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Letter to the Committee Secretary,

Senate Standing Committee on Environment and Communications,

03/01/2023

Dear Secretary,

This submission argues that the current climate crisis creates an urgent need for Australia to source its energy from renewable and not nuclear technology. Nuclear energy supply is deeply flawed when examined holistically. The safe long term disposal of nuclear waste (HLW) issue is one to which no country in the world has a satisfactory answer to. It is an issue that will not go away. The lack of holistic social licence for nuclear waste disposal renders Australia in an untenable position both internally and externally/internationally.

I write as a member of Marrickville Peace Group (MPG), situated in the Inner West of Sydney, Federal Electorate of Grayndler. MPG learns with alarm of the attempt by the LNP to repeat a pattern, not unknown of the LNP, of setting aside good legislation in order to return Australia to less enlightened times. MPG objects most strenuously to the move to expand the viability of its current nuclear technology to cater to the nuclear power industry. The Private Senators Bill: Environment and Other Legislation Amendment (Removing Nuclear Energy Prohibitions) Bill 2022) was put forward by 9 Coalition Senators who have been incentivized by the government signing on to buy nuclear-powered submarines (according to Senator Matt Canavan.). This promotion of things nuclear to collateral expansion is arguably one of the more pernicious aspects of the AUKUS deal. <https://smallcaps.com.au/bill-introduced-remove-nuclear-energy-ban-australia/>

The world is in the grip of a climate crisis, the result of using carbon rich fossil fuels, once thought to be a great boon, as a source of energy. Gradually, since 1896 in fact, when scientist Svante Arrhenius first predicted the greenhouse effect, the world has come to know that climate change is real. Thus the way we have sourced our energy has brought us to an environmental crisis. The irony is that nuclear is proposed as counter to the environmental crisis brought about by fossil fuels, when the disposal of High Level Waste (HLW) is itself a harbinger of deadly waste disposal issues. There is no proven solution for managing high-level nuclear waste produced in power reactors. No operating deep underground repository for high-level nuclear waste exists. *MPG maintains that the introduction of nuclear energy into its power mix is a case of replacing one environmental crisis with another.* (Don't Nuke the Climate Submission Guide)

<file:///D:/Nuclear/AA%20Submission%20on%20Revival%20of%20Nuclear%20Energy%20in%20Australia/Submission-Guide-Senate-Nuclear-Inquiry-2022-1.pdf>

There is an urgency about climate change, specifically to avoid the tipping points that will render the current trend to increasingly volatile weather patterns irreversible and increasingly extreme. These tipping points signal the annihilation of many low lying sea bordering nations -accounting for tens of millions of people at an exponential rate over time. Successive COP meetings have not delivered, when measured against their own objectives. At COP26, for instance, the countries that are primarily responsible for the worsening climate crisis, the world's largest and wealthiest economies, failed to make commitments to keep planetary warming to 1.5°C. Warming above that level, scientists agree, results in conditions that aren't just bad, but irreversibly catastrophic. Estimates vary, but the level of commitment to slashing emissions seen at COP will result instead in warming from 1.8°-2.4°C. This is horrifying prospect.

<https://www.forbes.com/sites/globalcitizen/2021/11/15/cop26-a-failure-for-the-planet-and-the-worlds-poor/?sh=29405e3f2275>

The proposal to introduce nuclear power is a long term (and a very costly) project : the average time to establish a nuclear power station, from planning to operational stage, is between fifteen and twenty years.. It is not without good reasons that there is an increasing call for the power future to be renewable and not nuclear.

There is more to the objection to nuclear power than simply the establishment timeframe. | Don't nuke the Climate! )

The Glasgow Statement (COP26 2021, signed by 479 international organisations , lists a cluster of many defective factors associated with nuclear based on the latest Intergovernmental Panel on Climate Change (IPCC) report. The primary summary statement “We need an urgent global shift to clean and renewable energy and national governments need to actively facilitate and manage the transition from reliance on fossil fuels and nuclear to renewable energy”.

A summary of criticisms of the nuclear power option include:

- The nuclear industry has a history of displacing, disrupting and damaging the health and rights of workers and communities:
- It diverts resources away from renewable energy technology;
- Nuclear is slow, expensive and dangerous.
- It is not carbon neutral-almost every stage of the nuclear chain requires additional non-nuclear energy inputs. And
- It poses unique security and waste management risks.
- Nuclear power is unsustainable . Nuclear power relies on uranium mining. Like coal mining this causes adverse environmental impacts and puts workers and communities at risk. It is a thirsty industry that consumes large volumes of precious water, from uranium mining and processing through to reactor cooling. Nuclear power plants are vulnerable to threats that are being exacerbated by climate impacts, including dwindling and warming water sources, sea-level rise, drought, jelly-fish swarms and increasing storm severity
- It is expensive. Nuclear power is now one of the most capital intensive and expensive ways to produce electricity and costs continue to rise. (including establishment and decommission expenses).
- Climate threats :Nuclear power plants are vulnerable to threats which are being exacerbated by climate change. These include dwindling and warming water sources, sea-level rise, storm damage, drought, and jelly-fish swarms. Nuclear engineer David Lochbaum states: "You need to solve global warming for nuclear plants to survive “
- Nuclear is increasingly vulnerable security risks. – witness current events at the Zaporizhzhia power plant in Ukraine.

<https://dont-nuke-the-climate.org/blog/cop-26-glasgow-statement>

**In Australia**, the saga of nuclear waste disposal is long and unsatisfactory. It is characterized by a high level of dysfunctionality, Much effort has been put into finding a suitable waste dump which is

acceptable to both State and Federal powers as well as community concerns. The history of the story is well presented in : BACKGROUND NOTE Radioactive waste and spent nuclear fuel management in Australia Updated 21 July 2011 (Matthew James and Ann Rann) (Hereafter referred to as the BACKGROUND NOTE)

<file:///D:/Nuclear/AA%20Submission%20on%20Revival%20of%20Nuclear%20Energy%20in%20Australia/Radioactive%20waste%20and%20spent%20nuclear%20fuel%20management%20in%20Australia.pdf>)

In the Introduction to this (BACKGROUND)document the pattern that emerges from the history of Australia's radioactive waste management includes the following key point : *“despite some efforts, an inability of the Commonwealth to respond successfully to calls to resolve nuclear waste issues as a precondition to the further development of nuclear industries.”* (p 1.) After extensive site(s) search and selection The elimination of all but a very few sites and even these had a line drawn through them. ). The selection criteria involved land stability as well as ownership issues, State vs Commonwealth issues as well as challenges to social licence .

In summary, the search thus far for a suitable waste facility site , even for Low Level Waste (LLW) has amounted to little more than a zero sum game. All of this is detailed in the Background paper.

More importantly, no facility, or proposed facility has been offered or even planned for the kind of waste that is the result of spent fuel (rods) from nuclear power. In fact the only disposal option considered for such waste is deep, permanent geological disposal. And with the exception of New Mexico , which houses military waste material of the kind not produced by convention nuclear power plants, no such best practice facility exists in the world.

If Australia seriously contemplates installing nuclear power, it needs to do what , before this point of time Australia has not done, i.e. settle the waste disposal question before embarking on the nuclear power project.

As the 1983 Research Reactor Review concludes in relation to the proposed new facility at Lucas Heights : that 'it would be utterly wrong to decide on a new reactor before progress is made on the identification of a high level waste repository site' (p. xiv).Background paper p.19. And as the CEO of ARPANSA is quoted as saying that by the time he is considering issuing a licence for the operation of the replacement research reactor (at Lucas Heights), 'spent fuel arrangements would want to be written in blood and be able to be implemented and the store [for waste from spent nuclear fuel reprocessing and other long-lived intermediate level waste] would need to be pretty well on track so we would have confidence that it would be located and built by [the time it was needed for management of waste from reprocessing]'.(Background.p 33.)

On 22 September 2008 ANSTO announced that a long-term depository is needed for Australia's used radioactive waste material. ANSTO applied for an interim site on its own Lucas Heights premises to consolidate existing waste currently housed in two older buildings...The application for the interim site was before federal Environment Minister Peter Garrett. This is a clear indication that no further site will be sought outside Government land at Lucas Heights for LLW or ILW.

EXTERNAL REALITIES. Thus far, the questions surrounding the nuclear power issue have been limited to within Australia. But the issue clearly involves elements external to Australia as well.

When in September 1997 the decision was taken to construct a replacement nuclear reactor at Lucas Heights, part of the scaffolding for this decision was an agreement with the UK that about

1300 spent fuel elements from HIFAR's [lifetime] operations would be shipped to Dounreay, Scotland for reprocessing, The wastes would then be encapsulated in cement and returned to Australia in about 10 to 20 years as Intermediate level Waste (ILW) (Background .p.24)

Subsequent to this contractual arrangement the UK Government announced that Dounreay will take on no further commercial reprocessing work. This announcement has the effect of precluding the new contract with ANSTO for reprocessing HIFAR spent fuel that was envisaged in the announcement of 3 September 1997. (Background p.26) It is true that an alternative processing plant in France was found (COGEMA later renamed Areva NC).

The point here is that the need for reprocessing spent fuel is an international issue and as original generations of power plants are decommissioned the backlog for reprocessing will grow significantly. Friends of the Earth Australia on their website <https://www.foe.org.au/import-waste> state that as at 2012, about 290,000 tonnes of high level waste (in the form of spent nuclear fuel) have been produced in power reactors over the decades, of which about 90,000 tonnes have been reprocessed. Power reactors are producing an additional 12,000 to 14,000 tonnes of spent fuel annually. Competition for reprocessing from High Level Waste will only increase. The current maximum timeframe for decommissioning is 60 years.

THE REALITY OF EXTERNAL INTERESTS was dramatically revealed in the late 90's when a closely guarded secret in the form of a consortium Pangea Resources (80% owned by British Nuclear Fuels Limited (BNFL) had been conducting research and discussions about establishing an international high-level nuclear waste repository in Australia. A corporate video was leaked to Friends of the Earth (UK) in the late 1990s. Until this video was leaked, Australians had no idea that we were being targeted as the world's nuclear dump. .

In 1998. The Minister for Industry, Science and Resources (Senator Minchin) issued a redaction, stating that: 'no high level radioactive waste facility is planned for Australia and the government has absolutely no intention of accepting the radioactive waste of other countries.' {Background p.27.Dec1

The prospect of high level waste management from spent power fuel is on a categorically new level as **“there is no proven solution for managing high level nuclear waste”** (Don't Nuke the Climate Australia). Moreover, on the topic of High Level nuclear waste management, should Australia venture into the production of nuclear generated power, *it is very predictable that in its own search for satisfactory High Level Waste disposal, it will attract world wide attention and pressure for the unresolved waste management issues of far away lands.*

The Friends of the Earth Australia site reveals also there is a list of very prominent politicians / ex-politicians supporting the development of a high level nuclear waste dump in Australia to take waste from overseas include: Liberal Senator Judith Troeth called for Australia to build nuclear power reactors and for the high-level waste to be dumped at Muckaty in the NT; former Prime Minister Bob Hawke ;former foreign minister Alexander Downer; former foreign minister Gareth Evans . Liberal/National Coalition Senators refused to support a Senate motion opposing an international nuclear dump in May 2006. In 2005 Martin Ferguson responded to Bob Hawke's call for Australia to establish a high level waste dump by saying: "In scientific terms Bob Hawke is right. Australia internationally could be regarded as a good place to actually bury it deep in the ground.

THE WAY THINGS ARE SEEN – WHAT TO BELIEVE ?

The Minerals Council (TMC) is clearly supportive of the return to nuclear proposal : Removing the Prohibition on Nuclear Power

<https://www.minerals.org.au/sites/default/files/180605%20Removing%20the%20prohibition%20on%20nuclear%20power.pdf>.

What is interesting is the selectivity of the MC's arguments, which are summarised below :

Nuclear energy is zero emissions baseload energy. Fact check : nuclear reactors do not produce air pollution or carbon dioxide while operating BUT : When it comes to nuclear, uranium extraction, transport and processing produces emissions. The long and complex construction process of nuclear power plants also releases CO<sub>2</sub>, as does the demolition of decommissioned sites.

[https://www.google.com/search?rlz=1C1CHBF\\_enGBAU999AU999&sxsrf=ALiCzsY24FcojQKLIJTlepwf1jwWro7wew:1672649515583&q=Does+nuclear+energy+have+zero+carbon+emissions%3F&sa=X&ved=2ahUKEwiB1taBwaj8AhV3SWwGHYXGBPQQzmd6BAGcEAU&biw=1280&bih=609&dpr=1.5](https://www.google.com/search?rlz=1C1CHBF_enGBAU999AU999&sxsrf=ALiCzsY24FcojQKLIJTlepwf1jwWro7wew:1672649515583&q=Does+nuclear+energy+have+zero+carbon+emissions%3F&sa=X&ved=2ahUKEwiB1taBwaj8AhV3SWwGHYXGBPQQzmd6BAGcEAU&biw=1280&bih=609&dpr=1.5)

Nuclear power is affordable ; Fact check The cost of wind and solar PV has decreased by 70-90 % while nuclear costs have increased by 33%. (Don't Nuke the Climate Submission guide. Op.cit.)

Nuclear power is safe, Fact check : For whom is it safe ? Of all the claims of the Nuclear lobby, this surely is the hardest to sell .

Furthermore some aspects of this claim e.g. The risk of accidents in nuclear power plants is low and declining. The consequences of an accident or terrorist attack are minimal. It is remarkable that the Intergovernmental Panel on Climate Change (IPCC) says exactly the opposite: "Nuclear power plants have been described as pre-deployed terrorist targets and pose a major security threat."

Further, in referring to the "well publicized accidents" the Minerals Council deftly highlights "no radiation fatalities" of two of the three. In the public mind it surely would loom large that there re huge consequences to nuclear accidents, of which, as of 2014, there have been over 100 serious nuclear accidents..the definition of which is : "an event that has led to significant consequences to people, the environment or the facility. Examples include lethal effects to individuals, large radioactivity release to the environment, reactor core melt."

[https://en.wikipedia.org/wiki/Nuclear\\_and\\_radiation\\_accidents\\_and\\_incidents](https://en.wikipedia.org/wiki/Nuclear_and_radiation_accidents_and_incidents)

TMC has a sales pitch which minimizes to the point of denial.

Nuclear power produces low waste : Fact check :This is a strangely deceptive claim. The "low" refers merely to volume, NOT TO TOXICITY. The half Life of Plutonium is 24,000 years and of Uranium 238 is 4.5 billion years As argued above in some detail, Nuclear power produces High Level Waste (HLW) which the world simply does not know, in real terms, how to deal with. Australia has no facility for HLW. Reprocessing is in line to become a congested international waiting line. Given the possibility of a wrong turn politically, Australia is a prime target for HLW dumping. The Removing Nuclear Energy Prohibition Bill is an invitation to the world to focus on Australia as a nuclear waste dump..

It is important to note that should the ban on nuclear power be lifted, it is stated clearly in the Mineral Council doc that there would no longer be an immediate barrier for the consideration of nuclear power by either a state government entity or a private sector developer.

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In brief , the pro nuclear power lobby presents a trouble free new generation front which assumes just as trouble free social licence. This presentation flies in the face of proven historical fact.