VIA EMAIL: Environment.Reps@aph.gov.au

November 7, 2019

Mr. Ted O'Brien MP
Chair of Standing Committee on the Environment and Energy
House of Representatives
Parliament House
Canberra ACT 2600

Subject: NuScale Power Supplemental Submission to the Standing Committee on the Inquiry into the Pre-Requisites for Nuclear Energy in Australia - Small Modular Reactor Technology

RE: (1) NuScale Power Submission to the Standing Committee on the Inquiry into the Pre-Requisites for Nuclear Energy in Australia dated 26 August 2019, Submission 71
(2) GenCost 2018, Updated projections of electricity generation technology costs, Commonwealth Scientific and Industrial Research Organization, December 2018

Dear Mr. O'Brien:

NuScale Power, LLC, a small module reactor (SMR) technology development company headquartered in Portland, Oregon and America's leading SMR developer, provided in reference (1), NuScale's submission in connection with the Standing Committee's inquiry into the pre-requisites for nuclear energy in Australia. In that submission, we attached a presentation entitled "NuScale SMR, Progress to Deployment" that provided general information regarding our technology, its capability and features, status of our development program, our plant cost estimate, and customer activity, including the work we are doing to prepare for our first project in the U.S. that has a commercial operation date of 2026 for the reference plant design, a 720 MWe, 12-module facility. NuScale hereby submits this supplement to reference (1) to more specifically address NuScale's plant cost estimate relative to the cost information contained in reference (2), referred to herein as the "CSIRO/AEMO report" or the "Report".

We understand that the results of the information contained in the Report was recently reaffirmed by CSIRO to the Standing Committee during a hearing on 16 October 2019. The Report presents cost information for an assortment of generation technologies including "small scale modular reactors" (SMRs). Specifically with respect to the capital cost projections for SMRs, Figure 3.9 of the Report shows a capital cost of approximately A$16,000/kW (2018$). We do not know the basis for this figure, as it bears no relationship to the overnight capital cost figure NuScale first published in 2014. We are also not aware of ever being contacted by the authors of the CSIRO/AEMO report in the context of the Report's SMR cost information, or that the authors inquired how NuScale derived its published cost estimate.

As presented in the attachment to our submission of reference (1), NuScale's current published cost estimate for the deployment of a Nth-of-a-kind facility at a generic greenfield site in the southeastern region of the United States, using U.S. labor and a predominately

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U.S-based supply chain is (US)$3,600/kW ($2017$). This cost estimate was first derived in 2014 and subsequently updated in 2017 to reflect further design maturity. It is based on a mature design and a rigorous "bottom's up" analysis including over 14,000 line items of materials, components or equipment, and with the cost of over 80% of these items reflective of catalogue pricing or actual vendor quotes. The cost estimate for the NuScale Power Modules™ (NPMs), which is approximately 1/3 the total cost of the facility, was developed independently by a large nuclear pressure vessel fabricator. The plant and NPM cost estimates comport to the Association for the Advancement of Cost Engineering (AACE) Class 4 and Class 3 estimates respectively. The 2014 cost estimate was also independently assessed by an internationally recognized expert consultancy in nuclear plant cost estimating confirming, among other things, the reasonableness of the estimate and contingency. Converting the 2017 cost estimate to Australia dollars using a current prevailing exchange rate (1AUD=0.6859 USD) results in a cost estimate of A$5,248/kW, nearly three times less than the CSIRO/AEMO report's SMR cost estimate.

To further qualify this U.S. based cost estimate to the Australian market, we examined market specific differences in the estimate's cost components such as labor rates and productivity and used locally-sourced equipment and commodities and found that in the aggregate, a NuScale facility deployed in Australia is likely to have a lower capital cost than the U.S. generic site cost estimate.

Finally, we note that the CSIRO/AEMO report concludes that for SMRs there is likely to be very little reduction in cost over time due to the "learning rate." We do not agree with this conclusion with respect to NuScale. Learning rates and the magnitude of cost reduction from first-of-a-kind to Nth-of-a-kind (NOAK) costs vary depending on the constructed element, taking into consideration whether the element is factory fabricated or field constructed. While NOAK costs will be achieved for the factory fabricated NPMs with the second 12-module, 720 MWe plant, NOAK costs for the entire plant will be realized by the deployment of the eighth plant. Our above-noted cost estimate reflects an NOAK plant that we, and our independent experts, have concluded will be conservative and approximately 16% lower than the cost of the first plant.

Our customers expect, and we have delivered, a second-to-none safety case for our SMR technology. Our customers also expect that our SMR technology offer an economic generation solution. NuScale's well developed and supported cost estimate shows that our SMR technology is competitive to not only currently available gigawatt size commercial nuclear power plants, but also to a variety of other generation options. As Australia decides whether commercial nuclear generation should be one of its energy sources, it should do so, at least with respect to NuScale's SMR, using actual cost information.

Respectfully submitted,

Thomas P. Mundy
Chief Commercial Officer

Cc: File
Dr. Larry Marshall, Chief Executive, CSIRO
Ms. Audrey Zibelman, CEO and Managing Director, Australian Energy Market Operator

