Response to the Nuclear Fuel Cycle Royal Commission Tentative Findings

Written by Mark Jones

1. The historical-political perspective

There appears to be a perspective the Royal Commission has not considered being the historical-political one.

The comment was made in an information session (1) that in regard to establishing a waste repository, the nuclear material would have to be safely and securely stored anywhere from 200 000 to 1 million years. In geological or radioactive decay terms this is not long but in terms of humanity it is.

For nuclear waste to be safely and securely dealt with it has to be continuously and appropriately managed, which includes processing and storing it over this long period. There is an important question that needs to be asked about whether this is realistically achievable.

Human history is a story of change. Civilisations have come and gone with the Greek and Roman empires each lasting for a number of centuries in their respective eras – not long in terms of radioactive decay - before succumbing to the vicissitudes of history. Will Western civilisation follow their path? Only time will tell.

Political or regime change is also a reality that has to be considered. A great example is when the Shah of Iran was deposed and replaced by the spiritual leader Ayatollah Khomeini. Iran went from being a staunch ally of the West to a regime that would like to undermine it.

So getting back to the nuclear waste that needs to be safely and securely stored from 200 000 to 1 million years, it can be comfortably stated there will be changes in the prominence of different civilisations and that regime changes will also occur. Such changes could mean a new administration has a different set of values to the previous one, so instead of leaving the nuclear waste in storage it could be seen as a resource to be used. There probably already exists today such an organisation – ISIS – who if given the access and knowledge, would relish building a “dirty” bomb.

It is unrealistic to expect any country to remain politically stable over such a long period of time, particularly when it appears that history is against such an occurrence. It would only take one rouge administration in that period to cause problems and if we reflect on Cambodia’s Pol Pot or Germany’s Third Reich, it is quickly realised any country could have one over a 200 000 to 1 million year period.

So to summarise, the life span of any nuclear waste facility will invariably span different regimes and civilisations. Each political transition brings a danger the new administration will view the facility in a different light to its original intended purpose.

2. Public-private ownership

Another issue is with ownership of the waste repository. It was mentioned in the information session (1) the repository would be government owned. The implication being made here is that only a government body would provide an adequate level of management.

It is not too difficult to imagine at some stage a cash-strapped government or one which opposes government ownership on ideological grounds to consider selling it off. Once in private hands the profit imperative becomes more important and short cuts could result. The Commissioner (1) himself exemplified this dilemma succinctly by describing the situation at Fukushima where the private owners of the nuclear facility were notified of the necessity to raise the height of the sea wall but failed to act.

No guarantees can be made now that the waste repository ownership will remain in public hands. Future administrations will make decisions based on the circumstances of the day.

3. The economic assumptions will invariably change as the project progresses

In assessing whether or not a waste repository is financially viable various assumptions have been made. We all know, through no fault of the Commission, these assumptions will change – it is a fact of life. It is entirely plausible that such changes could make the project unviable, so the state would then be stuck with a facility that needs to be managed for the next 200 000 to 1 million years that runs at a loss. It would come as no surprise to anyone that if this eventuated then taxpayers would be called upon to cover any short fall.

4. Is the money better invested else where?

There will have to be public money invested in this project and the amount needs to be quantified. This will achieve two things. Firstly, it will allow taxpayers to clearly identify the contribution they are being asked to make. Secondly, it will allow a comparative financial analysis to be completed which compares the rate of return on those invested funds provided by a nuclear waste repository compared to the return generated by investing the money in wind farms located in SA.

There are areas of difficulty in making such a comparison because it requires the quantification of potential problems that may or may not arise. The obvious one with a nuclear waste repository is the potential for there to be a leak of radioactive material which would typically require an expensive clean-up operation. A cost figure would have to be calculated using the probability of such an event(s) of a certain scale occurring.

There are not any obvious externalities that spring to mind with wind farms. Importantly, pollution is not a consideration. There are some advantages though with renewably produced power having a lower carbon footprint than electricity generated from a coal-fired power station. In this climate-changing world where we are trying to de-carbonise our energy production systems, there is an additional value associated

with renewably generated power. This will need to be quantified and added on to the positive side of the ledger for wind farms.

Such a comparison will clearly show to South Australians the financial contribution that each investment can make to the South Australian economy.

5. Sir Mark Oliphant

Sir Mark Oliphant was a great South Australian. His field of interest was nuclear physics and he joined a research team at Cambridge University in England lead by Lord Rutherford. He was also involved with developing the nuclear bomb in the United States during WW II. Later he was to become Governor of South Australia.

Despite a long career in nuclear physics he condemned nuclear weapons and instead advocated for research into solar energy rather than nuclear energy.

The building of a nuclear waste facility will only act as an incentive for a continuation of the building of nuclear power stations and as Sir Mark said “That sun up there is the best nuclear furnace that exists - why not make use of it.”(2)

References

1. Scarce, K., Nuclear Fuel Cycle Information Session, Mt Gambier, 18/2/16

2. http://www.abc.net.au/btn/v2/australians/oliphant.htm