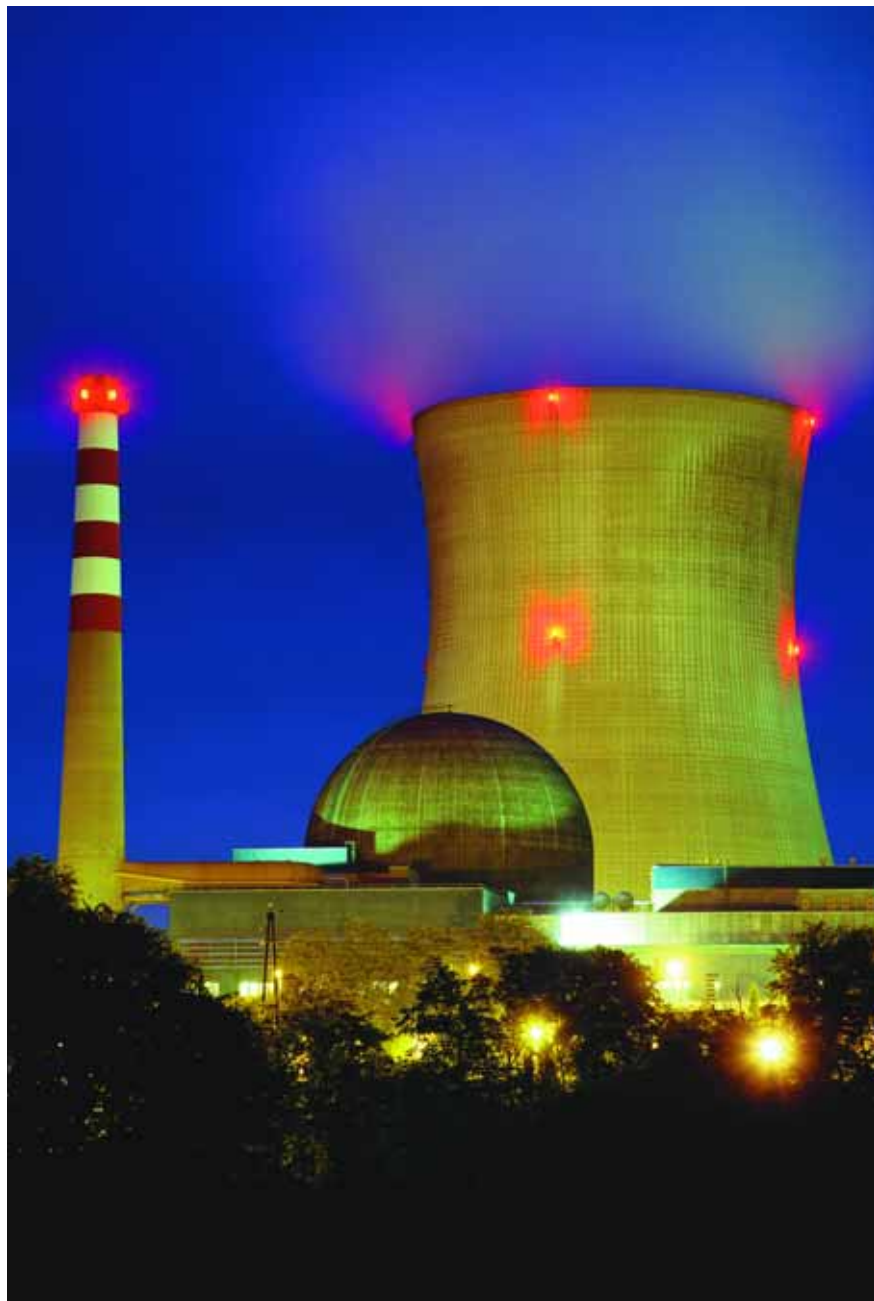
"That the [committee] should open such an inquiry with a case study into the strategic importance of Australia's uranium resources indicates at best a regrettably misplaced sense of priorities," the association said. "And at worst a clear indication the inquiry is a sham and is being used to advance a dangerous and short-sighted decision already made by the government to hasten and encourage the expansion of uranium mining in Australia."

Drawing attention to the uncomfortable subject of nuclear weapons, which rely on uranium and its byproducts, the association said 28,000 such weapons were still deployed. These included "thousands of hair-trigger, launch-on-warning alert" missiles; likewise, new politically unstable countries had now acquired nuclear weapons and terrorist groups were obviously intent on getting them as well.

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The association claimed that 20 cases of nuclear material diversion and more than 200 incidents of illicit trafficking had been documented over the past decade. Numerous instances of technical failures and human error had resulted in situations risking nuclear war... where one person's judgement had been the only barrier to launching multiple nuclear weapons. ■

*For information on the inquiry into developing Australia's non-fossil fuel energy industry, and the case study into the strategic importance of Australia's uranium resources, visit [www.aph.gov.au/house/committee/isr/uranium](http://www.aph.gov.au/house/committee/isr/uranium) or email [ir.reps@aph.gov.au](mailto:ir.reps@aph.gov.au) or phone (02) 6277 4594.*



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