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Submission to the inquiry into the current circumstances, and the future need and potential for dispatchable energy generation and storage capability in Australia

We make this submission to the House Standing Committee on the Environment and Energy (the “**Committee**”) regarding its inquiry into the current circumstances, and the future need and potential for dispatchable energy generation and storage capability in Australia (the “**Inquiry**”), as Australian citizens and New South Wales qualified lawyers, as well as internationally recognised legal advisers on all aspects of the civilian nuclear energy sector.

SUBMISSION

This submission is made in light of the report released in December 2019 by the Committee with respect to its inquiry into the prerequisites for nuclear energy in Australia, titled ‘*Not without your approval: a way forward for nuclear technology in Australia*’ (the “**Report**”). The Report, in acknowledging Australia’s need to deliver affordable and reliable energy whilst at the same time reducing carbon emissions, recommended that the Australian Government consider the inclusion of nuclear energy technology as part of its future energy mix and, in so doing, give consideration to a partial lifting of the current moratorium on nuclear energy with respect to Generation III+ and Generation IV technologies, including Small Modular Reactors (“**SMRs**”).

Nuclear power generates proven, reliable, low carbon and sustainable baseload power, capable of making a significant contribution to Australia’s future energy needs, not only on its own, but in synergy with renewable technologies by counterbalancing their intermittency. SMRs have more flexible load following capability than traditional large nuclear power plants. Further, SMRs will offer a range of additional potential applications outside of electricity generation such as hydrogen production, district heating and desalination.

Recognising the potential of SMRs, many foreign governments are supporting SMR technologies move to commercialization as rapidly as possible, with a number of important projects underway in both the United States and Canada. These include:

- Global First Power’s (“**GFP**”) MMR Project at Chalk River Laboratories, Ontario, Canada. GFP is a joint venture between OPG and reactor developer Ultra Safe Nuclear Corporation (“**USNC**”), which is developing a commercial demonstration project to site, construct and deploy USNC’s Micro Modular Reactor at Canadian Nuclear Laboratories’ Chalk River site by 2026.

- Ontario Power Generation's ("**OPG**") SMR construction project at its site in Darlington, Ontario, in Canada. By the end of 2021, OPG will select one of three grid-scale SMR developers (GE-Hitachi, Terrestrial Energy or X-energy), with construction planned to commence in 2025.
- The Point Lepreau SMR Vendor Cluster in Canada. This is a collaborative venture between New Brunswick Power, Moltex Energy and ARC Nuclear Canada to pursue common research and development activities at New Brunswick Power's Point Lepreau site. Moltex plans to construct its first SSR-W SMR at the site, with the cluster receiving Canadian government support.
- Utah Associated Municipal Power Systems ("**UAMPS**") Carbon Free Power Project at the Idaho National Laboratory site in the United States. UAMPS is a public power consortium intending to deploy a NuScale SMR, with the first module slated to commence power generation by 2029, and full operation of the remaining modules to begin shortly thereafter in 2030. UAMPS has received significant financial support from the US Government, in the form of cost-share awards to fund the development and construction of the project.
- The United States' Advanced Reactor Demonstration Program ("**ARDP**"). The ARDP is a cost-shared partnership program aimed at furthering the development of advanced reactor concepts. In December 2020, the ARDP released its initial round of funding to TerraPower and X-Energy to build demonstration plants using their SMR technologies within a seven-year time frame. X-Energy will be building its demonstration Xe-100 SMR in partnership with Energy Northwest in Washington State, United States. TerraPower will be building its demonstration Sodium SMR concept, co-developed with GE-Hitachi.

Should Australia wish to be in a position to procure SMRs once projects such as the above are realised and SMRs are commercially available, we will need to commence as soon as possible feasibility studies and infrastructure development across a broad range of areas (legal, regulatory, institutional, human, market and physical).

The International Atomic Energy Agency has developed an internationally accepted and followed roadmap for a country considering the introduction of nuclear energy generation for the first time, in the form of the "IAEA Milestones Approach".¹ This approach has been and is currently being applied by more than 30 countries that are working to create energy optionality that includes nuclear energy. We have worked with many embarking nuclear countries and are aware of the considerable time and effort needed to successfully bring the benefits of nuclear energy to a country for the first time.

We implore the Committee to recommend including nuclear energy as an option in Australia's future energy generation mix and commencing the necessary work to enable Australia to obtain the benefits of SMRs in the near future, particularly with respect to creating viable, dispatchable energy generation options.

Helen Cook and Jack Turner

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¹ <https://www.iaea.org/topics/infrastructure-development/milestones-approach>