

NUCLEAR FUEL CYCLE ROYAL COMMISSION

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Legal Briefings - By **Sharon Wilson, Emma Tormey**

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KEY TAKEAWAYS

1. The Royal Commission is looking to gauge public interest in South Australia's participation in the nuclear fuel cycle.
2. The tentative findings support the storage and disposal of nuclear waste as the best option for SA.
3. Submissions are publicly available and can be viewed on the Commission's website.
4. Comments on the tentative findings close on 18 March 2016 and the final report will be delivered on 6 May 2016.

SCOPE OF THE ROYAL COMMISSION

The South Australian Nuclear Fuel Cycle Royal Commission (**Royal Commission**) is underway. The Commission released tentative findings in February 2016, which looks at the feasibility of SA creating opportunities to participate in the nuclear fuel cycle. Those tentative findings are out for public comment until 18 March 2016.

With the recent transformation of the [energy sector](#), driven by new technologies, changes to traditional supply and demand and an increasing focus on carbon emission reduction, SA has identified an opportunity to capitalise on low-carbon energy generation options and a growing global demand for uranium. This is consistent with global energy analysis where industry and governments are looking towards alternative low carbon power generation options, including nuclear.

The Commission, established in March 2015, is tasked with undertaking an independent and comprehensive investigation into SA's proposed participation in the four areas of the nuclear fuel cycle, which are:

1. the exploration and extraction of minerals,
2. the processing of minerals and manufacture of materials containing radioactive substances,
3. the use of nuclear fuels for electricity generation, and
4. the storage and disposal of radioactive and nuclear waste.

The terms of reference require the Commission to consider the circumstances necessary for the development of each of these areas to be viable and the associated risks and opportunities. The Commission has also been asked by the Governor to consider the advantages and disadvantages of generating electricity from nuclear fuels, and what regulation is required in SA to accommodate its participation in the nuclear fuel cycle.

SA does not currently participate in the traditional nuclear fuel cycle, but does extract and mill minerals containing natural occurring radioactive materials for shipment and sale and stores limited quantities of industrial and scientific radioactive wastes.

TENTATIVE FINDINGS

The Commission has found that SA can safely increase its participation in nuclear activities, which will be of economic benefit to the State. Whilst the Commission's tentative findings indicate it is not economically viable for SA to develop all aspects of the nuclear fuel cycle at this time, the storage and disposal of radioactive nuclear waste will provide significant economic return for the State. A brief summary of the Commission's key tentative findings is outlined below.

The exploration and extraction of minerals

The Commission found that it is likely that commercial uranium deposits exist in SA, however like any mineral, there are significant barriers to successful exploration for those deposits, including the cost of drilling activities, particularly in a low-uranium price environment. The current uranium price in particular means that even if production was increased to meet optimistic demand forecasts, the value of production (and royalties payable) would not be of significant benefit to SA.

Processing of minerals and manufacture of materials containing radioactive substances

The market for uranium conversion and enrichment services is oversupplied in SA and in an already uncertain market, the Commission considers there is little opportunity for the commercial development of further uranium processing capabilities in SA for at least the next ten years. However, fuel leasing, which links uranium processing with its eventual return for disposal, is more likely to be commercially attractive, creating additional employment and technology-transfer opportunities.

Use of nuclear fuels for electricity generation

The commercial viability of expanding this stage of the nuclear fuel cycle is weakened by the large upfront capital costs and long periods of construction and operation of nuclear power plants, which typically lack the ability to follow the highly variable demand profile of uranium. However, Australia's electricity system will require low-carbon generation sources to meet future global emissions reduction targets, so nuclear power may be necessary in the future, along with other low-carbon generation technologies.

Storage and disposal of radioactive and nuclear waste

The Commission found that the storage and disposal of nuclear waste is the most viable stage of the nuclear fuel cycle for SA to develop. Whilst the Commission deals with the storage and disposal of wastes produced domestically from industry, research and medicine separately in its tentative findings, it supports the storage and disposal of used nuclear fuel in SA through an integrated storage and disposal facility.

The Commission is optimistic that an integrated storage and disposal facility will be commercially viable and could be operational by the late 2020's. It is looking into this aspect more closely and has recently travelled to Switzerland and Belgium to further its research and understanding of specific details of safety regulation and licensing associated with sub-surface storage facilities.

WHAT THE STORAGE OF NUCLEAR WASTE MEANS FOR SA

The Commission considers that the storage of nuclear waste has the potential to be of significant economic benefit for the state. The Commission's financial assessment suggests that an integrated waste facility could generate \$257 billion in revenue, with costs modelled at \$145 billion, over a 120 year project life. In annual terms this is expressed as a revenue of more than \$5 billion per year for the first 30 years of operation and \$2 billion per year thereafter. The Commission has also predicted that 1500 full time jobs will be created during a 25 year construction period, peaking at approximately 4500 jobs. The Commission also recommended that a special arrangement such as a state wealth fund be established to accumulate and equitably share the profits from the storage and disposal of waste and ensure the long-term benefits are preserved and delivered to future generations of South Australians. The current process is a culmination of public consultation over a number of years prior to the constitution of the Royal Commission.

However, the Commission acknowledges that for any nuclear activity to commence in SA, both social and community consent is essential. At the time of writing, the SA Government had not publicly stated its position regarding the proposal for SA to be a repository of nuclear waste. Likewise, the opposition party is waiting for the final report to be released in early May 2016 before lending its support to the proposal, which the Commission has said will require bi-partisan support. There is no doubt the proposal will come up against significant community opposition, with the Anangu people and environmental lobby groups already voicing vehement opposition.

The Commission's final report will be released on or before 6 May 2016. It is expected the final report will be consistent with the tentative findings and support the storage and disposal of nuclear waste in SA. Whilst the benefits of this will be abundant for the state, it is yet to be seen whether it will attract the required political and community support.

This article was written by [Sharon Wilson](#), Partner and Emma Tormey, Solicitor, Perth.

KEY CONTACTS

If you have any questions, or would like to know how this might affect your business, phone, or email these key contacts.



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