

Dear Committee Members,

I would firstly like to thank you for raising this issue once more to discuss the opportunity at a federal level.

I am a chemist by training and have had an interest in Nuclear energy for the past 8 years. I will keep my submission brief as I am sure you have many to review.

I would highly recommend Australia pursue the research, development and deployment of nuclear technologies. However, I would strongly urge against the government investing or committing to current commercial reactor designs. Although I am a strong proponent of nuclear power, I don't believe the current designs stand up to economic scrutiny. This is supported by the SA Royal Commission Report findings.

I would suggest the government pursue the recommendations of the commission and deploy a nuclear storage facility (waste bank) based upon the strong economic incentives detailed in the report. Following this I would suggest that the revenue generated for the safe storage of nuclear waste from our international customers be used to fund next generation (so called Gen IV) reactor designs. These designs offer key advantages over current commercial reactors such as their ability to consume current stockpiles of nuclear waste. Thus, in the long term (10-15yrs), the storage facility contents could be used as fuel for electricity generation.

I say again, please do not commit this country to the current commercial nuclear designs such as the AP-1000. Generation IV designs meet 21st century criteria that I believe the nation will be more accepting of such as:

- Ability to be manufactured via SMR designs to reduce cost
- Generate no long lived waste (~300 years)
- Consume existing nuclear waste stockpiles
- Passive (walkaway) safe

I personally favour the Molten Salt Reactor (MSR) design as not only can it meet the above criteria but it doesn't contain risky components such as (liquid sodium) that is present in other next gen designs. It is also self-regulating, meaning it follows the load demand. Below is a 5 minute presentation of an MSR – apologies if it sounds “too good to be true” but keep in mind the fundamentals were proven at Oak Ridge national labs in the 1960's.

<https://www.youtube.com/watch?v=uK367T7h6ZY>

Good luck with the inquiry.

Kind Regards,

Matthew Gustafson