

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

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**AGENCY:** ANSTO

**TOPIC:** Synchrotron users

**REFERENCE:** Written Question – Senator Carr

**QUESTION No.:** SI-83

1. How many users accessed the synchrotron in the last financial year?
  - a. Does ANSTO expect that number to change in the coming financial year?
  - b. Does this usage level meet reasonable researcher need, or would there be unmet researcher demand?
  - c. By how much is the facility oversubscribed?
2. What is the science impact of the synchrotron's research program?
  - a. How many research projects rely on the facility, in total?
  - b. How many of these are PhD projects?
  - c. How many countries' researchers utilise the synchrotron?
3. What is the access model used by the synchrotron for users to gain beamtime?
  - a. Is this method comparable to access models at other synchrotrons and large research infrastructure globally?
  - b. Who makes these access decisions?
  - c. Is distribution of access by field of research a function of this model?
  - d. What areas of research are the greatest users of the facility?

**ANSWER**

1. In financial year 2015-16, the Australian Synchrotron hosted 5,694 user visits. While the number of users is expected to continue to grow, the facility is limited by the availability of beamtime across its ten beamlines. In financial year 2015-16, 6,804 eight hour shifts were requested through the merit-based access program and 4,071 were allocated. Of the rejected proposals, a number displayed high scientific merit, but were unable to be accommodated within the facility's current capacity.
2. Since the Australian Synchrotron opened in 2007, research conducted at the facility has led to more than 2,700 facility-based publications, more than 46,200 citations, more than 500 PhD dissertations, and 46 patents.
  - a. In financial year 2015-16, 934 proposals were awarded merit-based access beamtime. These proposals do not include International Synchrotron Access Program (ISAP) proposals to access international synchrotron facilities or commercial access proposals from industry clients.
  - b. In financial year 2015-16, 284 applicants who indicated the work formed part of a PhD dissertation, or had resulted in a dissertation, were awarded merit-based beamtime. This equates to 30 per cent of successful applications.
  - c. From 2009-16, principal investigators on successful beamtime proposals came from the following 25 countries: Australia, New Zealand, Austria, Belgium, Canada, Germany, Denmark, France, Great Britain, Croatia, India, Italy, Japan, Republic of Korea, Malaysia, New Caledonia, Netherlands, Norway, Poland, Russian Federation, Sweden, Singapore, Thailand, Taiwan and the United States of America.

3. There are two main avenues by which researchers access the Australian Synchrotron. Under the merit-based access program, results of experiments are made public with the expectation that they will be published in the open scientific literature. Commercial clients can access to the Australian Synchrotron through payment, covered by suitable contracts and non-disclosure agreements.
  - a. Yes, synchrotron light source user facilities world-wide operate on the principle of free access for non-proprietary research, with access determined by a peer-reviewed system based on merit.
  - b. Merit-based access beamtime proposals are peer reviewed by external scientific reviewers. The proposals, referee scores and comments are then reviewed by a Proposal Advisory Committee (PAC) which recommends a specific beamtime allocation. The PAC recommends a list of proposals in priority order to the Director of the Australian Synchrotron.
  - c. Distribution by *field of research* (FOR) is an output of this model. While there is no formal FOR quota for a specific beamline or program, the balance of beamline capabilities is designed to cover a broad range of fields of research. More than 100 different areas are covered in a given year.
  - d. The greatest use of the facility for both the merit-based program and commercial access is in the field of health and medical research.