16

Nuclear law making

Ron Levy

Introduction

Since 2006 nuclear power has returned to the political agenda in Australia particularly as a means to reduce greenhouse emissions in response to the issue of global warming.[1] A key issue, if Australia takes this path, is how sites for nuclear power stations will be selected and consequent radioactive waste will be managed. On 16 August 2007 the Prime Minister, John Howard, stated that the location of power plants would 'be a matter of commercial decision making', not 'a decision of the Government'.[2] One week later the Prime Minister committed to holding 'binding local plebiscites' in communities where power stations may be proposed, while emphasising that currently there were 'no plans' to develop them, 'proposals for private nuclear power stations' were not expected 'for 10 to 15 years', and '[p]ower stations would only be constructed if they were commercially viable and satisfied strict environmental, non-proliferation, health and safety requirements.'[3]

In considering how governments may approach this issue it is useful to consider the disposal of low and intermediate level radioactive waste, this being the most recent example in Australia of decision-making, and law making, regarding nuclear issues. While there are differences between the siting of a radioactive waste repository and the siting of a nuclear power plant, there may well be significant similarities. This chapter explores this issue, focusing on the *Commonwealth Radioactive Waste Management Act 2005* (the Act) from the perspective of the Northern Land Council (NLC), a key institution regarding what has proved to be a contentious decision-making and law-making process involving disputed issues of fact, policy and law.

Background

The Commonwealth is responsible for low and intermediate level radioactive waste including from the Lucas Heights nuclear research facility operated since 1958 by the Australian Nuclear Science Technology Organisation (ANSTO).[4] The facility's original HIFAR reactor[5] was replaced in

record suggests that there will be intense opposition involving litigation by environmental groups or State and Territory governments. In turn, as in relation to the selection of a radioactive waste repository, the Commonwealth government may respond with further controversial special legislation that limits legal challenges and excludes or limits ordinary environmental or heritage protection processes.

Notes

1 See Ziggy Switkowski, *Uranium Mining, Processing and Nuclear Energy – Opportunities for Australia?* (UMPNER Report) 2006 Department of Prime Minister and Cabinet Taskforce, pp 87-103.

2 Prime Minister John Howard, House of Representatives *Hansard*, 16 August 2007, p 50.

3 Prime Minister John Howard, 'Nuclear Power Station Plebiscite', media release, 23 August 2007.

4 And its predecessor the Australian Atomic Energy Commission.

5 High Flux Australian Reactor.

6 Open Cool Australian Light-water reactor.

7 ANSTO website <www.ansto.gov.au/opal.html>.

8 Dr Brendan Nelson, Science Minister, House of Representatives, second reading speech, 13 October 2005, pp 1-4.

9 Senate Select Committee for an Inquiry into the Contract for a New Reactor at Lucas Heights May 2001 par 4.58.

10 This process is known as 'neutron transmutation doping', and involves the conversion of silicon atoms to phosphorus through neutron irradiation giving a specific electrical conductivity. ANSTO presently has a 15 per cent world market share, which will likely increase with OPAL.

11 Advice provided by ANSTO. See, for example, V Kuzminov and H Blowfield, 'Optimisation of the poolside facility for neutron doping of silicon in high flux materials testing reactor BR2', paper presented at a meeting of the International Group on Reactor Research from 11-15 March 2007 at Lyon, France: 'More recently, customers have begun to anticipate their production requirements for 8-inch irradiations to meet the automotive industries fast growing demand for Insulated Gate Bipolar Transistors (IGBTs). World leading car manufacturers consider the production of these key electronic devices from 8-inch silicon [involving neutron transmutation doping] to be an important part of their overall strategy which is aimed at reducing the price of the next generation of super fuel efficient Hybrid Electric Vehicles';
<www.euronuclear.org/meetings/rrfm2007/transactions/rrfm2007-transactions-session-4.pdf>.

12 See, for example, ANSTO media release 2002: <www.ansto.com.au/info/press/2002/p005.html>. Many computers and other products presently operate with semiconductors of lower conductivity that do not require neutron transmutation doping (NTD). Silicon semiconductor devices in high power applications are comparatively large and require NTD in manufacture, since non-NTD methods cannot reliably produce these devices. Personal comment, Stephen Jones, assistant director, radioactive waste management section, department of education science and training (DEST).

13 ANSTO newsletter March 2007.

14 *Future access to neutron sources: A strategy for the UK,* Council for the Central Laboratory of the Research Councils (now the Science and Technology Facilities

Council, established in 2007 by Royal Charter) 2005, p 39, <www.neutrons.cclrc.ac.uk/Download/NeutronReportApp2.pdf>. The phenomenon of giant or colossal magnetoresistance has revolutionised computing by enabling high density data storage and fast computers (Dr Andrew Greentree, University of Melbourne, ABC Radio National Science Show, 13 October 2007). This phenomenon was independently discovered in 1988 by Professor Albert Fert and Professor Peter Gruenberg, and resulted in their joint award of the 2007 Nobel prize for physics. Although the discovery of the phenomenon did not require nuclear technology, its subsequent commercial development did: 'neutron scattering is the method of choice for solving magnetic structure' at a sub-atomic level (p 61), and was 'an essential tool' in subsequently understanding the phenomenon and developing commercial applications (p 39). See also MR Fitzsimmons et al, 'Neutron scattering studies of nanomagnetism and artificially structured materials' *Journal of Magnetism and Magnetic Materials* vol 27,1 2004, pp 103-146, <www.ncnr.nist.gov/instruments/ng1refl/Pub/Fitz_JMMM_2004.pdf>.

15 A system being installed at Brisbane airport will be capable of imaging a metal cargo container. ANSTO website.

16 DEST, *National Radioactive Waste Repository Draft Environmental Impact Statement Main Report*, Canberra, 2002, p 1.

17 Switkowski, n 1, p 59. Customarily waste containing 'more than very minor concentrations of long-lived radionuclides' is also excluded from the definition of low level waste, p 59. A radionuclide is the 'nucleus of a radioisotope' (ie an 'isotope that is radioactive'), p 266.

18 *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, House of Representatives Standing Committee on Industry and Resources, 2006, [5.31].

19 Above, [5.97].

20 Switkowski, n 1, p 59.

21 Intermediate level waste is classified as short-lived or long-lived. The former 'contains low concentrations of long-lived radionuclides' which 'generally have half-lives shorter than 30 years' and 'which will decay to a level considered to be insignificant in a time period during which institutional control can be expected to last.' The latter contains concentrations of long-lived radionuclides 'which have a half-life of greater than 30 years', and 'require a high degree of isolation from the biosphere and will eventually be disposed of in geological repositories' (presently 'being kept in interim storage pending final disposal'): *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, n 18, [5.31].

22 Above, [5.97].

23 Above, [5.31].

24 Switkowski, n 1, p 59.

25 The following figures estimated in May 2007 are from the DEST website <www.radioactivewaste.gov.au/Radiation_radioactive_waste/Amounts_radioactive_waste_Australia.htm>.

26 Not including waste from uranium or other mining that is disposed of at mine sites.

27 Generated by the Commonwealth Scientific Industry Research Organisation.

28 *Sutherland Shire Council v ANSTO* NSW Land and Environment Court, 5 February 1992, unreported no 40215/91.

29 *ANSTO Amendment Act 1992*.

30 Ian Holland, *Radioactive waste and spent nuclear fuel management in Australia* 1 January 2006 update, Commonwealth Parliamentary Library. <www.aph.gov.au/library/pubs/online/RadioactiveWaste.htm>.

31 John Loy, ARPANSA CEO, 'No Dump, No New Reactor', *St George and Sutherland Leader*, 3 August 2000.

32 *South Australia v Hon Peter Slipper* [2004] FCAFC 164.

33 Above, Summary of judgment, [7-8].

34 *Nuclear Waste Transport, Storage and Disposal (Prohibition) Act 2004* (NT). The prohibition did not apply to NT waste stored at Darwin Hospital and near Katherine, Ranger uranium mine, or the transport of radioactive material.

35 One non-Aboriginal freehold owner has reportedly expressed interest in locating a repository on its land. On 25 May 2007 (the day on which the NLC nominated land at Muckaty Station for a repository) the Tennant and District Times reported that discussions had occurred between Commonwealth officers and the Tennant Creek Town Council in relation to siting the repository on freehold owned by the Council 8 kms outside Tennant Creek (at the Juno Horse Centre).

36 The NT legislation prohibiting a repository predominantly affected traditional owners. Aboriginal land is freehold and comprises 44% of the Northern Territory. Some other freehold properties exist outside towns in the Territory, however the most common tenures are pastoral leases (48% of the Territory). Unlike a freehold owner, a pastoral lessee has no power to authorise non-pastoral activities such as a radioactive waste repository.

37 ABC Online News 30 September 2004 <www.abc.net.au/news/newsitems/200409/s1210224.htm>.

38 Ian Holland, above, n 30.

39 Commonwealth Radioactive Waste Management Bill 2005 and the Commonwealth Radioactive Waste Management (Related Amendment) Bill 2005.

40 The NLC's region is the Top End. The CLC's region is central Australia. The Anindilyakwa and Tiwi Land Councils are responsible for certain islands.

41 ABC News Online, 4 August 2005.

42 CLC written submission to Senate Employment, Workplace Relations and Education Committee, 24 November 2006, p 4.

43 *Environment Protection and Biodiversity Conservation Act 1999*, *Australian Radiation Protection and Nuclear Safety Act 1998*, and the *Nuclear Non-Proliferation (Safeguards) Act 1987*.

44 Sections 5(1) and 6(1).

45 Section 5(2).

46 DEST written submission to Senate Employment, Workplace Relations and Education Committee, 21 November 2005, [25].

47 Above, [26].

48 Indeed, to avoid doubt, s 10(2)(a) of the Act expressly precludes the operation of the *Lands Acquisition Act 1989* (Cth).

49 The legislation was also enacted in December 2005, together with the related *Commonwealth Radioactive Waste Management (Related Amendment) Act 2005* which removes the protection of the *Administrative Decisions (Judicial Review) Act 1977*.

50 Section 7 of the Act empowers the Minister to specify interests in land for a site or all-weather road access to a site which, by force of s 9, are acquired or extinguished on declaration. In relation to a nominated site of the Commonwealth requires a freehold title and thus all interests in the site will be specified.

51 Sections 11A(6), 19(6), 19A(3) and 48D of the *Land Rights Act*. The provisions apply to the grant of leases and surrender of Aboriginal land (except where procured by fraud by the recipient), and mining agreements.

52 It is a legal requirement that land councils obtain the traditional Aboriginal owners' consent, and consult with other interested Aboriginals or any affected Aboriginal community or group, prior to granting a lease or nominating a repository site: ss 11A(3), 19(5), 23(3) and, 42(2) of the *Land Rights Act*; s 3B(1)(g) of the *Commonwealth Radioactive Waste Management Act 2005*.

53 CLC written submission to Senate Employment, Workplace Relations and Education Committee, 24 November 2006, p 2. Various other submissions also incorrectly depicted the amendment in similar terms (for example, written submission dated November 2006 from the Human Rights and Equal Opportunity Commission, pp 7-8).

54 Since self-government in 1978, NT governments have advocated that the Northern Territory become Australia's seventh State.
55 Open letter from the NT Chief Minister to the Prime Minister, *Northern Territory News*, 15 October 2005.
56 NT Legislative Assembly, 13 October 2005.
57 Paul Toohey, 'In the Hot Seat', *The Bulletin*, 22 May 2007.
58 Media release, 13 July 2004.
59 ABC 7.*30 Report,* 7 November 2005.
60 ABC News Online, 8 December 2005.
61 Senate Employment, Workplace Relations and Education Committee, 22 November 2005 p 7.
62 Dr Brendan Nelson, Science Minister, House of Representatives, second reading speech, 13 October 2005, p 2.
63 Julie Bishop, Science Minister, House of Representatives, 29 November 2006, p 34.
64 Above.
65 Switkowski, n 1, pp 59-61.
66 Dr Ian Smith, ANSTO Chief Executive, *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, House of Representatives Standing Committee on Industry and Resources, 2006, [5.167].
67 For example, in relation to the Ranger, Jabiluka, Koongarra, Nabarlek and Rum Jungle uranium deposits. Jabiluka and Koongarra have not been mined, initially because of the Hawke Labor Government's three mine uranium policy, and subsequently given that present traditional owners do not consent. Energy Resources of Australia Ltd possesses a valid mining lease regarding Jabiluka which was granted pursuant to a 1982 agreement under the *Land Rights Act*. However, pursuant to a 2005 deed, the company has agreed that it will not mine unless with the written consent of the Mirrar traditional owners.
68 *Nuclear Waste Transport, Storage and Disposal (Prohibition) Act 2004* (NT).
69 As stated above, the EPBC Act and other legislation applies in relation to the construction and operation of the repository, and transport to it.
70 CLC written submission to Senate Employment, Workplace Relations and Education Committee, 24 November 2006, pp 2-3.
71 David Ross, CLC Director, hearing of Senate Employment, Workplace Relations and Education Committee, 27 November 2006, pp 7-8.
72 Written submission to Senate Employment, Workplace Relations and Education Committee, 21 November 2005, p 4. The Administrative Review Council is a statutory body established under the *Administrative Appeals Tribunal Act 1975* to advise the Commonwealth Attorney-General regarding administrative law.
73 Above. The ground of jurisdictional error cannot be removed by parliament.
74 Above, pp 3-4.
75 No Waste Alliance (Justin Tutty), written submission to Senate Employment, Workplace Relations and Education Committee, 18 November 2005, pp 6-7. Environmentalists also linked the issue of radioactive waste to broader concerns regarding reactor safety and weapons proliferation in public meetings and in distributed material. These issues are not developed in this paper, however the competing viewpoints are considered in *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, House of Representatives Standing Committee on Industry and Resources, 2006, pp 310-414, and related submissions.
76 Daniel Bourchier, 'Short-term benefits or long-term danger', *Tennant and District Times*, 2 June 2006. Dr Green similarly conceded that '[i]n theory it might be possible to safely construct and manage a nuclear repository' except for the Commonwealth's 'track record of incompetence and mismanagement' in a letter to the *Tennant and District Times*, 1 June 2007.

77 ACF (David Noonan and Dave Sweeney), written submission to Senate Employment, Workplace Relations and Education Committee, November 2005, p 2.

78 Above, p 15.

79 ACF (Dave Sweeney), oral submission to Senate Employment, Workplace Relations and Education Committee, 22 November 2005, transcript, p 87.

80 ANSTO submission to the House of Representatives Standing Committee on Industry and Resources: *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, House of Representatives Standing Committee on Industry and Resources, 2006, [5.115]-[5.169], Committee's finding [5.200].

81 The issue of the safety of surface storage and deep geological disposal of intermediate and high level waste is not developed in this chapter, however, competing viewpoints are considered in *Australia's uranium – Greenhouse friendly fuel for an energy hungry world*, House of Representatives Standing Committee on Industry and Resources, 2006 and the UMPNER Report (n 1), and in related submissions.

82 Written submission to Senate Employment, Workplace Relations and Education Committee, 18 November 2005, p 4.

83 Medical Association for the Prevention of War (Australia) (MAPW), *A New Clear Direction: Securing Nuclear Medicine for the Next Generation*, August 2004.

84 Positron emission tomography, computerised tomography, magnetic resonance imaging.

85 MAPW, above n 83.

86 Over 80 per cent of medical radioisotopes are reactor produced. ANSTO website, <old-www.ansto.gov.au/ari/facility/cyc.html>.

87 Dr Ron Cameron, ANSTO Chief of Operations, Senate Estimates Employment, Workplace Relations and Education Legislation Committee, 2 June 2004. See also letter to *NT News* from Dr Cameron as extracted by Gerry Wood MLA in the NT Legislative Assembly, 20 October 2005.

88 The proposal to import radioisotopes was dismissed as 'ludicrous' by the Chief Nuclear Medical Technologist at Canberra Hospital (Senate Select Committee for an Inquiry into the Contract for a New Reactor at Lucas Heights, May 2001 [4.74]). Molybdenum-99 (half life of 66 hours) decays into technetium-99 (half life 6 hours), a 'workhorse' radioisotope used in 75 per cent of nuclear medical procedures. Speed in transportation to hospitals from a reactor is thus critical. Any delay (for example, rescheduled aeroplane flights) causes disruption, since through decay the product quickly ceases to exist: 50 per cent of a quantity of molybdenum-99 will be non-existent after 66 hours, and 50 per cent of a quantity of technetium-99 will be non-existent after 6 hours.

89 ANSTO submission to the Senate Select Committee for an Inquiry into the Contract for a New Reactor at Lucas Heights, May 2001, [44]. This fact reflects the different physical processes used by reactors and accelerators, the former generally producing neutron-rich radioisotopes and the latter neutron-deficient radioisotopes.

90 Likewise environmental groups did not address the industrial and scientific benefits deriving from OPAL, other than nuclear medicine, to the House of Representatives Standing Committee on Industry and Resources or in relation to the UMPNER Report. However, in a 1998 paper Dr Jim Green of Friends of the Earth claimed, in relation to industrial and scientific benefits, that there 'are several alternatives to a new reactor, including particle accelerators, spallation sources, and synchrotron radiation sources' as well as 'suitcase science' (that is, travel by Australians overseas to conduct research) which are 'preferable … in relation to radioactive waste and safety', <www.geocities.com/jimgreen3/science2.html>. (See also Dr Jim Green, (2003) 'A Non-Reactor Future for Lucas Heights', Friends of the Earth Australia website, <www.foe.org.au/campaigns/anti-nuclear/issues/australian-various/lucas-heights-nuclear-research-reactor/a-non-reactor-future-for-lucas-heights>.). The proposition that alternative technologies may replace, or substantially replace, reactor generated neutron beam research or irradiation is not

supported by ANSTO or the Science and Technology Facilities Council (United Kingdom) (see references at n 14; see also n 11).

91 As specified in the Australian Code of Practice for the Safe Transport of Radioactive Material, 2001.

92 ANSTO submission, above n 80, [5.169].

93 Above, [5.161]-[5.169].

94 For example, in a media release dated 25 May 2007, Dr Jim Green of Friends of the Earth referred to 'countless accidents' involving nuclear waste transportation, including incidents in France (1997), Germany (1998) and Tennessee (2004). Dr Green omitted to explain that the contamination released in the 1998 incident did not present a public hazard, the contamination released in the 2004 incident was cleaned up almost immediately, and the 1997 incident involving a train derailment did not involve any release of radioactivity as the containers were not damaged (information provided by Stephen Jones, assistant director, DEST radioactive waste management section).

95 ACF written submission, above n 77. The ACF described the report's recommendations as 'most valuable in the context of the current proposal and commends this report to the Committee's attention' (p 5).

96 NSW Parliament Joint Select Committee on the Transportation and Storage of Nuclear Waste *Inquiry into the Transportation and Storage of Nuclear Waste* recommendation 1, [5.340].

97 Above, [5.310].

98 Above, recommendation 2, [5.340].

99 Above, [5.314].

100 Above, [6.127].

101 Above [6.242]. The NSW committee continued that nonetheless 'all reasonable steps should be taken to reduce any possible risk of an accident, albeit that this is 'an unlikely event', and concluded that the 'most effective risk reduction approach in these circumstances is to not transport the waste' [6.128]. There was no assessment as to the objective grounds whereby not transporting waste at all is a 'reasonable step', including by comparison to the risks of transporting other dangerous goods such as gas or fuel. This is a surprising omission, especially given the recommendation that waste storage at Lucas Heights was only an interim or short-term measure, and is a serious deficiency in the NSW committee's report.

102 Dave Sweeney (ACF nuclear campaigner), 'Wasting the Future', *energyscience*, <energyscience.org.au/FS08%20Radioactive%20Waste.pdf> pp 5-6.

103 Dr Jim Green *Proposed National Nuclear Dump in the NT*, <www.foe.org.au/campaigns/anti-nuclear/issues/waste/ntdump/>.

104 Friends of the Earth, written submission to House of Representatives Standing Committee on Industry and Resources, May 2005, p 2.

105 Section 3B of the Act.

106 The Arid Lands Environment Centre has claimed that '[m]any of the traditional owners are opposed to the nomination of their land' ('It's official: Muckaty dump site nominated', *Tennant and District Times*, 5 October 2007; similar claims being repeated in the *Canberra Times,* 2 July 2007, on Radio 2CC on the Mike Welsh Drive Show on 3 July 2007, and on the ABC TV *Difference of Opinion* program, 19 July 2007). The NLC does not accept that these claims are correct.

107 Section 3C of the Act.

108 Section 7 of the Act.