



Medical Association for
Prevention of War, Australia, Inc.



Public Health Association
AUSTRALIA

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Dear Dr Finkel,

Congratulations on your appointment as Australia's Chief Scientist. We welcome your enthusiasm, advocacy and scientific understanding of the urgent need to reduce carbon emissions. As health professionals, we see climate change as a major global health issue.

We wholeheartedly endorse the need to reduce dependence on fossil fuels and replace them with renewable sources of electricity. However we have significant concerns about the use of new nuclear power as a way to do this. New nuclear power stations do not provide a suitable means to combat climate change. Nuclear power has a number of major externalities that need to be acknowledged and incorporated into any planning regime.

Nuclear power will redirect funds, energy and expertise. Developing the nuclear industry will, of necessity, redirect funds and human resources to this unsustainable, highly complex industry, while compromising the effort and resources needed to transition energy production towards renewable/sustainable technologies.

Nuclear power is too slow. In Australia, new nuclear power will take well over a decade, and realistically more than two decades to begin to produce power, and even longer to repay the carbon emissions from construction. (See addendum: International Atomic Energy Agency (IAEA) phases in establishing a new reactor).

Nuclear power is too expensiveⁱ. Two recent independent analyses, one by investment bank Lazard and one a collaborative effort from more than 40 organisations, (including the CSIRO, ARENA, the federal government's Department of Industry and Science and the Office of the Chief Economist) find nuclear power is significantly expensive when compared to other current power sources^{ii, iii}. Past reactors have required massive government subsidies, uncompetitive pricing and loan guarantees. For example in the UK the Hinkley Point C reactors will require between 4.8 and 17.6 billion pounds subsidy, with electricity price guaranteed at more than twice the current wholesale rate^{iv}. In the USA, USD \$12.5 billion in taxpayer backed loan guarantees have been required to encourage the building of new nuclear power plants^v. Cost blow outs are common and almost uniformly there are major delays in construction.

Nuclear power has a long history of accidents and risk of deliberate harm. The nuclear industry worldwide has a long and well documented record of errors and accidents leading to toxicity to humans and the environment^{vi}. Reactors are also potential targets for extremist groups. Deliberate sabotage by operating staff or others is also

possible. There have been a number of airline mass deaths due to deliberate pilot decisions, presumed to be due to mental illness. These types of attack are extremely difficult to prevent.

Low dose radiation has clear evidence of health risks. All phases of the nuclear fuel chain: mining and milling, reactor operations, transportation, storage, and disposal of waste involve radiation exposures, with increased risk of malignancies and cardiovascular disease^{vii, viii}. The health costs are much greater than with energy technologies such as wind and solar.

Nuclear power waste needs storage for millennia. After billions of dollars and more than six decades spent on research, there is still no long term solution for the wastes from nuclear reactors. Decades of industry promises of commercial reactors that will use waste as fuel have failed. International research reactors using waste have been very expensive disappointments.

Nuclear power generators increase the risk of nuclear weapons proliferation The majority of nuclear weapons states have acquired their weapons whilst claiming they are using nuclear power for peaceful purposes^{ix}. Any reactor construction will lead to accumulation of fissile material (in high level waste) by Australia^x. This will have regional impacts with perceptions of proliferation risk by our neighbouring countries, which over time may develop into a nuclear arms race. Clearly this is a highly undesirable outcome.

In conclusion, renewable energy sources are much more rapidly deployable, cheaper, create more employment^{xi}, use less water^{xii} and do not create major intergenerational toxic waste, weapons proliferation nor risk nuclear catastrophes such as Chernobyl and Fukushima. Developing the nuclear fuel industry would constitute a significant barrier to dealing with global warming, one of the most pressing problems facing the health of humanity. This is especially clear in the context of (i) bounteous renewable sources of energy with its minimal health costs, (ii) constrained public financial resources, and (iii) the major problems associated with nuclear energy generation.

Yours sincerely,



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National President

MAPW - medical professionals promoting peace



Dr Peter Tait FRACGP, MClm Chng

Convenor

Ecology & Environment Special Interest Group
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Addendum

The International Atomic Energy Agency (IAEA) describes phases 1, 2 and 3 in establishing a new reactor.

Phase 1, an initial site survey and an environmental impact statement will have been completed over a period of 1 to 3 years. The first step articulated here is 'Site survey': yet it is inconceivable that an official process to identify suitable sites for nuclear reactors could begin *before* a decision to proceed had already been made. This would presumably require:

- all major *State* political parties have reached bipartisan agreement on developing a nuclear power program
- attainment of a sufficient State parliamentary majority which can pass enabling legislation
- all major *Commonwealth* political parties have adopted pro-nuclear power policies
- Commonwealth parliamentary majorities have been attained
- Commonwealth legislative changes have been made
- legal challenges have been successfully rebuffed
- community opposition from civil society has been sufficiently addressed

By the end of Phase 2, hypothetically 4 to 10 years after the population has assented to the project, appropriate regulatory frameworks will have been erected and the project will be ready to invite bids from prospective suppliers.

Phase 3 can be completed within 7 to 10 years, with up to 5 years required to enable appropriate safety and regulatory frameworks to be enabled. A reactor could then be built and ready to install fuel within 3 to 4 years. Assuming the IAEA's more conservative time frames and ten years to achieve political consensus, the reactor would then begin fission by 2045.

At present there is no political consensus about nuclear power in Australia, nothing approaching a bipartisan acceptance at the state or federal level and opinion polls repeatedly suggest the electorate is likely to be resistant in the short to medium term at least.

ⁱ Nuclear power cost Union of Concerned Scientists <http://www.ucsusa.org/our-work/nuclear-power/cost-nuclear-power#.VXKnHFyQe8E>

ⁱⁱ **Wind and solar beating conventional fuels on costs – Lazard** <http://reneweconomy.com.au/2015/wind-and-solar-beating-conventional-fuels-on-costs-lazard-26273>

ⁱⁱⁱ Nuclear priced out of Australia's future energy equation in new report November 2015 <http://reneweconomy.com.au/2015/nuclear-priced-out-of-australias-future-energy-equation-in-new-report-67465>

^{iv} **Trouble ahead for UK's nuclear hopes. Politico.eu 25/6/15** <http://www.politico.eu/article/nuclear-uk-hinckley-point-areva-cameron-court-justice-austria-state-aid/>

^v **Department of Energy Issues Draft Loan Guarantee Solicitation for Advanced Nuclear Energy Projects** <http://energy.gov/articles/department-energy-issues-draft-loan-guarantee-solicitation-advanced-nuclear-energy-projects>

^{vi} Let the facts speak www.letthefactsspeak.org 2012

^{vii} Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, National Research Council. 2006 “BEIR VII-Phase 2: Health Risks From Exposure to Low Levels of Ionizing Radiation” <http://www.nap.edu/catalog/11340.html>

^{viii} Little, M. P., T. V. Azizova, D. Bazyka, et al. 2012. “Systematic Review and Meta-Analysis of Circulatory Disease from Exposure to Low-level Ionizing Radiation and Estimates of Potential Population Mortality Risks.” *Environmental Health Perspectives*, vol. 120, no. 11 November 2012, pp. 1503–151

^{ix} BAS (Board of the Bulletin of the Atomic Scientists) (2010) It is 6 minutes to midnight. *Bulletin of the Atomic Scientists*, Jan 14. Available at: <http://thebulletin.org/content/media-center/announcements/2010/01/14/it-6-minutes-to-midnight>.

^x IPFM (International Panel on Fissile Materials) (2010) *Global fissile material report 2010. Balancing the books: production and stocks*. Available at: <http://www.fissilematerials.org>.

^{xi} Wei, M. Patadia, S. Kammen, D. Putting renewables and energy efficiency to work: How many jobs can the clean energy industry generate in the US? *Energy Policy Volume 38, Issue 2*, February 2010, Pages 919–931 <http://www.sciencedirect.com/science/article/pii/S0301421509007915> Accessed 30/11/2015

^{xii} Water requirements of nuclear power stations Department of Parliamentary Services Parliament of Australia December 2006, no. 12, 2006–07