

# About the Jury

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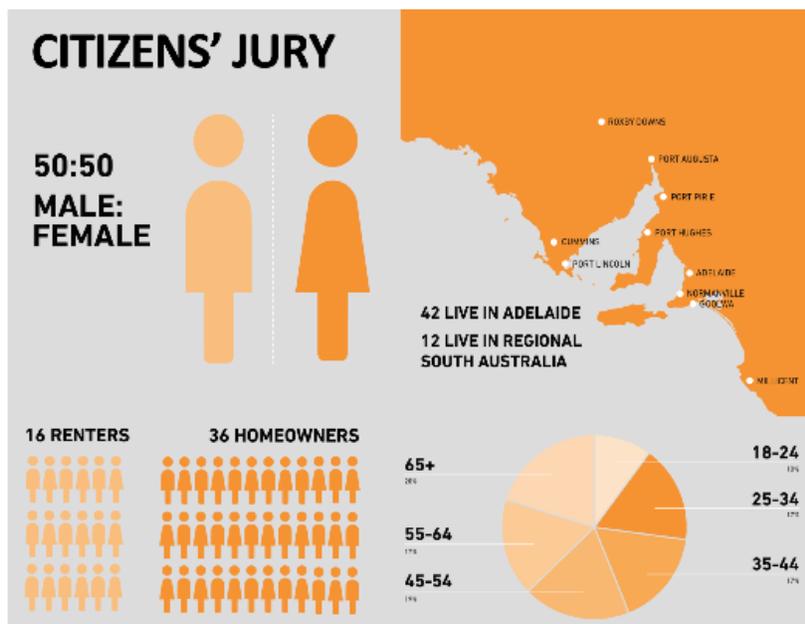
## Purpose and role

The nuclear fuel cycle citizens jury was engaged to review the royal commission report and summarise into an independent guide. The goal is to help every South Australian understand the opportunities and risks of increasing South Australia's involvement in the nuclear fuel cycle as identified by the royal commission.

## Who we are

The process to select the citizens jury was random. 25000 invitations were sent to randomly selected addresses across the state using the Australia Post database. There were a total of 1121 respondents that were willing to participate in the jury. Of these 1121 people, a jury of 54 was randomly selected to align with census data for age, gender and location.

Figure 1 below details the diversity of the jury.



The jury was provided with a copy of the royal commission report and access to information and a diverse range of experts enabling an informed discussion. Details on individual experts can be found at [yoursay website link](#).

# Nuclear Fuel Cycle

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## What is it?

The nuclear fuel cycle can be summarised into four areas.

1. Mining and milling
2. Enrichment and fuel fabrication
3. Electricity generation
4. Used fuel (high level waste) management and storage

The nuclear fuel cycle royal commission focused on the storage of international used fuel (high level waste) as opposed to the storage of Australian produced low and intermediate level nuclear wastes.

## Focus for Citizens Jury

Over four days of deliberation, the jury discussed all stages of the nuclear fuel cycle. Following the initial education and awareness sessions, the jury spent the majority of its time focused on the key recommendation to pursue the opportunity to establish an international high level used fuel storage facility.

The jurors recognise there are potential **economic benefits**, but there are also **substantial risks** to consider. There is a degree of uncertainty around both the benefits and risks associated with establishing such a facility.

Significant additional research, economic analysis and public engagement is still required before South Australians will be in a position to make an informed decision if this is in the best interest of the state.

## Stages

The decision making process involves many stages. The first stage was the Nuclear Fuel Cycle Royal Commission. Following the Citizens' Juries and community engagement process which is currently underway the government will make a decision on whether to proceed to the next stage. The South Australian community will be involved at every stage.

## Call to Action – be proactive not reactive

**We**, the citizens' jury, **call on YOU**, our fellow South Australians, to join us and be part of the process in shaping our State's future.

This is a unique opportunity to be involved in a decision making process in shaping the future for South Australia. Any future decision about the nuclear industry in our state will have long term commitment and consequences. The decision will affect not just us but future generations.

We encourage you to get involved and participate with an open and enquiring mind. Your voice will shape the future of our State and our descendants – have #yourSAynuclear

“Everyone’s choice...everyone matters”

Get involved at: [insert web address, phone & email]

## Principles

We the Jury were asked to consider the principles we believe are important for all people to use when discussing South Australia’s involvement in the Nuclear Fuel Cycle. These are:

- Legitimacy – a legitimate decision must include all people
  - Inclusivity – there must be continual community consultation
  - Transparency - all sources of information must be freely available
  - Consequences – due consideration must be given to people, our economy and our environment
  - Accountability – decision makers are accountable to the community
  - Consider the future – further considerations and more debate of other options. We must also consider future generations of South Australians through all stages
  - Distribution - Potential economic benefits must be shared and accessible to everyone
  - Ethical – all decisions should be ethically and morally sound - what’s good, what’s right, what matters.
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# Safety

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Definition: The Facility: A facility to store, manage and disposal of used nuclear fuel (high level waste) and intermediate level waste.

## What the report recommends

Safety is an important consideration because of the potential impact from radiation to people and the environment and the long timescales involved while the material becomes less hazardous.

The CJ has read the RC report and quizzed many expert witnesses. Many safety and security considerations have been presented and discussed. ??? The considerations include but not limited to geological, seismic, acts of terrorism, health, and transport.

The report suggests that the management of waste can be done safely. See XXX

All members of the CJ agreed all South Australians need to feel confident in all of the regulatory processes in the safety of themselves, the environment and for future generations. It is important to discuss safety and security because of the time scale of the proposal to develop a GDF and the longevity of the high level waste.

## Health

The NFCR examines the effect of radiation exposure on humans throughout all stages of the NFC in Chapter 7. The Citizens' Jury heard testimony from expert scientific and technical witnesses on topics surrounding the various stages of the NFC: transport, health, security and safety. The report addresses the effect of radiation exposure on humans and most of the expert witnesses were of the opinion of the relative safety of the storage containers. There is some uncertainty around the impacts on flora and fauna, which warrant further study as is done in Finland.

## Seismic and geological – Finding 72

The report recognises that many parts of SA are remarkable with regards to geological and seismic stability which are well suited for a geological disposal facility (GDF).

## Nuclear storage

The report recommends pursuing the opportunity to establish a GDF (refer to recommendation 11) facility 500 metres underground somewhere in SA, however a site selection was not part of the scope of the NRFC. There is no facility like this that is operation anywhere yet in the world, but sites are being developed in Finland, Sweden and France.

Part of the process of GDF is to store the used fuel above ground for 20-30 years in specialised containers. The RC report concluded that the storage containers have been rigorously designed. If you're interested in more information on the storage of nuclear waste refer to Appendix I.

The public needs to be confident in an independent, transparent regulator, particularly in light of regulatory failures both internationally and locally. This is emphasised in the report in Chapter 9. There are International Standards, research data and experiences that can be used to support introducing an Australian regulator to ensure lessons learned abroad would be included in our safety regime. The exact nature of a regulator would be determined at a later stage.

The report looks at many different activities at different stages of the nuclear fuel cycle. Each stage comes with its own set of risks and opportunities. The report looks in detail at risks associated with mining (F 9-13), refinement (F 23-24), power generation (F 34-36) and waste management (F 57 – 58, 66-71). It is important to note that the most well known incidents are associated with power generation, and the report does not recommend power generation in SA at this time.

The report finds that there is minimal impact to the public and to workers as a result of the recommended activities. The expected doses are far below natural levels of background radiation that we are all exposed to daily. See chapter 7 (p 133 include diagram?)

## Transport

Transport of spent fuel is already done internationally using specialised casks which are designed to withstand extreme impacts including deliberate attacks and accidental damage. The report finds that nuclear material is transported routinely and safely. Accidents during transport have occurred, but there have been no breach of packages or release of harmful radiation (p153). See chapter 9 or Appendix L (p 309) (include diagram L.1?)

High level waste are fuel rods that have been pulled out from a nuclear reactor and has already been cooled down (ref XXX) for half a century or so. Nuclear waste requires permanent storage as its radioactivity can be harmful for hundreds of thousands of years.

# Informed Community Consent is Valued

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The NFC RC report that there needs to be both broad social informed consent, and specific community consent obtained for any new nuclear activity to start in South Australia.

The report states that social consent is ongoing public support that is necessary for an activity to be undertaken in a society. Social consent is not given once but is ongoing for the life of the activity. page 121

Your opinion is valued.

Your challenge is to be informed/educated so that you can make an informed/educated decision.

You have the opportunity to invite expert witnesses, to view facilities, and to be provided with a translator if required to enable your community to make an informed decision. [Section 100 page 122 (4 pages) and section 104b page 127.]

The jury believes in the importance of Aboriginal and local community engagement and consent. Page 128 sections 105 - 106

It is important that the community is aware that the law needs to change for any new nuclear activity to be developed in SA. We need to ensure that government is accountable and transparent in this process. [Page 121 Section 96 para 3]

Lack of community consent inevitably leads to failure of these projects. [Clause 99 page 122, Case Study 6 page 237].

## Questions for consideration include:

- How is the community's consent measured and made?
- How can I be involved?

## We recommend you read the

- Reports Summary,
- Basic information about radiation risks page 133 and Disposal of Nuclear Waste page 73 clause 55 -58
- the recommendations Chapter 10 169.

# Trust, Accountability and Transparency are Vital.

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The Royal Commission's Report states that we have a choice as South Australians as to whether or not we want to further engage in the Nuclear Fuel Cycle. Chapter 5 clause 55 dot point 2 page 73.

Factors that promote trust and transparency need to be built into the design of any regulatory systems.

Our decision will affect both future generations of South Australians and options for other nations for the management of their used fuel (High Level) waste.

You need to consider that moral and ethical responsibilities are central to the ownership and integrity of our decision. Do we think these actions are good? Do we think they are the right decisions?

It is an international principle of radioactive waste management<sup>1</sup> that the society that generates the waste is responsible for managing it. Those nations that are unable to manage their own waste within their borders are permitted<sup>2</sup> to contract the radioactive waste management to another country. Ought we do this?

Our challenge is to build and maintain trust by avoiding repeating past mistakes such as the lack of engagement and communication about the atomic weapons testing at Maralinga. Page 125

The RC report recommends that clauses from SA legislation<sup>3</sup> be removed which currently prohibit public money being used to encourage or finance construction or operation of a nuclear waste storage facility. Further investigation cannot proceed without changing this legislation. RC Recommendation 12 page 169.

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1 63. pg 79

2 The Joint Convention on the safety of Spent Fuel Management and on the Safety of Radio Active Waste Management.

3 Specifically Section 13 of the Nuclear Waste Storage Facility (Prohibition) Act (2000) SA – the objects of this Act being: The objects of this Act are to protect the health, safety and welfare of the people of

South Australia and to protect the environment in which they live by prohibiting the establishment of certain nuclear waste storage facilities in this State.

NFC RC recommends removal at the State Level and/or federal level existing prohibitions in law on the licensing of Uranium processing activities to enable commercial developments such as nuclear fuel leasing, and existing prohibitions on nuclear power generation.

We as a community need to ensure that any measures put place are what we want? 128 - 134  
pages 156 - 159

Will the public have the opportunity to review any proposed changes to legislation?

## Economics and the benefits/risks for our State

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Recommendations 1,2,3,4,5, and 11 should be referenced for the economic benefits in the nuclear fuel cycle.

The Nuclear Fuel Cycle Royal Commission Report recommends that we pursue the opportunity to establish used nuclear fuel and intermediate level waste storage and disposal facilities in SA (Recommendation 11). This facility has the potential to provide a significant income for SA. There are risks and uncertainties with this endeavour that still requires more research. This research requires further financial commitment by SA, which is needed in order to make a better informed decision if this project is to go ahead to pre-commitment negotiation with client nations.

There is the possibility that further research may determine that this project is not viable. However, the report suggests that there is a strong possibility that this project will be viable in the future and provide a significant income for SA.

Should this project go ahead, the report recommends the project to be funded by a client nation with a pre-commitment payment that will cover all expenditure costs. This is to ensure that there is no possibility of client nations withdrawing from the project. "Through pre-commitment from client countries the state would not need to assume significant commercial risks in incurring capital costs to develop the project." Refer to pp 102 for estimated revenue and pre-commitment.

Given the intergenerational nature of this project it is important to ensure any economic benefits are ongoing. Refer to chapter 5, finding 90 (discusses the necessity of establishing a state wealth fund to benefit the state in future).

There were varying views between expert witnesses on the economic viability of this project and therefore questions remain relating to the economic modelling by the Royal Commission

Report to feel comfortable progressing to further involvement. Refer to pp 102, table 5.9 (projected net present value of a real, pre-tax basis). Whilst this is a first step, there are many more questions that must be answered before we will be comfortable progressing to the next phase.\*

There are many things that South Australian still need to discuss. These include:

- What benefit can be made available to SA now and in future generations?
- How can we be sure that the economic analysis completed by the royal commission is robust?
- How will the South Australian 'brand' or external reputation be affected and how will this have an effect on tourism and trade? (p163 finding 145, p232)
- What reliance is there on other countries to 'pre-commit' to storing high level nuclear waste at a fixed price?
- How will the benefits be realised and how will the wealth be distributed?
- How do we incorporate rapid change in future technologies such as nuclear fuel recycling in the next generation of Nuclear fuel reactors? (p291)
- What are the workforce opportunities, skills, training and research?

### **Call to action for SA**

There is real opportunity for South Australians to increase their knowledge and participation in the nuclear fuel cycle, including South Australia's current participation and to better understand the potential benefits and risks. Refer to pp 292, Table J.2 (current and forecast stockpiles of used fuel and intermediate level waste from other countries)\*.

### **References:**

The Jury suggests reading appendix J pp290 – Analysis of viability and economic impacts. If there is further interest, read chapters 5 pp73 (Management, storage and disposal of nuclear and radioactive waste).