

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation and Science Portfolio
2016-17 Supplementary Budget Estimates
20 October 2016

AGENCY: AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

TOPIC: Mo-99/Tc-99m supply

REFERENCE: Written Question – Senator Carr

QUESTION No.: SI-81

1. There is a looming global Mo-99/Tc-99m supply crisis due to the closure of aging infrastructure across the globe is there not?
 - a. What impact on the global supply will the impending closure of Chalk River, Ontario production facility have?
 - b. This facility was initially planned for closure at the end of 2016 wasn't it?
 - c. What other facilities are closing or are due to close right now?
 - d. How long until – globally – new facilities come on line?
 - e. What level of dependence will we have on the OPAL facility?
2. What risks can you identify to the supply of medical radioisotopes in Australia?
 - a. Have we had to import medical radioisotopes in the past?
 - b. What is the consequence of having to import medical radioisotopes?

ANSWER

1. The cessation of molybdenum-99 (Mo-99) production in Canada on 31 October 2016 has been known about and planned for by all global Mo-99 producers for many years. As a result, ANSTO is confident that sufficient, reliable supply will continue to be available post-October 2016.
 - a. The risk to global supply created by the closure of the Chalk River reactor has been mitigated through a concerted effort in planning by all major Mo-99 producers and reactors, including ANSTO, to increase production capacity.
 - b. In 2010, Atomic Energy of Canada Limited announced its intention to cease routine production of Mo-99 at the Chalk River reactor. Subsequently, production ceased on 31 October 2016.
 - c. The Osiris reactor in France closed at the end of 2015. The High Flux Reactor in the Netherlands is expected to be the next reactor to close, in 2024.
 - d. The ANSTO Nuclear Medicine (ANM) facility is due to commence operations in 2017. ANM will provide secure, long term additional supply of Mo-99 to both Australia and export markets, allowing ANSTO to meet up to 25 per cent of global needs for this potentially life-saving medication.

Internationally, a number of new projects are on the drawing board to increase future production of Mo-99. One such project, the Jules Horowitz Reactor, is currently under construction in southern France. The French Alternative Energies and Atomic Energy Commission (CEA) aims to commission the Jules Horowitz Reactor in 2021. No other new facilities are yet in construction.

- e. The OPAL reactor is central to nuclear medicine production. It is also one of the most reliable and youngest research reactors globally. As the only operating nuclear reactor in Australia, OPAL is relied upon by Australian hospitals and clinics for the supply of 10,000 doses per week of potentially life-saving nuclear medicines.

In order to mitigate the risks associated with relying on a single source for the majority of nuclear medicines in Australia, ANSTO has established a close working relationship with NTP SOC Isotopes Ltd., a subsidiary of the South African Nuclear Energy Corporation. During periods when OPAL is shut down for maintenance, ANSTO imports Mo-99 from South Africa, thereby providing reliable ongoing domestic supply.

- 2. Given the recent increase in capacity of ANSTO's existing facilities, and the anticipated commissioning of the new ANSTO Nuclear Medicine facility in 2017, there is little risk to the reliable supply of Mo-99 produced in Australia.
 - a. ANSTO has had to import Mo-99 in the past, and did so for an extended period in 2007-08. It continues to do so during scheduled OPAL maintenance shutdowns in excess of two weeks, as part of its ongoing supply planning process. During these periods, ANSTO cannot irradiate targets for Mo-99 production and therefore imports Mo-99 directly from NTP and other overseas suppliers.
 - b. Reliance on international suppliers for nuclear medicines critical to the care of Australians suffering from cancer, heart disease and other illnesses would place the reliability of supply at risk, particularly given shutdowns of overseas reactors. The cost of these medicines would also be determined by the international market, and would be significantly higher than the cost of nuclear medicines that are produced domestically.