Submission No. 10
(SKA Pathfinder Radio Telescope

29/08/08
F.R.

Secretary

Australian Government

Department of Innovation
Industry, Science and Research

Industry House, 10 Binara St
Canberra ACT 2601

GPO Box 9839
Canberra ACT 2601 Australia

Phone: +61 2 6213 6650
Facsimile: +61 2 9449 1653

Email: Mark.Paterson@innovation.gov.au
Web: www.innovation.gov.au

ABN: 51 835 430 479

Mr James Catchpole
Committee Secretary
Parliamentary Standing Committee on Public Works
Parliament House
Canberra ACT 2600

Dear Mr Catchpole

Australian SKA Pathfinder radio telescope

I am writing in response to your letter of 13 August 2008 to provide the Parliamentary Standing Committee on Public Works with information relevant to the Committee's inquiry into the proposal by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to construct the Australian Square Kilometre Array Pathfinder (ASKAP) radio telescope.

The Australian Government is currently seeking to position Australia to successfully bid to host the proposed Square Kilometre Array (SKA), a very large-scale radio telescope being developed by a consortium of agencies and institutions in 19 countries. Planned to be at least 50 times more sensitive than present-day radio telescopes, the SKA promises revolutionary insights into the nature and origins of the universe and the fundamental laws of physics. It will also be a major engineering feat and provide a platform for significant advances in several areas of technology, including high performance computing.

Should the SKA proceed from the current preparatory phase to full implementation, it is expected to cost in excess of $2 billion to construct and around $200 million a year to operate over its anticipated 50-year plus lifespan. The costs of the project would be shared by a number of countries. The decision on where the SKA is to be sited is expected no earlier than 2011-12, with construction planned to commence in around 2012 with the array fully operational by around 2020. Southern Africa, in a configuration covering eight countries, is the other potential site for the SKA.

The Government's decision to bid for the SKA was signalled in the 2007-08 Budget when it allocated $56.7 million for the SKA – of which $51.7 million was allocated to CSIRO for ASKAP. This allocation took the total funds available to ASKAP to around $100 million. ASKAP is a critical part of the overall strategy for bringing the SKA to Australia in that it will:

- demonstrate the scientific qualities (including radio quietness) and technical feasibility of Australia's site candidacy;
- contribute significantly to the international process to develop SKA-related technologies and the SKA system design. The ASKAP project is likely to produce key technologies, such as world-leading wide-field-of-view phased array receivers, enhancing the potential for Australia to supply major system component to the SKA; and
- demonstrate Australia's capacity to facilitate and deliver large-scale, high technology scientific infrastructure in remote locations.

However, the decision to fund ASKAP was not based solely on its potential contribution to the SKA bid strategy. ASKAP will be a world-leading radio telescope in its own right that will help to maintain Australia's strong international performance in astronomical science and engineering. It will form part of CSIRO's national radio astronomy facility that has provided outstanding support to the national and international astronomy community over many years.

The Government is working collaboratively with the Government of Western Australia to prepare for construction of ASKAP and Australia's SKA bid. The Government of Western Australia has responsibility for provision of the Murchison Radio-astronomy Observatory site in the mid-West region of Western Australia on which CSIRO proposes to build ASKAP and which will also be Australia's candidate core SKA site. The governments have signed a Memorandum of Understanding (MOU) requiring both to work together in the interests of the SKA bid. However, should the full SKA be built in Australia, parts of the array would need to be located in most states and territories. The MOU makes provision for other state and territory governments to join the collaborative arrangement at the appropriate time.

The Government anticipates that hosting the SKA in Australia will bring significant benefits, including:

- stimulating science and innovation activity and outcomes, most obviously in radio astronomy but also in a range of allied science and engineering disciplines;
- contributing to the attraction, training and retention of scientists and engineers in Australia;
- business, employment and training opportunities, especially in regional and remote areas. The indigenous community is likely to be amongst the beneficiaries; and
- an enhancement of Australia's reputation as a world-leader in radio astronomy and greater international recognition of our broader strengths and capabilities in science and innovation.

The ASKAP project itself will bring similar benefits, albeit on a smaller scale.

If required, my Department is able to provide further information on the SKA including the development process and the nature of the proposed facility. Please direct enquiries to Mr Stephen Irwin, General Manager, Science Policy and Programs Branch, Science and Research Division on (02) 6240 5161 or stephen.irwin@innovation.gov.au.

Yours sincerely

Mark I Paterson AO
Secretary

26 August 2008