

SUBMISSION

to the House of Representatives Standing Committee on
Industry and Resources'

INQUIRY

into developing Australia's non-fossil
fuel energy industry,
and the Strategic Importance of
Australia's Uranium Resources

Submitted by the Western Australian Branch of the
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SUMMARY AND RECOMMENDATIONS

The WA Branch of the Medical Association for Prevention of War recommends that rather than increasing uranium exports, Australia reduce and then stop these exports for the following reasons ~

1. While the global demand for uranium increases, Australia, with its vast uranium deposits, will be placed under greater pressure and temptation to exploit this resource. MAPW (WA) assesses the long-term disadvantages of yielding to this to far outweigh the short-term benefits.
2. The links between nuclear power and nuclear weapons is well-established. While Australian safeguards would intend to stop this cross-over, this cannot be absolutely guaranteed. Even if our safeguards “work” 100 per cent of the time, exported Australian uranium could still release other uranium for nuclear weapons.
3. The global bid to increase use of nuclear power on grounds that it is the “greenhouse fix” is based on the false premise that nuclear power itself is “clean”. Also investment in uranium mining and nuclear power diverts intellectual and financial resources away from real solutions – renewable energy technologies and improved energy efficiencies.
4. The waste problem, unresolved despite almost 60 years of research, is on its own enough to spurn nuclear power.
5. The health consequences of uranium mining and nuclear power are on their own enough reason to spurn any increase in uranium mining/nuclear power.
6. Enlarging Australian uranium exports would add more burdens to the indigenous people under whose land this ore occurs. They should be left in peace – and the uranium left undisturbed in the ground.
7. The threat of nuclear terrorism would diminish if there was less fissile material available for theft. Therefore, let Australia not contribute more to the global stock of fissile material – or to more reactors which could be subjected to terrorist attack.

Medical Association for Prevention of War (WA Branch) is thankful for the opportunity this Inquiry provides to forward our Branch’s views on Australia’s future energy policy which will have great implications for planetary and human health and security. We would have preferred that the Inquiry emphasised the development of Australia’s renewable energy industries rather than the focus being on Australian uranium resources.

Our position stems from recent evidence that global warming is accelerating, a trend which will increase if the Federal Government pursues its policy of directing most of its energy funding towards improvements in the use of fossil fuels. This is because measures to curb aerial pollution engendered by their use, with its unwelcome health effects, will have the unforeseen result of reducing “solar dimming”, a phenomenon recently shown to have so far moderated the greenhouse effect of fossil fuel use. Thus, the need to reduce fossil fuel use has become urgent, but the expansion of nuclear power, with its long time frame, high capital costs and other associated negatives, is also inappropriate. Moreover, Australia itself has no nuclear power industry, but has an innovative renewable energy industry which could be developed more rapidly and has the advantage over nuclear power of providing energy at a point of need and with a flexible output.

GLOBAL DEMAND FOR AUSTRALIA'S URANIUM RESOURCES AND ASSOCIATED SUPPLY ISSUES

16 per cent of the world's electricity supply is generated in nuclear reactors. Stockpiles of the nuclear fuel are dwindling and demand is set to rise from reactors being built in China, the world's biggest energy consumer after the U.S., and India. With the 1979 accident to the US reactor at Three Mile Island receding in the national memory, the US has plans to resume building new reactors. In Indonesia, there is a debate over whether the country should revisit earlier plans to develop nuclear power. How will Australia, holder of the world's largest uranium reserves, react in this escalating demand climate?

China

Australia is currently negotiating a Free Trade Agreement with China. China's nuclear energy program involves an \$8 billion contract to build four reactors in the world's biggest nuclear power construction program. It plans to build 27 plants to meet a target of boosting nuclear energy output fivefold by 2020. (According to Bruce Brook, WMC's chief financial officer, in an interview Nov. 30 2004, China had announced that 32 nuclear power stations would be developed over the next 16 years.)

Whatever the projected number, by 2020, China plans to meet a target of generating 4 percent of its power from nuclear power.

According to Quinton George, managing director of Trinity Asset Management, which owns 18 percent of Afrikander Lease Ltd., holder of South Africa's biggest uranium deposit, demand from China may help uranium prices double in the next two years and triple demand for nuclear power by 2020.

China has begun talks with Australia, to enable the fuel to be exported by London-based Rio Tinto, the world's third-biggest miner, and WMC Resources Ltd., the then owner of the biggest deposit of the radioactive metal at Olympic Dam/Roxby Downs in South Australia. BHP Billiton is in the process of taking over WMC, and therefore extending its mining activities into uranium.

India

India aims to build 17 reactors to triple nuclear power capacity by 2012. Most reactors under construction in China and India have not secured long-term supply.

USA

For the first time in over three decades, the US is looking to build new nuclear reactors. Three U.S. power companies, Exelon, Richmond, Virginia-based Dominion Resources Inc. and Entergy Corp. in New Orleans, applied in 2003 for preliminary site approval from the Nuclear Regulatory Commission to build nuclear reactors at existing power plant locations. Commercial stockpiles of the fuel dropped 50 percent between 1985 and 2003 because mine output couldn't keep up with demand, according to a September 2004 report by the Massachusetts Institute of Technology.

Russia

Russia plans to build 25 new nuclear plants by 2020.

Rising World Demand for Uranium

Last year, the World Nuclear Association trade group forecast that world demand for uranium will outpace supply by 11 percent in the decade ending in 2013 as inventories decline. Cameco Corp planned to boost output from the world's richest uranium deposit in Canada's McArthur River mine. Areva SA of France invested \$90 million to develop a mine in southern Kazakhstan. The International Uranium Corp. is searching the Gobi Desert. These are all potent indicators that the global demand for uranium is expanding, and there will be more pressure on Australia to increase exploitation of its uranium deposits. The lure of out-competing rivals in meeting this growing demand for uranium will be strong in Australia's mining sector.

After the 1991 collapse of the Soviet Union, Russia became the world's second biggest exporter of uranium after Canada. Much of the uranium it culled from aging nuclear warheads was sold to the US to be used to fuel its reactors. According to the Washington-based Nuclear Energy Institute trade group, reactor fuel made from Russian Cold War weapons was powering one in 10 U.S. homes and businesses in 2004. Under a 1993 accord with the U.S., Russia agreed to sell as much as 24 million pounds of warhead uranium a year (through to 2013) to nuclear power companies in the U.S., Europe and Asia. The objective of this accord was also to give Russia a financial incentive to decommission warheads and to ensure that nuclear material didn't end up in the hands of terrorists.

However, one unintended outcome of the 1993 accord was a lowering of uranium prices. By 2000, it was more difficult for mining companies to cover production costs to meet demand to power the world's 439 nuclear reactors, including 103 in the U.S., according to Ron Hochstein, chief executive officer of International Uranium.

If Russia unlocked its inventories (of its millions of pounds of warhead uranium) to boost its government revenue, the effect would be a lowering of global uranium prices. This would impact on profits to be made from Australian uranium sales. However it is more likely that Russia will retain its warhead uranium supply for its own expanding nuclear power program. Russia's Ministry of Atomic Energy has said it would tighten control on warhead uranium as the country's demand expands. This would certainly change the dynamics of global uranium supply. The higher prices would mean greater profits from a smaller amount of uranium.

In 2003, mining by companies such as Cameco and Energy Resources of Australia produced 92 million of the 172 million pounds of uranium used by civilian reactors. The rest came from the inventories of utilities, reprocessed uranium and material from Russian warheads.

Secure long term prospects are essential for mining interests because of the long lead time in establishing new mines. The demand for uranium from the US, Europe and Asia will increase if Russia keeps its uranium for its own domestic use. As demand outstrips supply, they will look for new sources – including to Australia.

Given the accustomed lack of transparency in the uranium market and the difficulty of assessing the level of supply from dismantled nuclear weapons, it is difficult to determine the extent of supply shortages. As prices rise when supply goes down, there is a huge commercial advantage in talking down the supply available while talking up the demand.

STRATEGIC IMPORTANCE OF AUSTRALIA'S URANIUM RESOURCES AND RELEVANT INDUSTRY DEVELOPMENTS

Obviously uranium has extremely high "strategic value" in that it provides the basic building blocks for nuclear weapons, highly enriched uranium and plutonium. To this we now need to add Depleted Uranium, a by-product of the enrichment process of natural uranium ore for use in nuclear reactors, other civilian purposes – and for weapons and military equipment (eg. Abrams tanks.) While Australia has strict safeguard regulations covering exports of Australian uranium, complete accounting for the uses to which it is put once it leaves our shores is a truly difficult task. Even assuming that all exported Australian uranium was to be put to peaceful, civilian uses, the fact that Australia makes it available could release other uranium supplies in the importing country for weapons purposes. We therefore must ask ourselves if our uranium exports are responsible in terms of international security.

Despite the Non-Proliferation Treaty, nuclear weapons materials and technology have proliferated. The IAEA itself sees that the international safeguards regime has failed to control proliferation. The IAEA says that the international security landscape has also been radically altered by the clear intention of terrorists to acquire nuclear weapons or materials.

The IAEA's Dr ElBaradei is clearly highly concerned that nuclear power, rather than serving our needs for electricity could instead contain the seeds of our destruction. In 2003, he called upon the United Nations to consider putting all production of weapons-usable uranium and plutonium around the world under international control to limit "the increasing threat" posed by countries and by terrorists.

When Australia makes its uranium available for nuclear power, the global stocks of fissile materials, including plutonium, are increased – with the potential for diversion into nuclear weapons programs. Whatever its fate, exported Australian uranium will eventually add to the global stocks of nuclear waste to be stored and guarded by subsequent generations.

By mining and exporting Australian uranium at a greater rate in response to increased global demand, Australia would in fact be undermining research and development into renewable energy technologies and increased methods of energy efficiency. These technologies are disparagingly termed "alternative" in some quarters – when they are in fact essential necessities for a sane energy future. Solar and wind, geothermal and tidal power, bio-energy technologies, co-generation can all be part of the real solution to greenhouse problems, creating many jobs as they expand.

While the Inquiry's terms probably mean "nuclear" when they refer to "non-fossil" fuel energy industry, the scope of the inquiry should take into account all forms of renewable energy production. The Federal and State governments should be offering inducements to switch household and industry use to these environmentally benign forms. At household level, people can be encouraged to save on power bills by switching off lights and appliances when not in use, (and preferring to purchase high star-rated appliances in the first place), using compact fluorescent lights, reducing length of hot showers, using cold water for washing, ensuring homes are well-insulated and so on.

In future, consumption patterns will need to change. Quality of life and happiness will need to be measured differently so that they are less dependent on materialism.

It is time for Australia to recognise that nuclear power does not “answer” greenhouse concerns as from its beginnings in exploration and mining through to the final decommissioning of out-of-date reactors, nuclear power itself equates to major creation of greenhouse gases. We are also approaching an end to “The Age of Oil” and should be shepherding our use of oil and gas with far greater care.

Expanding global nuclear power through increasing Australian uranium exports would enlarge several industries very significantly. One would be the security services - as there would be more need to protect fissile materials, nuclear waste repositories and so on. The nuclear industry is historically a most secretive one – as, apart from normal commercial competitiveness, the materials with which it deals are potentially so harmful.

Another “industry” that would enlarge would be cancer research and treatment. The known consequences of exposure to radioactive contamination are leukaemia and other cancers, as well as birth deformities and genetic mutation.

The 1959 agreement (UN Res. WHA 12.40) between the World Health Organization and the International Atomic Energy Agency, commits both these UN agencies to consult with the other "whenever either organisation proposes to initiate a programme or activity in which the other organisation has or may have a substantial interest ... with a view to adjusting the matter by mutual agreement". As a result, the WHO can be constrained by any concerns held by the IAEA (and vice-versa). An outcome of this agreement has been WHO's failure to concern itself with studies of adverse health effects of nuclear power, as nuclear power is the primary *raison d'être* of the IAEA. An example of this failure is the WHO's response to the Chernobyl catastrophe in 1986. In November 1995, the WHO organised an international conference on the consequences of the Chernobyl accident, but the proceedings of this conference were never published. Six months later, the International Atomic Energy Agency announced figures which grossly understated the extent of the problem as assessed by independent authorities. As Dr Susan Wareham, President of MAPW (Australia) has said, “The promotion of any particular form of energy for human use, or indeed any human activity, must be open to rigorous scientific examination without prejudice or bias.”

While the need to amend the WHO-IAEA agreement is probably outside the terms of this Inquiry, the point that the nuclear power industry wields such oppressive influence is not. Rather than contributing to its expansion, Australia would be better restricting its growth in favour of more benign forms of energy capture and use.

Uranium mines in so many cases are on indigenous lands – and Australia is no exception. Narbarlek, Ranger, Roxby Downs have all impacted on our First People. The example of Jabiluka shows how strongly Traditional Owners, the Mirrar, resisted this intrusion into their country – and they won. The cultural, social and health consequences of the Ranger mine had helped them to take their strong and patient position which they pursued peacefully through legal means for years. The outstanding Kungkatjuta women in South Australia demonstrated how they want no more to do with the nuclear fuel chain when they successfully resisted the establishment of a national radioactive waste “dump” on their land. The Maralinga and Emu Plains tests had been their terrible introduction to the power of the atom.

POTENTIAL IMPLICATIONS FOR GLOBAL GREENHOUSE GAS EMISSION REDUCTIONS FROM FURTHER DEVELOPMENT AND EXPORT OF AUSTRALIA'S URANIUM RESOURCES

In response to global concerns about climate change, the Kyoto Protocol became international law on February 16 this year. The only developed countries that have failed to support the Protocol are the US and Australia. Australia's "special case" dependency on coal-powered electricity generation – and our usual acquiescence with US policy – have contributed to our Kyoto recalcitrance. However, there is also the fact of our vast uranium resources. If nuclear power is to surge ahead to "save" the planet from disastrous greenhouse-induced climate change, then Australia is in excellent position to reap the financial benefit.

There is a huge global push by nuclear power proponents who argue that the global Greenhouse problem would be alleviated if more nuclear power, and less fossil fuels, were used – but is this the case?

Christopher Flavin, author of *Slowing Global Warming: A Worldwide Strategy* (published by the Worldwatch Institute, October 1989) says: ". . .for nuclear power to offset even 5 percent of global carbon emissions would require that worldwide nuclear capacity be nearly doubled from today's level. That means that nuclear is simply not a medium term option for slowing global warming."

Senator George Mitchell, in his 1991-published book, *World on Fire*, states: ".If nuclear plants replaced all coal-fired plants in the world, global warming could be cut by 20 to 30 percent by the middle of the next century (2050). But it would require bringing a nuclear power plant on line somewhere in the world every one to three days for the next forty years. The cost would be \$9 trillion; the pace of construction would be ten times larger (greater?) than any the world has ever seen. Both figures are unthinkable. A totally safe reactor, a totally safe place to dispose of its deadly wastes, and a totally safe way to keep the wrong kind of nuclear materials from falling into the wrong hands - none of these things have been resolved. By the time they are resolved, if they ever can be, it will be too late. The projected global warming will be full upon us."

In *Greenhouse Warming: Comparative Analysis of Nuclear and Efficiency Abatement Strategies*, authors Bill Keepin and Gregory Katz, (Energy Policy, December 1988) posit a conservative scenario in which one-half of non-fossil energy is supplied by nuclear power with a construction program beginning in 1988.

"This results in a total nuclear installed capacity of 8,180 GW by the year 2025, equivalent to some 8000 large nuclear power plants. This represents a 20-fold increase in world nuclear capacity, requiring that nuclear plants be built at an average rate of one new 1000 MW plant every 1.61 days for the next 37 years. At an assumed cost of \$1.0 billion/1000MW installed, this results in a total capital cost of 8.39 trillion (1987) dollars, an average of \$227 billion each year for 37 years to build the required nuclear plants. Total electricity generation cost is \$31.48 trillion, or an average of \$787 billion/year. The required capital investment is economically infeasible for the developing world."

Keepin and Katz point out that even with a massive nuclear construction program, the use of fossil fuels will continue to grow... and that " even bringing a new nuclear plant on line every day and a half for nearly four decades does not prevent annual CO₂ emissions from steadily increasing to a value 60% greater than they are today."

There is scientific evidence that we must cut global greenhouse pollution by more than 60% by the middle of this century to stabilise the earth's climate. Could "going nuclear" help achieve that target?

Overall the global transport depends on fossil fuels, not electricity. Therefore, nuclear power will not address this major source of greenhouse gases.

Nuclear power, despite being depicted as "clean and green" by its advocates, is neither. Throughout the exploration and mining phases, the milling and processing, the transporting of processed ore, the building of reactors, the global movement of spent and treated fuel rods, the passage of radioactive wastes (with nowhere to go), and the final decommissioning of reactors past their use-by date, fossil fuels are extensively used. Don Henry of the Australian Conservation Foundation states that "decommissioning costs rival construction costs and there is no answer in sight on how or where to safeguard nuclear wastes that remain hazardous for longer than recorded civilisation. Some 50 years into the nuclear industry experiment, no country has yet achieved post-closure decommissioning of a large nuclear power plant or been able to establish a final repository for nuclear wastes."

Australians are all too aware of the intractable problem of disposal of radioactive wastes. Even though our stockpile is diminutive by world standards, no solution has yet been found to secure Commonwealth radioactive wastes. South Australia, Western Australia and the Northern Territory have passed legislation to reject Federal waste repositories. Commonwealth waste from Australia's old research reactor continues to be stored at Lucas Heights to south of Sydney to the consternation of the NSW government and local citizens who oppose the siting of new reactor now under construction there.

On top of these considerations lies the prospect of reactor accidents with their appalling health consequences. Another problem with using nuclear power is that the reactors and the much transported radioactive materials they involve provide opportunities for nuclear terrorists.

Greenhouse concerns are better addressed by renewable energy technologies and increased efficiencies in our energy consumption.

Australia would benefit by investing more significantly in forms of electricity production that cause the least impact on the environment and atmosphere, and could become a world leader and exporter in this new technology. Job creation would be another advantage in taking this course with vigour. Better public transport systems would be an essential component. There are enormous gains to be made through applying energy efficiency. With political will, Australia could provide incentives to reduce greenhouse pollution by such means. The ACF proposes a mandatory 20% renewable energy target by 2020 and a domestic emissions trading scheme.

The ACF also notes that investment in renewable energy has begun to pay dividends, with the per kWh cost of electricity from wind turbines falling by 50% and costs from solar cells falling by 30% over the last 10 years.

Investment in uranium exploration and mining directs investment away from research and development of renewable energy technologies and increased energy efficiencies.

CURRENT STRUCTURE AND REGULATORY ENVIRONMENT OF THE URANIUM MINING SECTOR

MAPW (WA Branch) wishes to make few comments on this section of the Inquiry except to note that the history of uranium mining in Australia shows that many incidents have occurred that could damage the environment and/or the health of the workers. The record indicates a lack of care in an industry that can afford no mistakes. Examples are:

* The spate of radioactive spills at Olympic Dam in 2003 (five incidents in that year.) The last of these saw 145,000 litres of waste liquid (containing 36 parts per million of uranium) escape from a failed plastic pipe – after of an Environment Protection Authority audit of the mine which found failures in the system designed to contain such spills, and also that the mining giant showed non-compliance with fuel management regulations, site bunding and landfill. Dr Paul Vogel, the EPA's chief executive, said at the time that the agency was looking at "additional licence conditions" for WMC Resources. A company spokesperson, Mr Yeeles said the reporting requirements that necessitated public disclosure of radioactive spills, which came into force in that year, had "established a perception that makes it difficult for us to operate". This statement underlines the secrecy within which the nuclear industry prefers to operate.

* Early this year (2005), the South Australian Government ordered a report into an increase in the number of bird deaths at the Olympic Dam mine (100 birds – mostly water birds - over a four day period.).

* In June 2002, at Southern Cross Resources' Honeymoon mine in South Australia, there was a spill of around 30,000 litres of basal groundwater (~1,000 ppb). This spill was kept quiet by the company.

* Dangerous practices at Energy Resources Australia's Ranger mine on the border of Kakadu National Park, were revealed in March 2004 after a pipe containing contaminated water at the Ranger uranium mine was mistakenly fitted to a drinking water pipe. When the workers showered after their night shift, they noticed the water was of poor quality. The next morning, workers on a different shift drank three or four litres of water containing 400 times the legal limit of uranium. They learned the water was polluted only when they read a newspaper report on March 25. Altogether 28 workers drank or showered in the tainted water. The symptoms they have suffered include headaches, general aches, lethargy and diarrhoea, as well as the psychological stress of not knowing what the long-term effects of the incident will be. In his report on this, Supervising Scientist Dr Arthur Johnson of the Darwin-based OSS which monitors Ranger, criticised ERA which he said had provided insufficient resources for radiation protection and failed to employ enough qualified workers, while its methods of decontaminating people and equipment were inadequate. He added that the number of incidents that have occurred at the mine since it opened in 1981 were cause for serious concern. More than 120 leaks, spills and breaches of regulations have been reported during its operation. Dr Johnson also gave details of a previously unreported episode in which a man and his children were exposed to radiation during the transportation of contaminated material after contaminated vehicles were allowed to leave Ranger without radiation clearance certificates. In September 2004, Ranger mine was put on notice that it would be shut down unless it made adequate health and safety improvements. The Northern Territory Justice Department laid charges against ERA for licence breaches at this mine which still has 6 or 7 years to run. The litany of environmental and health threats at the mine so far would seem to justify revoking its operating licence.