



Professor Lindsay Botten
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Professor Tom Cochrane
Chair, Australian eResearch Infrastructure Council
Department of Innovation, Industry, Science and Research (DIISR)
PO Box 9839
Canberra ACT 2001

Dear Professor Cochrane

Re: Update on the National Computational Infrastructure Program

I am responding to the invitation from Dr Rhys Francis to provide an update of activities within the National Computational Infrastructure (NCI) program and trust that the following outline will be sufficient for your purposes.

Tender for the National Facility

Members of AeRIC will be aware that the new peak computational system (i.e, the National Facility) is being acquired through a joint tender with the Bureau of Meteorology. The aim of this joint tender is to procure a new production system for the Bureau, located in Melbourne, and the next generation National Facility, located at ANU, with the two being interoperable with regard to their ability to run key climate modelling codes—primarily the ACCESS (Australian Community Climate and Earth System Simulator) model. Tenders closed in late May and the evaluation of these is taking place according to a comprehensive evaluation plan developed jointly by Bureau, CSIRO and ANU staff. At this stage, the Joint Steering Committee, which oversees the process, is anticipating the Evaluation Report in the coming week, once the final clarifications from vendors have been received. At this stage, while it is not possible to say more due to commercial confidentiality, it appears that the primary aim of selecting a single preferred tenderer for the two systems is likely to be realised.

At this time, demand for access to the National Facility is very high, associated largely with substantial oversubscription of the Merit Allocation Scheme. To meet this demand, in advance of the installation of the new National Facility, and also to provide the staff of the National Facility with the opportunity to develop skills and expertise in configuring, managing and operating a large scale production cluster with an Infiniband interconnect and a Lustre filesystem, a tender (of up to \$800K) for a Development System was released in late June, in accordance with the NCI Business Plan. Tenders closed in mid-July and their evaluation is now underway according to the selection criteria which include high computational performance, uniformity of system performance, and reliability, robustness and manageability of the system.

The NCI User Community has been kept informed of these developments though email to the National Facility users list.

Specialised Facilities Program

A call for Expressions of Interest in the Specialised Facilities Program has been developed and was circulated to Deputy Vice-Chancellors (Research) of Australia's Universities, major research

organisations including CSIRO, the Bureau of Meteorology and Geoscience Australia, and providers of specialised computational research services (including the state-based partnerships (i.e., the 'PACs') and specialist service providers associated with individual research communities) on July 21. The focus of the program is to extend the range of high-end services available through the Merit Allocation Scheme (and possibly also through partner share) by acquiring access, through subcontract agreements, to specialised facilities and services in particular application / discipline areas for which there exist a demonstrated need. In this context, services comprise a package of computational resources, access to a range of specialist software, and the accompanying expert support that provides for the computational needs of a particular research community. In general, NCI does not wish to invest in raw machine cycles, unless there is some persuasive reason (e.g., a highly specialised machine architecture of importance to researchers) to do so.

An allocation of \$3M has been set aside for this program, and the financial model for the development of specialised facilities has been simplified from that outlined in the original business plan to one in which NCI now invests in facilities owned by other providers in order to acquire a share of these resources. Expressions of Interest will be examined by a committee comprising the NCI Director, the Manager of the National Facility (Dr Ben Evans), the Manager of CSIRO eResearch (Dr Alf Uhlherr) and the Chair of the NCI Merit Allocation Committee (Prof Brian Yates) which will report to the NCI Steering Committee and subsequently proceed to develop leading expressions of interest, in collaboration with their proponents, into formal proposals for submission to DIISR.

Steering Committee

One of the great strengths of NCI is the role played by its Steering Committee in bringing together many of the major research organisations with a commitment to the development of high-end computing in furthering the strength and excellence of their research. The establishment contract for NCI refers to the important strategy development role to be played by the Steering Committee and so, with recent developments, primarily the major announcement of the Victorian Government and the University of Melbourne for the establishment of a large scale computational facility to support research in the life and medical sciences, it is sensible to contemplate the transformation of the composition of the Steering Committee from one that is based exclusively around the concept of partnership (i.e., co-investment) to one which brings to the table all of the all leading research organisations with a major stake in the development of the nation's high-end computing infrastructure. The Steering Committee will be considering such a change at a forthcoming meeting.

Engagement and Outreach

To ensure that NCI is successful in its mission to increase the uptake and impact of high-end computing, an extensive program of outreach has commenced. Visits by the NCI Director to CSIRO and the Bureau of Meteorology have already been undertaken, with further visits to CSIRO and Geoscience Australia organised. Of particular significance is NCI's role in facilitating the work of CAWCR (Centre for Australian Weather and Climate Research)—a joint Centre of the Bureau of Meteorology and CSIRO comprising in excess of 200 scientists—and of the related University Climate Consortium involving Monash, Melbourne, UNSW and ANU. CAWCR envisage that they will use a significant fraction (perhaps 15-20%) of the new National Facility in meeting Australia's obligations to the 5th Assessment of the IPCC (Intergovernmental Panel on Climate Change) which are due in 2010.

CSIRO is planning a substantial increase in its uptake of high performance computing following an internal review in the latter half of 2007. To assist them in this, NCI will also be building its connections with a range of areas of CSIRO, with visits by the Director to a number of CSIRO nodes (commencing with the Clayton precinct) planned for coming months.

At this stage, CSIRO has indicated an annual commitment to NCI of \$3M plus two fully funded staff positions, with additional funds likely to be available in those areas of the specialised facilities program that are of particular relevance to CSIRO.

NCI has also been building its relationships with a number of the Research Intensive Universities. Discussions are underway with Monash University, the University of New South Wales and the University of Sydney with a view to these universities joining NCI as partners (i.e., as major co-investors). These discussions follow a presentation made to the Group of Eight Universities Deputy Vice-Chancellors (Research) by Professor Mark Wainwright and Robin Stanton earlier this year, and

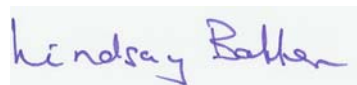
a substantial analysis of the usage patterns of the National Facility by the research intensive universities prepared by the NCI Director. Visits to Monash University and the University of Melbourne by the NCI Director are planned for August and September of this year. The discussions so far have been encouraging and NCI will be approaching other research intensive universities once the present negotiations have been consolidated. At this stage, we are reasonably optimistic of attracting significant investment from a number of these universities.

Local Matters

The NCI Office has now been established with a staff of two — the Director and an Executive Officer, Ms Sue Cameron. A website (www.nci.org.au, www.nci.edu.au) has been developed, with ongoing work, particularly in highlighting key research outcomes facilitated by NCI, planned for later this year. The National Facility is also planning an overhaul of its website in the coming months.

I hope this update will be of interest to you and your committee.

Yours sincerely

A handwritten signature in blue ink that reads "Lindsay Botten". The signature is written in a cursive style and is set against a light blue rectangular background.

Lindsay Botten
Director, National Computational Infrastructure