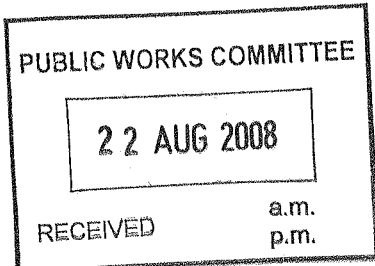


CRAY



Submission No. 8
(SKA Pathfinder Radio Telescope)

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M.K. 22/08/08

Mr Mark Butler MP,
Chair, Parliamentary Standing Committee on Public Works
Parliament House
Canberra

Dear Mr Butler

Please find attached Cray Australia's submission to the Parliamentary Standing Committee on Public Works inquiry in to "Australian SKA Pathfinder Radio Telescope in Geraldton-Greenough and in Murchison Shire, WA".

Yours Sincerely

Dr Lindsay Hood
Australia New Zealand Sales Manager
July 31, 2008

Australian SKA Pathfinder Radio Telescope in Geraldton-Greenough and in Murchison Shire, WA

1. This submission to the Parliamentary Standing Committee on Public Works (PWC) is in response to the inquiry in to the construction in Western Australia of the proposed Australian Square Kilometre Array Pathfinder (ASKAP) radio telescope.
2. Cray has a small contract with CSIRO to investigate a particular technology to address the data processing requirements of ASKAP. Regardless of whether Cray is the chosen vendor to address this aspect of the project, our relationship with CSIRO-ATNF has been rewarding. We look forward to an opportunity to continue the collaboration with CSIRO-ATNF.
3. Cray is the leading vendor of high-end supercomputer solutions globally. Cray tends to be financially risk-averse but risk-seeking with regards to the scientific and engineering challenges. ASKAP is a technologically challenging project, but not excessively so.
4. Cray Australia fully supports the project and believes ASKAP is absolutely necessary to advance Australia's engineering, technology and scientific capabilities.
5. Nobel prize-winning economist Robert Solow has stated "if continuous technological progress can be assumed, growth in real incomes will be exclusively determined by technological progress". ASKAP is a project which will accelerate Australia's technological progress.

6. If the project should not proceed, Australia will lose
 - international scientific reputation
 - opportunity to enhance our technological capabilities
 - international contracts associated with SKA
 - attractiveness as a destination for scientists and engineers.

The \$111M construction cost is insignificant compared to the benefits that will accrue. To cancel the project to save \$110M would be an incredibly short-sighted decision that would send a very strong message that Australia is not interested in advanced science and engineering and the economic benefits that flow from such capabilities.

7. Dan Reed, Founding Director of the Renaissance Computing Institute in the US has stated "High Performance Computing is the universal intellectual amplifier". The US National Science Foundation's *CyberInfrastructure Vision* states "Science and engineering research and education enabled by state-of-the-art HPC tools have a direct bearing on the nation's competitiveness".
8. Australia has under-invested in HPC for the last 20 years. The money available for HPC under the National Collaborative Research Infrastructure Strategy capability area *Platforms for Collaboration* is a reduction from its predecessor program, the Australian Partnership for Advanced Computing. This has occurred at a time when our overseas competitors are increasing their expenditure on HPC.
9. ASKAP is a project that can be used as a vehicle by which Australia can improve its HPC capability and expertise.
10. The data processing requirements of ASKAP are within current HPC technology and financial boundaries. The data processing requirements for the full Square Kilometre Array telescope will push the boundaries.
11. Collaboration is the key to future advances as the new areas of science are at the intersection of traditional disciplines and are increasingly complex.
12. Scientific discovery and product development are both races against time; the prize for coming second is rarely worth the effort.

13. Cray is driven by small, fast and focused leading-edge innovation teams.

14. Through Cray's collaborative research and development activities with leadership research organisations, we have learned a number of lessons

- Pick your partners carefully
- You must have aligned goals
- Leadership is the key to innovation
- Form major alliances with some key partners
- Pick something worth achieving

The ASKAP project managed by CSIRO-ATNF meets these requirements.