Submission No. 24

House of Representatives Standing Committee on Industry and Resources

Strategic Importance of Australia's Uranium Resources

1. I write as the former Deputy Vice-Chancellor of the University of Queensland (1986 - 90), President of the Australian Institute of Nuclear Science and Engineering (1979 - 80), Member of the Uranium Advisory Council (1979 - 82), and Chairman of the Australian Ionising Radiation Advisory Council (1986 – 94). I have now retired completely.

2. There is strong evidence to suggest that the estimated risks associated with low doses of ionising radiation have been grossly in error. One of the bases of radiation protection adopted by the International Commission for Radiological Protection is that the risk rises linearly with the dose from zero and there is no dose below which there is no risk. This is known as the Linear / No-Threshold or LNT hypothesis.. During the last two decades extensive epidemiological and other studies have shown that the risk - dose relationship follows a J-curve; low doses are indeed beneficial in direct contradiction to the LNT hypothesis.. The effect is known as Radiation Hormesis. Hormesis is a general term which covers, inter alia, the beneficial effects of small doses of agents as diverse as red wine, aspirin, and sunshine, all of which are harmful at high doses. For radiation the risk does not exceed the benefit until the dose exceeds many tens of millisieverts per annum; by comparison, the natural background in much of Australia is approximately two millisieverts per annum. Accurate information about the risks associated with ionising radiation must be more widely understood and disseminated before the concerns of the public about further Uranium developments can be adequately addressed.

3. Uranium is currently mined in Australia and is exported as Yellowcake, Uranium Oxide. The nation would benefit if it were processed much further before being exported. The benefit would not only be financial but would also be in the stimulation of relatively high-technology industries. Twenty five years ago there was expertise in this country in various stages of the nuclear fuel cycle, particularly in centrifuge enrichment and in the development of Synroc for waste disposal. That expertise has been dissipated but the nation now has sufficient depth of talent in Science, Engineering and Technology that the expertise could be redeveloped if there were the political will to do so. If we were to proceed as far as manufacturing fuel rods for our international customers the development would need to be done with participation by those customers in order to satisfy their concerns about Sovereign Risk. All exports must be subject to International Atomic Energy Authority Safeguards. If we were to lease our Uranium rather than sell it we would have even more confidence that it could not be illegally diverted.

4. The burning of coal or hydrocarbons gives rise to Greenhouse gases. For every twelve tons of Carbon that are burned, forty four tons of Carbon Dioxide are produced. The currently most favoured source of renewable greenhouse- friendly energy comes from the wind but there is no realistic prospect of wind energy providing the reliable base-load electric power that is essential for a modern industrial nation. Recent reports from Germany give very strong support to this view. Nuclear energy appears to be the only source which can provide safe, reliable and substantial base-load power without producing large quantities of Greenhouse gases. Australia should encourage those of our major trading partners which currently produce large quantities of greenhouse gases to use Uranium rather than Carbon based fuels wherever possible and should also seriously consider using nuclear power itself.

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