

Executive Summary

***Nuclear Power: Cure or Curse? A Discussion Paper* by Luke K Vaughan**

This paper examines the question of whether nuclear power in Australia should be part of the solution to the increasingly urgent problems of global warming and securing reliable energy supplies.

Some commentators, political leaders and the uranium industry are arguing that Australia needs to expand its uranium exports as well as developing our own nuclear power industry, with up to 25 nuclear power plants dotted around the coastline near major cities.

However, after carefully summarising the evidence, *Nuclear Power: Cure or Curse?* by Luke Vaughan concludes that nuclear power would not only be very expensive but extremely dangerous.

This report recognises that nuclear power has provided a significant alternative to fossil fuels in some countries, with 16% of global electricity production generated by nuclear reactors. France, for instance, uses nuclear power to generate up to 70% of its electricity. Nevertheless, even if nuclear energy doubled its global output by 2050, it would only reduce greenhouse gas emissions by a mere five per cent. Of itself, nuclear power can make only a marginal reduction in greenhouse gases.

Moreover, nuclear energy is by no means free of carbon emissions, as fossil fuels are required to build the facilities and throughout the nuclear fuel cycle, from mining uranium to final waste disposal. It may take up to 15 years of operation before nuclear plants produce a net carbon benefit. Moreover, as high-grade uranium reserves are depleted, the recovery of low-grade uranium in the future will increase the industry's greenhouse gas emissions even more.

The further expansion of nuclear energy faces other acute problems from

- radiation, safety and accidents,
- ongoing problems with nuclear waste storage
- its economic viability,
- dangers associated with the proliferation of nuclear weapons and
- the increasing risks from terrorism.

Contrary to industry assurances, concerns about radiation and safety are substantial, with emissions of nuclear materials into the atmosphere occurring repeatedly, from major accidents at Chernobyl and Three Mile Island, to emissions from leaks and decommissioning which place the public at increased risk.

The problem of providing a lasting solution for disposing of nuclear waste has not been resolved anywhere in the world, and no country has yet built a fully operational long-term storage facility. Nuclear decommissioning and waste disposal pose grave safety risks for immensely long periods, even up to a quarter of a million years.

Nuclear energy is very expensive and requires extensive government support. The myriad subsidies needed to keep the industry afloat illustrate that the economics indeed do not add up. Cost over-runs and long delays in building nuclear plants are commonplace. The private sector is very reluctant to accept the risks involved with nuclear power unless governments and taxpayers offer huge subsidies.

Concern about the proliferation of nuclear weapons is also linked with the expansion of nuclear power around the world. The International Atomic Energy Agency (IAEA) is playing a contradictory role that may in fact prejudice international security. Under the United Nations Non-Proliferation Treaty (NPT), it is perfectly legal for a state to acquire all the expertise needed to come to within weeks of developing an atomic bomb. The withdrawal clause within the NPT makes it possible for any state to renege from the treaty, and then start a nuclear weapons programme. Moreover, with the technology of nuclear energy now readily available, it is increasingly possible terrorist organisations could acquire or build their own nuclear weapons, including 'dirty' radiological bombs.

Nuclear Power: Cure or Curse? argues that to avoid the huge risks associated with nuclear energy, the world must look to the abundant alternative sources of wind, solar, geothermal, biomass and hydroelectric energy. In 2005 global electricity output of nuclear power fell behind that of renewable plants. Conservative estimates see wind power alone catering for up to 22% of the global energy supply by 2040. Renewable energy sources offer governments environmentally sound supplies that will help decentralise electricity grids and increase self-sufficiency around the globe.

Nuclear power is neither clean nor green, and cannot offer an immediate or significant solution to climate change. Instead, policy-makers around the world need to:

- increase energy efficiency
- reduce demand for energy
- divert the enormous subsidies from the nuclear power industry into promoting renewable forms of energy, and
- help develop cleaner use of fossil fuels.

In this way, the world could cut greenhouse gas emissions by up to 60%, the level required to stabilise the concentration of greenhouse gases by 2050.