SOUTH AUSTRALIAN NUCLEAR ENERGY SYSTEMS PTY LTD

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By email to enquiries@nuclearrc.sa.gov.au & by post. 01 March 2016

The Commissioner
Nuclear Fuel Cycle Royal Commission (NFCRC)
GPO Box 11043
ADELAIDE SA 5001

Dear Commissioner

Tentative Findings NFCRC

Attached please find copy of the Response Coversheet, duly completed and signed by an authorised officer of the company. The required particulars for the company, South Australian Nuclear Energy Systems Pty Ltd (SANES) also appear in the letterhead of the company appearing above.

In general terms this company agrees with the tentative findings of the Commission and agrees that South Australia (SA) can safely increase its participation in nuclear related activities and thereby greatly improve the economic welfare of the State.

Invited comments on the tentative findings by the Commission are as follows:

- **Further Processing and Manufacture**

  NFCRC has concluded the market for nuclear fuel or its components is oversupplied leaving no opportunity for the commercial development of uranium oxide processing operations in SA during the next decade.

  SANES has found, however, there are nations with nuclear capability interested in both nuclear fuel production and spent nuclear fuel (SNF) processing in Australia. Those opportunities are being investigated and are thought to remain distinct business opportunities for SA.

- **Electricity Generation**
  NFCRC sees no commercially viable need for nuclear power plants in SA within the foreseeable future.

  SANES, however, using information published by the Australian Energy Market Operator (AEMO) has formed a different view. It has been noted (AEMO report 26 October 2015) that SA will breach its Reliability Standard in 2019/20 and, again, more seriously, in 2024/25 when Victoria also is expected to breach its Reliability Standard rendering it unable to meet daily demand assistance for SA and NSW. All three states will require additional generation capacity by 2024.

  Peak demand in SA can exceed 3200 MWe, often on days when the intermittent installed 1743 MWe from wind and solar are not available and reliance on available, but inadequate, base load power (2903 MWe) generation is necessary. Without assistance from Victoria, even now, demand could not be met through almost any day. Before 2024/5 SA will need additional base load capacity of more than 1000 MWe, hopefully from low carbon generation

sources in the interests of climate change. At least eight new base load electricity consumers have been identified totalling new demand in excess of 1.5GWe

In accordance with current efforts in UK to eliminate fossil fuelled generation without capital supplied by government, nuclear power plant operators from many nations (including Japan, France, USA and China) are planning to build plants to feed the UK grid at the capital cost of the operator against revenue streams from grid sales. Indications are that Australia could be similarly served.

- **Management, Storage and Disposal of Waste**

The NFCRC has found that the storage of 'used nuclear fuel' or Spent Nuclear Fuel (SNF) in SA would meet a global need and deliver substantial economic benefits to SA. Further, they suggest an integrated storage and disposal facility for SA might be similar to that planned for the Finnish Olkiluoto facility which is said to be able to store 13% of present world stockpile of 138,000 tonnes of SNF during a life cycle of 120 years costing $145 billion. No mention is made by NFCRC in relation to lower levels of nuclear waste – Low Level Waste (<2kW/m3) and Intermediate Level Wastes (ILW), often processed SNF.

SANES has found differently and advised the NFCRC accordingly in a Submission dated July 2015. Firstly, SANES has agreed to follow the recommendations of the US Department of Energy (US DOE) and other US based authorities in the international nuclear businesses generally and the nuclear waste business in particular. The US DOE has recommended that there should be no concept of 'waste storage' but, simply, 'waste disposal' since nuclear systems are likely to remain 'once through systems' for the foreseeable future. There is no present or anticipated early need for SNF as a nuclear fuel but, more commonly (in France, UK, Russia, Japan and the USA) the reprocessing of SNF to remove hazardous actinides and other compounds is preferred to render the disposal process simpler and safer.

Radioactive waste from nuclear power plants and related facilities comprises about 94% LLW, 5% ILW and 1% HLW (or SNF). Accordingly there are very large quantities of Low Level Waste and lesser quantities of the higher level wastes which are more difficult and more hazardous to handle. Based on discussions to date with nuclear plant operators wishing to dispose of quantities of LLW, the immediate opportunity for SA lies with LLW initially and other waste forms later. SANES believes the establishment costs of the planned radioactive waste receival, transport and disposal facilities, an amount expected to exceed $2.5 billion, can be found making the waste disposal business extremely profitable for SA in the short term and before more difficult and expensive SNF disposal is attempted.

As advised previously, SANES directors are prepared and willing to discuss their draft proposals further.

Yours faithfully
SA Nuclear Energy Systems Pty Ltd

Bruce Hundertmark
Chairman

Attach: Completed 'Tentative Findings Response Coversheet'