Senate Economics Legislation Committee

Senate Estimates Hearings May/June 2024

Opening Statement

ANSTO

as read by Shaun Jenkinson, Chief Executive Officer

It is my privilege to address you once again as the Chief Executive Officer of ANSTO, Australia's Nuclear Science and Technology Organisation.

ANSTO is the cornerstone of Australia's nuclear science and technology capabilities.

As nuclear players go, Australia is a relatively small one, however, due to our geographical isolation from other parts of the world, we've needed to develop broad national nuclear capabilities to support our operations. This has led to Australia being seen as a small, yet highly sophisticated nuclear player, operating complex nuclear facilities with strong nuclear stewardship.

Through ANSTO, Australia has commissioned and operated three reactors. The current OPAL reactor, was commissioned in 2006 and is one of the worlds most advanced and reliable multipurpose reactors, operating on average for 300 days per calendar year.

On any given day, there are multiple movements in and out of the open reactor pool, including:

- starter materials for lifesaving nuclear medicine;
- silicon ingots which will end up as semi-conductors used in high power high voltage environments such as power infrastructure; and
- research samples that must be placed in the correct location to be bombarded with the right flux of neutrons from the reactor core.

We are currently 12 weeks into the first scheduled long-shut down of the OPAL reactor for maintenance and upgrades.

One of the most important elements of this work has been to replace the cold neutron source which has reached the end of its operating life. The cold neutron source helps to lower the energy levels of neutrons coming from the reactor core.

Seven of our neutron beam instruments are dependent on cold neutrons for research as they are particularly useful in investigating soft materials, including biological molecules and polymers, ideal for health and environmental research.

Replacing the cold neutron source is a highly complex and technical task and in preparation, a life-size replica of the reactor pool has been built to use for training and to ensure safety is paramount.

We are fortunate to have a highly skilled nuclear workforce within ANSTO to progress this important work. A diverse range of skills and expertise from our reactor operators; nuclear engineers; nuclear safety experts; maintenance teams and researchers have all contributed to this important work.

I am pleased to report that nuclear medicine products continue to be available to the Australian healthcare system despite the shut-down and this is due to support from other international suppliers and careful management of logistics.

Whilst the OPAL reactor is central to Australia's current nuclear capabilities, we have deep expertise in the design, commissioning and operation of a diverse range of nuclear facilities for nuclear medicine manufacturing and production, research and waste management.

Currently, if you look across the key capital projects at ANSTO, we are adding 8 new Beamlines to the Australian Synchrotron, building a first-of-a kind facility for the treatment of waste derived from the production of nuclear medicines, designing a state of the art nuclear medicine production facility that will secure these important products for future generations of Australians and of course as mentioned earlier, we are undertaking the maintenance work on the OPAL reactor.

Through ANSTO, Australia is also known for our research and innovations to support global nuclear security.

Last month, Australia co-hosted the International Conference on Nuclear Security (also known as ICONS) with Kazakhstan at the IAEA in Vienna.

From our perspective as Australia's leading nuclear operator and research facility, we were pleased to showcase our capabilities in nuclear forensic science and innovation, alongside our other Australian nuclear agencies.

Whilst at ICONS, ANSTO signed a Memorandum of Understanding (MoU) with the US Department of Energy's National Nuclear Security Administration (NNSA) to further solidify Australia's and the United States' strong relationship and commitment to the advancement of mutual nuclear security and non-proliferation. The agreement will formalise this cooperation and enable opportunities to work with the United States to further develop Australia's sovereign nuclear security science capabilities.

Also on showcase was the innovative CORIS360® radiation detector and imaging technology.

The CORIS360® is the device that last year found the needle in the haystack [PROP] or the tiny missing radioactive source in WA. ANSTO has loaned a CORIS360® device to the IAEA to further explore its value to global nuclear security.

Through the IAEA, ANSTO also frequently supports regional training programs for member states in the South-East Asia, to share our expertise on the theoretical and practical aspects of nuclear forensics for nuclear security.

Similarly, through our environmental research we continue to support member states from across the Asia Pacific region to use nuclear research techniques to assess the vulnerability of coastal landscapes and ecosystems to sea-level rise and climate change.

Australia is fortunate to have over 70yrs of nuclear expertise to draw from to support our regional partners and importantly support our Government.

As required, ANSTO is pleased to continue to lend our expertise to support the development of the Australian Submarine Agency and more broadly the optimal pathway for the Nuclear-Powered Submarine program.

As the centre of Australia's technical nuclear expertise and in accordance with the ANSTO act, we keep abreast of international developments in all applications of nuclear science and technology, including in energy. While ANSTO stands ready to provide technical support to Government in whatever capacity is requested, our role is not to develop or influence Australia's energy policy. On questions relating to the make-up of Australia's future energy mix, ANSTO remains completely neutral.

I am joined today by my colleagues John Edge, Chief Operating Officer, and Miles Apperley, Group Executive, Nuclear Safety, Security and Stewardship.

Thank you.