



SMR-NT Response to the NFCRC Tentative Findings

Introduction

SMR-NT welcomes the Tentative Findings as a well-researched fact-based assessment of the status, opportunities and risks for South Australia in all aspects of the nuclear fuel cycle.

We strongly endorse the findings that safety, finance, environment, and social aspects of the potential introduction of any section of the nuclear fuel cycle in South Australia can be competently managed. We particularly endorse the finding that safety can be so managed.

We agree that social and community consent is essential and we endorse the principles that may be used as laid out in the Tentative Findings.

We consider the work underpinning Management, Storage and Disposal of Waste to be particularly well researched and presented to the point where the information provided could be easily transferred to a final feasibility study and investment proposals.

Our comments are principally focused on the section on Electricity Generation. We find the costing numbers very conservative; particularly loading the first project with all the associated regulatory and consultation costs. The underpinning economic reports and the commission's summaries are comprehensive. However, drawing any conclusions given Australia's national electricity regulatory structure, the nature and age of the generation fleet, and Australia's commitments to meet future global emissions targets, is difficult. We therefore strongly endorse the tentative finding that " it would be wise to plan now to ensure that nuclear power would be available should it be required".

A final commission recommendation should be that these matters need to be managed at a national level given that much of the early requirements require federal legislative change, a change to the way the national electricity market is structured and operated, and some very difficult decisions regarding the closure of older coal-fired power stations. All of this needs to be managed to ensure security of electrical energy supply at a cost which does not adversely impact on Australia's international competitiveness.

SMR Nuclear Technology Pty Ltd firmly considers that in the longer term Australia's electrical energy supply should be provided by a mixture of nuclear energy operating predominantly at base load supported by renewable energy where practical and economic without market distorting subsidies. There is no other likely option if society is to meet the global target of zero energy sector emissions by 2050.

Response to individual findings

Finding 1

There is an opportunity for federal and state governments to provide a long-term vision and agree on a national energy plan that must include the restructuring of the NEM. This should be a key NFCRC recommendation.

Finding 7

We agree with the finding that nuclear power, during generation and on a full lifecycle basis, is a low-emissions technology, along with solar and wind. This confirms that nuclear electricity generation can be considered in conjunction with other low emissions technologies.

Finding 8

The case study of the UAE shows that, where there is political will and appropriate leadership, the implementation time for nuclear power generation can be shortened considerably. The main driver for the UAE was energy growth. This is unlikely to be a driver in Australia, but the driver could be international pressure for a reduction in carbon emissions in a shorter timescale than is presently envisaged. Australia also already has an existing highly experienced nuclear engineering and project management workforce which could be mobilized quickly.

Finding 9

The NFCRC should clearly set out the actions required to enable nuclear electricity generation to become an option, including a process to change the legislative prohibitions. The NFCRC's recommendations should also include a specific statement that "there were no technical issues identified that would support the current prohibitions on some nuclear activities", endorsing the general comment of Finding 1 that "policies must be based on evidence, not opinion or emotion".

Finding 38

It should be clearly stated that there was no significant release of radiation from the Three Mile Island accident.

Finding 42

Modern reactors are orders of magnitude safer than the Generation II reactors involved in all the accidents listed. A modern reactor with passive safety systems would have survived even the extreme Fukushima accident. The NuScale SMR is designed to be indefinitely safe in an accident. It has passive safety systems that cool the reactor indefinitely without attention providing "indefinite coping time".

Finding 43

In countries with a large proportion of nuclear power, for example France, reactors have to be capable of load following.

Modern SMRs, for example NuScale, Westinghouse and mPower are designed specifically to load follow and work with intermittent renewables (Ref: “Compensating for Renewables : SMR Capability for Load Following” at www.smrnuclear.com.au). This paper includes a reference to a detailed study of a NuScale plant compensating for fluctuating generation from an existing wind plant in the USA.

Finding 44

It should be made clear that the large quantity of cooling water is mainly required for the turbine condenser. The smaller output of SMRs enables them to be more easily designed for dry cooling. Seawater is not a necessity as noted in the supporting reports - existing lakes and rivers can also be used.

Finding 45

The deployment timescale for the NuScale SMR shows modules operating before 2025 which would provide the necessary evidence for deployment in South Australia. As noted above much preparatory work would be required well before this date for the introduction of any nuclear power station.

Findings 46-61

It is clear that the present design of the NEM and the impact of Australia's renewable energy subsidy schemes do not:

- consider all low emissions technologies equally
- promote the total lowest cost generation
- include a process for phasing out the highest emitting generators
- have a process for replacing ageing generators, nor
- include provisions for investment in new generation , except for technologies included in the RET.

The NFCRC final report should recommend a national energy plan and a restructured NEM.

Conclusion

Contrary to some comments in underpinning reports, we submit there is a considerable awareness of all aspects of the nuclear fuel cycle and general supporting industry within Australia. General public awareness of detail aspects may not be high but there is a relatively large nuclear engineering and science community in Australia that is fully qualified and experienced, and aware of all aspects of the local and world nuclear industry at expert level. When combined with the highly experienced engineering and construction workforce currently engaged in major mining and chemical processing investments throughout Australia, we submit that the commission should find that there are no workforce barriers to the entry into any section of the nuclear fuel cycle in South Australia.

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