Exhibit "A"

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3 August 2015

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Electricity Generation from Nuclear Fuels – Issues Paper Three

The Energy Supply Association of Australia (esaa) welcomes the opportunity to make a submission to the Nuclear Fuel Cycle Royal Commission's (the Royal Commission) Electricity Generation from Nuclear Fuels Issues Paper.

The esaa is the peak industry body for the stationary energy sector in Australia and represents the policy positions of the Chief Executives of 37 electricity and downstream natural gas businesses. These businesses own and operate some $120 billion in assets, employ more than 59,000 people and contribute $24.1 billion directly to the nation's Gross Domestic Product.

The esaa considers that efficiently transforming the energy sector to lower emissions while also maintaining energy security over the longer term will require many fuel and technology solutions. As a fuel and technology neutral organisation the esaa does not support either picking winners or ruling out particular options. Rather, energy security is enhanced when industry has a wide menu of options from which to find the best solutions to meet the community's needs. In this context, the esaa is supportive of examining the potential role of nuclear energy in the electricity generation sector.

State of the market required to facilitate and regulate the establishment and operation of nuclear power

Nuclear power investment requires the industry to have the confidence to commit to these investments and that they can generate returns over the lifetime of the assets. To partially address these challenges and avoid future unintentional negative outcomes on the structure and efficient operation of the wholesale electricity market, the Government must carefully consider the rationale for encouraging additional supply of any type. In this regard, a key focus for government should be the provision of stable policy that continues to stimulate competition and encourages an efficient market-based approach to the effective deployment of new generation.

The esaa believes there needs to be stable energy policies in place for investment in nuclear energy. The current investment environment is making financing difficult which could affect reliability in the future. The "State of the Debt Markets for the Energy Supply industry" survey by PricewaterhouseCoopers (PwC)[1] found banks would be reluctant to support any new energy projects in Australia unless they were underwritten by guaranteed price contracts, which were unlikely under current conditions of chronic oversupply and weak wholesale prices.

Costs associated with nuclear power

General estimates of the relative costs of different technology types tend to place nuclear energy "in the pack". For example, the International Atomic Energy Agency (IAEA) estimates that nuclear energy costs match those of coal, natural gas and certain renewable energy technologies. The ranges of levelized costs of electricity (LCOE) from natural gas, coal and nuclear sources largely overlap between 30 and 80 $/megawatt hour (MWh) at a 5 per cent discount rate and between 40 and 120 $/MWh at a 10 per cent discount rate. LCOE from renewable sources are declining but they are still significantly higher than nuclear according to the report[ii].

The IAEA and other competing cost estimation exercises provide a broad guide to which technologies may be commercially viable at different times, but this is a dynamic issue and varies with location and plant-specific factors. This is why the wholesale energy market was designed to allow decentralised investment decisions to be made and the risk of poor choices to be borne by the investor.

Nuclear electricity generating costs are less sensitive to fuel (uranium) price volatility than are the costs of fossil fired generation because uranium represents a smaller fraction of the total cost[iii]. Despite increasing construction costs for nuclear, financing nuclear power investments could be feasible under stable government policies, proper regulatory regimes and adequate risk allocation schemes.

The esaa believes nuclear energy has the potential to play a role in Australia's future energy mix. The Australian Academy of Technological Sciences and Engineering (ATSE) report, which assessed the future electricity generation mix in Australia, did not consider nuclear energy over the period to 2020. But the report suggested by 2030 nuclear power is expected to become close to economic with LCOEs around $100/MWh[iv].

Current cost data is relevant only for a particular type and size of nuclear power plant. Other types may emerge in the future, including smaller, modular units. These units might be used for off-grid or at the edge of grid, where they can better compete with viable alternatives. This would especially be for mining projects that require a steady load. The Association believes it is better to move beyond yes or no on nuclear power and instead think about the characteristics that a power plant that came under the broad category of "nuclear" would need to have to be acceptable.

Community and environment

The CSIRO eFuture model[v] showed that incorporating nuclear into the generation mix for 2050 would decrease greenhouse gas emissions in the range of 10 to 37MtCO2e compared to the range of 22 to 141MtCO2e when nuclear is excluded[vi]. Nuclear is also expected to impact the wholesale price range; with nuclear power permitted the projected wholesale price range in 2050 is $69 to $107/MWh. If nuclear power is prohibited, the wholesale cost range in 2050 is $109 to $162/MWh[vii].

The choice of electricity generation technologies is dependent on a range of factors, including the availability/cost of input fuels and broader policy objectives. But the Association considers it is important to consider the widest array of potential options. This will require moving beyond the simple yes/no debate on the potential role of nuclear energy in Australia.

The esaa considers there is a need for independent information on the facts of nuclear energy and the safeguards that are put in place to manage it. If the

government were to decide to investigate developing a nuclear industry there is a need for governments to delegate responsibility to institutions like the CSIRO and other independent organisations to provide factual information to the community about the industry and its safeguards early. The Association believes a negative campaign could build without credible scientific evidence to counter it.

Any questions about our submission should be addressed to Panos Priftakis, by email to panos.priftakis@esaa.com.au or by telephone on (03) 9205 3115.

Yours sincerely

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[i] PricewaterhouseCoopers Australia (PwC), 2014, "State of the Debt Markets for the Energy Supply Industry"
[ii] International Atomic Energy Agency (IAEA), 2014, "Climate Change and Nuclear Power 2014"
[iii] Ibid
[iv] Australian Academy of Technological Sciences and Engineering (ATSE), 2010, "Low-Carbon Energy: Evaluation of New Energy Technology Choices for Electric Power Generation in Australia"
[v] CSIRO default scenario is used which includes medium demand, medium fuel price and medium cost scenario. Nuclear is permitted in the model.
[vi] CSIRO, 2013, "efuture sensitivity analysis 2013"
[vii] Ibid

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