

VIA: E-MAIL (nuclearprohibition@parliament.vic.gov.au)

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Parliament of Victoria
Spring Street
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August 27, 2020

Subject: Legislative Council Environment and Planning Committee, Inquiry into Nuclear Prohibition, Hearing Date 14 August 2020

RE: E-Mail Donohue to Mundy, Inquiry into Nuclear Prohibition – additional information, dated August 26, 2020

Dear Ms. Donohue:

Thank you for your referenced email wherein you ask that I answer some questions from Committee members, which were not covered on the date of the hearing due to time constraints.

Question 1 - NuScale's submission puts the cost of a First-Of-A-Kind plant at US\$2.97bn, whereas their customer UAMPS puts the cost at US\$6.12bn. What makes up the difference between the two costs?

Response:

A very similar question was asked by Ms. Taylor and answered during the Committee hearing (See page 11 of the hearing transcript). The NuScale 720 (gross) MWe/683 (net) U.S. plant first-of-a-kind (FOAK) overnight capital cost estimate reflects the following:

- NuScale's first-of-a-kind overnight capital cost has been estimated to be approximately \$2.974B or \$4,350/KW in 2017 U.S. dollars. NuScale performed this estimate first in 2014 and updated in 2017.
- This overnight capital cost estimate is based on constructing the NuScale reference plant (12-module) design at a generic greenfield soil site in the Southeastern region of the U.S. and excludes warranty, contingency, escalation, fee, interest, and owner's costs, as these items vary by project, customer, and site location.
- Our rigorous and systematic "bottoms up" estimating approach conforms to AACE International 18R-97 – Class 4 cost estimate with over 14,000 line items (equipment, material, etc.) priced using Fluor's current proprietary cost data or actual vendor quotes.
- The cost estimate for the NuScale Power Modules™ conforms to an AACE International Class 3 estimate.
- Labor costs and productivity data from recent U.S. nuclear new build projects in that region of the U.S., or applicable Fluor Corporation, engineering, procurement, and construction (EPC) experience and industry data were included in the estimate. Fluor, the lead investor in NuScale, is one of the world's largest engineering, procurement, fabrication, construction,

and maintenance (EPFCM) companies, with more than 75 years of nuclear industry experience.

- We have presented to UAMPS a proprietary Class 4, project specific, overnight capital cost estimate that includes adjustments to the generic greenfield site estimate reflective of, among other things, differing site conditions, and customer specified options to the reference design, such as the main cooling system. UAMPS refers to this project as the Carbon Free Power Project (CFPP).
- NuScale understands the \$6.1B total incurred cost estimate UAMPS presented to its members participating in the CFPP as set forth in its “Amended Budget & Plan of Finance”, dated July 14, 2020, is based upon this project-specific proprietary overnight capital cost estimate, and NuScale’s proposal for warranty and fee, as well as UAMPS’s conservative estimates for owner’s costs, contingency, escalation, and interest.

Question 2 - In NuScale’s testimony they said that Australia could have a NuScale plant operating before 2030. How is this possible when their FOAK plant isn’t expected to be fully operational until June 2030?

Response:

Similar questions were asked by Ms. Taylor and answered during the Committee hearing (See page 7 of the hearing transcript).

Since NuScale’s SMR technology is based on well-known and established pressurized light water reactor technology, NuScale neither intends, nor is it required under U.S. regulations, to first construct a prototype or demonstration plant. NuScale’s first facility deployment will be a commercial generating facility. Nevertheless, we have established an extensive prototypical testing and technology maturation program that conducts various activities that demonstrate critical first-of-a-kind components and systems providing high confidence that they will perform as expected. The UAMPS Carbon Free Power Project (CFPP), should it be the first NuScale power plant to achieve commercial operation, will by definition be first-of-a-kind (FOAK).

UAMPS is currently active on the CFPP site performing site characterization activities. Pending finalization of those activities and the development of a schedule reflective of UAMPS’ recent decision to use “dry cooling”, UAMPS has requested that NuScale work to the following schedule:

- First module expected to be operational by mid-2029, with the remaining 11 modules to come online for full plant operation by 2030.
- UAMPS has shared that it has worked through a new comprehensive budget and plan of finance for the CFPP and has revised the project schedule to align with the timing of UAMPS Member energy needs, and other financial and project developments.
- UAMPS has communicated that this schedule provides ample time to ensure prudent financial management, cautious entry into next phases of development, and further de-risking of the project.

As I mentioned during the Committee hearing, despite UAMPS’s decision to proceed with a schedule that has a later commercial operation date than earlier planning contemplated, NuScale is focused not only on design and licensing activities, but also on supply chain readiness. We are actively engaged with our manufacturing partners and will be ready to deliver the first NuScale Power Modules to a client in 2027. Accordingly, we are planning to be ready to be able to deliver a

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NuScale plant for another customer that may desire commercial operation sooner than the CFPP, and as mentioned at the hearing, NuScale is in discussions with potential customers in North America that are considering an SMR plant deployment with a commercial operation date before 2030. The NuScale plant that achieves commercial operation first, will have that FOAK designation.

With regard to Australia, a timetable for a first NuScale plant in Australia would need to be developed, including the duration of regulatory reviews and approvals. As I mentioned during the hearing, in NuScale's experience, the time to obtain nuclear regulatory approvals typically is the critical path to commencing construction and allowing operation. But as I stated in the hearing: "if we were to start with a project developer [in Australia] shortly, it is very reasonable to believe that a NuScale power plant could be generating electricity by the end of this decade if not earlier in Australia."

Please feel free to contact me should there be any further questions from the Committee.

Sincerely yours,

Thomas P. Mundy
Chief Commercial Officer

cc: File
C. Collins