Submission to The House Select Committee on Nuclear Energy

By William McKeand•

Introduction

This submission will focus on alerting the committee on legal aspects that a future government would need to be aware of, if a decision were made to establish a civil nuclear power industry. Part 1 of the submission assumes that Federal and State Parliaments agree to establish a nuclear power industry. Part 1 examines the initial steps that the Commonwealth would need to take to build nuclear power stations, the legislation that would need to be repealed at Federal and State level and regulatory reform that could add value to a nuclear power industry. Part 2 of the submission assumes that the states do not agree to repeal state prohibitions and outlines the constitutional provisions that the Commonwealth Government could use to set up a nuclear power industry.

Part 1 – Federal and State Parliaments agree to establish a Nuclear Power industry

Part 1A – How to build Nuclear Power Stations

As a first step, the Commonwealth would need to decide how to build the nuclear power stations. One option is for the Federal Government to form a Government Business Enterprise (GBE) to design, build and operate nuclear power stations in Australia under section 51(xx) of the Constitution. The government would be the majority shareholder of the company, joining perhaps with private investors, and ultimately (if privatisation is profitable) selling down its interest in the company, after the nuclear power stations become operational. The GBE could function in a similar way to NBN Co. The government may consider inserting a special or standing appropriation section into the bill to set up this GBE, similar to section 22 of the *Snowy Hydro Corporatisation Act 1997* (Cth). Such a provision may give the GBE independence from the executive and parliament to hire the number of staff it considers necessary to properly build and operate the nuclear power stations, rather than the potential uncertainty of relying on annual appropriations.

The other option for the Government is to get the Australian Nuclear Science and Technology Organisation (ANSTO) to design, build and operate the nuclear power stations. However, ANSTO currently only has 1,439.6 staff.[1] ANSTO's workforce would have to increase significantly to appropriately advise government on designing, building and operating the reactors. ANSTO's budget allocation would also have to be increased significantly, if ANSTO were to build and operate the reactors.

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[1] Australian Government, Australian Nuclear Science and Technology Organisation Corporate Plan page 10 available at <https://www.ansto.gov.au/about/governance/corporate-publications/corporate-plan>.

Part 1B – Legislation that would need to be repealed

Nuclear power generation is currently prohibited at federal level by the *Australian Radiation Protection and Nuclear Safety Act 1998*[2] (ARPNSA Act) and various provisions in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).[3] Queensland,[4] New South Wales,[5] and Victoria[6] all have prohibitions on nuclear power generation. Additionally, South Australia[7] and Western Australia[8] have legislative prohibitions on the transport and disposal of nuclear waste. The above legislative prohibitions would need to be removed before a nuclear power industry could commence.

Part 1C – Valued Adding Regulatory Opportunities

i.) Uranium Mining

Currently, there are 439 operational reactors in the world today;[9] 66 reactors are under construction;[10] 87 are planned[11] and 344 are proposed.[12] Therefore, the demand for uranium is going to increase significantly over the coming decades. Australia has a patchwork regulatory system for uranium mining. At a federal level uranium mining is a nuclear action under the EPBC Act requiring approval of the federal environment minister.[13] New South Wales and Victoria prohibit uranium mining;[14] the Western Australian Government has implemented a 'no uranium condition on mining leases[15]

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[2] *Australian Radiation Protection and Nuclear Safety Act 1998* (Cth) s 10 available at <https://www.legislation.gov.au/C2004A00383/2024-03-20/2024-03-20/text/original/pdf>.
[3] *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ss 37J; 55; 140A; 146M and para (d) of sub-s 2 of s. 305. Available at <https://www.legislation.gov.au/C2004A00485/latest/text>.
[4] *Nuclear Facilities Prohibition Act 2007* (Qld) available at <https://www.legislation.qld.gov.au/view/whole/html/inforce/current/act-2007-004>.
[5] *Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986* (NSW) available at <https://legislation.nsw.gov.au/view/html/inforce/current/act-1986-194>.
[6] Nuclear Activities (Prohibitions) Act *1983* (Vic) available at <https://content.legislation.vic.gov.au/sites/default/files/cc27fc29-756f-3478-9e86-4f8aeb39ed57_83-9923aa026%20authorised.pdf>.
[7] *Nuclear Waste Storage Facility (Prohibition) Act 2000* (SA) available at <https://www.legislation.sa.gov.au/__legislation/lz/c/a/nuclear%20waste%20storage%20facility%20(prohibition)%20act%202000/current/2000.68.auth.pdf>.
[8] *Nuclear Waste Storage and Transportation (Prohibition) Act 1999* (WA) available at <https://www.legislation.wa.gov.au/legislation/statutes.nsf/RedirectURL?OpenAgent&query=mrdoc_45876.pdf>.
[9] Reactor Database; World Nuclear Association available at <https://world-nuclear.org/nuclear-reactor-database/summary>.
[10] Note 9
[11] Current and future generation: Plans For New Reactors Worldwide; World Nuclear Association available at <https://world-nuclear.org/information-library/current-and-future-generation/plans-for-new-reactors-worldwide>.
[12] Note 11
[13] Note 3 s 22
[14] See Notes 5 and 6 above
[15] Government of Western Australia Department of Mines, Industry Regulation and Safety available at <https://www.dmp.wa.gov.au/Documents/Community-Education/Uranium_Fact_Sheet.pdf>.

and Queensland has a moratorium on uranium mining.[16] Uranium mining is permitted in South Australia and the Northern Territory.[17]

The Chamber of Commerce and Industry Western Australia has found that if the no uranium mining lease conditions were lifted, it would generate up to 9,000 jobs and produce uranium worth more than one billion dollars.[18] The prohibitions in Western Australia and elsewhere prevent Australia from benefiting from the increase demand for uranium. Consideration should be given to lifting the prohibitions in all states and territories so that Australia can take advantage of the increasing demand for uranium.

ii.) Conversion, Enrichment, Fabrication, Reprocessing and Waste

Conversion is a chemical process which converts uranium oxide into uranium hexafluoride (UF6), which in its gaseous form is required for the enrichment stage.[19] Most civil reactors need uranium 235-isotope of between 3 to 5 per cent to operate. However, it is only found naturally at around 0.7 per cent. Enrichment involves increasing the concentration of the U-235 isotope to between 3 to 5 per cent to power a reactor.[20] It has been suggested that if Australia established a low uranium enrichment industry, it would assist in nuclear non-proliferation by increasing the supply of low enriched uranium, thereby making it less economically viable for further enrichment into weapons grade uranium.[21]

Fabrication involves turning the enriched uranium into small pellets which are then inserted into fuel rods.[22] Reprocessing is the process whereby the unused uranium is recycled and can be used again as nuclear energy.[23] It also reduces high-level waste to about one-fifth and reduces the level of radioactivity after 100 years.[24]

Moreover, it is inappropriate for Australia to derive significant profits from the sale and export of uranium and then take no responsibility to dispose of the waste that the

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[16] Environment and Planning Committee, Parliament of Victoria, Legislative Council, *Inquiry into nuclear prohibition* 30 November 2020, page 19 available at <https://www.parliament.vic.gov.au/get-involved/inquiries/inquiry-into-nuclear-prohibition/reports>

[17] Note 16

[18] Chamber of Commerce and Industry Western Australia, *Uranium Mining in Western Australia Final Report March 2024* page 7 available at <https://cciwa.com/policy-submission/uranium-mining-in-western-australia/>.

[19] Australian Government, Department of Prime Minister and Cabinet, *Uranium Mining, Processing and Nuclear Energy—Opportunities for Australia?* Page 33 (Switkowski Review), December 2006, available at <http://environmentvictoria.org.au/wpcontent/uploads/2016/08/nuclear_report.pdf>.

[20] South Australia, *Nuclear Fuel Cycle Royal Commission* (2016) page 30 available at <https://classic.austlii.edu.au/cgi-bin/download.cgi/cgi-bin/download.cgi/download/au/other/sa/SARoyalC/2016/2.pdf>.

[21] Grant Nieman, 'Nuclear Weapons and the Civilian Use of Nuclear Energy' (2013) 15(2) Flinders Law Journal 191, page 213 available at <https://www.austlii.edu.au/cgi-bin/sinodisp/au/journals/FlinLawJl/2013/7.html?query=>.

[22] Nuclear explained: The nuclear fuel cycle available at <https://www.eia.gov/energyexplained/nuclear/the-nuclear-fuel-cycle.php>.

[23] Nuclear fuel cycle: Processing of Used Nuclear Fuel: World Nuclear Association available at <https://world-nuclear.org/information-library/nuclear-fuel-cycle/fuel-recycling/processing-of-used-nuclear-fuel>.

[24] Note 23

uranium creates.[25] Australia should therefore consider developing suitable waste storage facilities to store nuclear waste. Former Prime Minister Bob Hawke said:

> "I have no doubt that countries who are producing nuclear energy would pay well for the storage of their nuclear waste."[26]

Conversion services are presently provided by a small number of major suppliers in Canada (Cameco Corporation), China (China National Nuclear Corporation CNNC) France (AREVA), Russia (ROSATOM - State Atomic Energy Corporation) and the United States of America (ConverDyn).[27] Enrichment services are currently provided by organisations in Germany, the UK and the Netherlands (URENCO), France (AREVA), Russia (ROSATOM) and the USA (URENCO), China (CNNC).[28]

Fuel fabrication services are currently provided by companies in 13 nations; in Asia (China, India, Japan, Kazakhstan, Korea), Eastern Europe (Russia), Western Europe (France, Germany, Spain, Sweden, United Kingdom), North America (USA) and South America (Brazil).[29] With the number of civil nuclear power reactors increasing, I contend that the demand for these services is also going to increase. The sanctions on Russia further heighten demand for these services. Overseas governments and companies may well pay Australian companies to perform these services.

Australia could provide utilitarian benefit to the world by helping reduce nuclear waste by performing reprocessing and safe nuclear waste storage services. It would also decrease the cost of nuclear power, if these services were performed in Australia rather than overseas. Additionally, most of the reactors either planned or proposed are in Asia.[30] This makes Australia ideally geographically suited to offer these services to the Asian region. The above provides additional reasons why the prohibitions in Commonwealth and State legislation should be repealed, so that Australia can derive power and economic benefits from providing these services.

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[25] Note 21, page 218

[26] Megan Kinninment, 'Bob Hawke pushes nuclear power at Woodford Folk Festival north of Brisbane, *Australian Broadcasting Corporation*, 28 December 2016 available at <https://www.abc.net.au/news/2016-12-28/we-must-embrace-nuclear-power-bob-hawke-divides-audience/8151346>.

[27] *Nuclear Fuel Cycle Conversion and Deconversion*: World Nuclear Association available at <https://world-nuclear.org/information-library/nuclear-fuel-cycle/conversion-enrichment-and-fabrication/conversion-and-deconversion>.

[28] *Nuclear fuel cycle Uranium Enrichment*: World Nuclear Association available at <https://world-nuclear.org/information-library/nuclear-fuel-cycle/conversion-enrichment-and-fabrication/uranium-enrichment>.

[29] *Nuclear fuel cycle: Nuclear Fuel and its Fabrication*: World Nuclear Association available at <https://world-nuclear.org/information-library/nuclear-fuel-cycle/conversion-enrichment-and-fabrication/fuel-fabrication>.

[30] Notes 9 and 11

Part 2 – State Parliaments do not agree to repeal their prohibitions

Section 51(xxxi) of the Constitution provides as follows: -

> "The acquisition of property on **just terms** from any State or person for any purpose in respect of which the Parliament has power to make laws …" (bold is the author's emphasis)

From a practical legal perspective, it would be necessary for the Commonwealth to repeal the prohibitions contained in the ARPNSA Act and the EPBC Act before acquiring land. This is because acquisition of property must be on just terms. If the Commonwealth were to acquire the property before repealing the prohibitions in federal law, there is a significant risk that the Commonwealth may spend substantial money acquiring land that it is unable to convert to a nuclear power station.

Section 52 of the Constitution provides that: -

> "The Parliament shall, subject to this Constitution, have **exclusive power** to make laws for the peace, order, and good government of the Commonwealth **with respect to**--
>
> (i) The seat of government of the Commonwealth, **and all places acquired by the Commonwealth for public purposes** …" (bold is the author's emphasis)

Once the land for the nuclear power station is acquired, the land is a Commonwealth Place within the meaning of s 52(i) of the Constitution. A literal reading of s 52(i) seems to imply that only Commonwealth laws apply to Commonwealth Places. However, this reading would be mistaken. Section 3 of the *Commonwealth Places (Application of Laws) Act 1970* (Cth) (CPALA) defines "Commonwealth Place" to mean a place with respect to which the Commonwealth Parliament, by virtue of s 52 of the Constitution, has exclusive power to make laws for the peace, order, and good government of the Commonwealth. Section 4(1) of that Act provides:

> "The provisions of the **laws of a State** as in force at a time (whether before or after the commencement of this Act) **apply, or shall be deemed to have applied**, in accordance with their tenor, at that time in and in relation **to each place in that State that is or was a Commonwealth place** at that time." (bold is the author's emphasis)

Therefore, by reason of that provision, the nuclear prohibitions of the states would apply notwithstanding that the land is a Commonwealth Place, because the prohibitions in state laws would operate as "applied laws" under s 4(1) of the CPALA. The commonwealth has two choices: -

1. Amend the CPALA to clarify that the prohibitions in state laws are not 'picked up' by the CPALA (not recommend see below).
2. Enact commonwealth laws to 'cover the field' of the nuclear fuel cycle. The state laws would then become inoperative under section 109 of the Constitution (see below – recommended).

In relation to option one, the state prohibitions would not apply to the geographical area where the nuclear power station is situated but would apply everywhere else in the state. This is problematic because a nuclear power station conducts numerous activities offsite, such as the transportation of nuclear fuel to the nuclear power station, transmission of electricity and storage of waste offsite, to name but a few. All these activities would potentially be illegal, if option one was chosen. Therefore, option one is not recommended.

Section 109 of the Constitution could be used. It provides as follows: -

> "When a law of a State is inconsistent with a law of the Commonwealth, the latter shall **prevail**, and the former shall, to the extent of the inconsistency, be **invalid**." (bold is the author's emphasis).

Invalid means: -

> "'suspended, inoperative and ineffective' … the effect of s 109 on a State law that is inconsistent with a law of the Commonwealth is not to impose an absolute invalidity. On the contrary, the State law remains valid though it is rendered inoperative to the extent of the inconsistency, but only for so long as the inconsistency remains".[31]

The Commonwealth would need to pass laws which 'cover the field' of the nuclear fuel cycle. For a Commonwealth law to 'cover the field', there would need to be a discerned intention on the part of the Parliament of the Commonwealth that its legislation should be an exclusive and exhaustive statement of the law on the topic with which it is concerned.[32] Section 4(2)(a) of the CPALA provides that if a State law is invalid for some reason other than section 52(i); for example, by reason of inconsistent Commonwealth legislation under section 109 of the Constitution, State law is not applied by the CPALA.[33] Elaborate provisions 'covering the field' excluding the operation of State laws were upheld by the High Court in the Third Runway Case.[34] If the Commonwealth was successful in covering the field of the nuclear fuel cycle, the laws would apply throughout Australia and the State laws would become inoperative. Although it may not be desirable to unilaterally establish a nuclear power industry in the absence of agreement from the states, legally it is possible.

Conclusion

If the prohibitions in Federal law were repealed the Commonwealth probably could establish a nuclear power industry, regardless of whether the states agree. With thorough legal advice establishing a nuclear power industry in Australia is eminently

[31] Western Australia v Commonwealth (1995) 183 CLR 373, pages 464–5 ('Native Title Act Case').
[32] *Commonwealth v Western Australia* (1999) 196 CLR 392 para 55 per Gleeson CJ and Gaudron J.
[33] Dennis J Rose, 'The Commonwealth Places (Application of Laws) Act 1970' (1970-1971) 4(2) Federal Law Review 263, page 271 available at <https://www.austlii.edu.au/cgi-bin/sinodisp/au/journals/FedLawRw/1971/19.html?query=>.
[34] *Council of the Municipality of Botany v Federal Airports Corporation* (1992) 175 CLR 453 ('Third Runway Case')

achievable from a legal perspective. Currently, there are 439 operational reactors in the world today,[35] 66 reactors are under construction[36] and 87 are planned[37].

Assuming all the reactors currently under construction are finished and all the reactors being planned are completed, this represents a 35 per cent increase in the number of reactors in the world. The expansion of nuclear power around the world presents significant economic opportunities for Australia.

I thank the committee for its time and consideration, and I trust this submission may assist the Committee in its deliberations.

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[35] Note 9
[36] Note 9
[37] Note 11