Dear Colleagues:

I want to thank the Stewarding Excellence Project Team for their comprehensive and compelling review of the National Center for Supercomputing Applications (NCSA). The Project Team persuasively captured the significant contributions that NCSA has made and is positioned to continue to make to our campus and a wide variety of external governmental and private researchers. As noted in the charge letter to the Project Team, “for more than two decades, the National Center for Supercomputing Applications has played a leadership role in bringing high performance computing to academic problem solving.” Given NCSA’s national preeminence in high-performance computing, the Project Team was charged with the difficult task of helping the campus assess the return on its investment in NCSA and to explore whether we can increase its value to our faculty and to our research enterprise.

NCSA was founded in 1986, with a majority of its funding coming from the National Science Foundation. As a research center, NCSA reports to the Office of the Vice Chancellor for Research. Currently, NCSA has an annual budget of approximately $50 million and a full time staff of 200 employees. The Project Team outlined the three ways in which the campus contributes financially to NCSA: through annual recurring allocations to support operations; services and resources provided by campus (e.g., utilities, operations and maintenance); and non-recurring funds to support infrastructure and equipment purchases. Since 2000, the university has provided $120 million in non-recurring state funds for infrastructure support. Currently, the campus provides approximately $8 million in recurring funds primarily to support NCSA salary costs. In FY 10, the value of other campus services and resources provided to NCSA was approximately $4.6 million. In addition to funding provided by NSF and the campus, NCSA is also supported by the State of Illinois, grants from other federal agencies, and funding from private gifts, foundations and companies that engage NCSA through its Private Sector Program.

Most recently, the campus has provided key support for the Blue Waters project, a NSF-funded project that will bring in $359 million over a ten year span that started in July 2007. The State of Illinois provided $60 million in state funds to build the National Petascale Computing Facility, which will house Blue Waters. The campus is responsible for $10.4 million to cover the debt service until 2024. Additionally, the campus will provide $15 million in matching funds for equipment. Up to 10 faculty lines have been or will be integrated into the campus hiring program for the project. Blue Waters will be one of the world’s most powerful supercomputers, making Illinois the only Tier 1 academic center for high-performance computing.
The Project Team noted that NCSA is a source of significant financial income to the campus, with NCSA research awards bringing in $100 million in NSF funding to the campus in FY 10 (representing 54% of all campus NSF funding for that year). Since FY85, NCSA has generated $153 million in Indirect Cost Recovery funds (ICR) (6.5% of all campus ICR in FY 10, representing $7 million). Asked to identify how campus allocations are spent and to what extent they support campus researchers, the Project Team estimated that of the $8 million in recurring funds given to NCSA in FY10, approximately 17% directly supported campus projects and campus personnel on collaborative projects. In addition to the financial income generated by NCSA, NCSA benefits the campus through the high-performance computing cycles that are available to campus researchers. The Project Team reported that campus researchers use approximately 27% of NCSA’s available computing cycles time (most of which is competitively awarded by NSF), more than any other institution receives. The Project Team attributes this success to NCSA’s role in attracting the highest caliber faculty to Illinois as well as their assistance to researchers in preparing proposals. NCSA also provides no-cost access to supercomputers to some campus users that is not captured in that estimate. Over and above NCSA’s quantifiable contributions, NCSA’s national prominence brings high visibility to our campus that helps us attract and retain faculty and students that are at the cutting-edge of high performance computing or that require such resources in a wide variety of disciplines.

In compiling and synthesizing this information, the Project Team fulfilled an important part of its charge: to identify how campus funding is used vis-à-vis campus researchers and to identify the benefits the campus receives by virtue of NCSA’s national prominence. Another aspect of the Project Team’s charge was to explore whether there are ways to increase those benefits. The Project Team succinctly summarized that issue, which lies at the heart of this review:

Today, NCSA faces more than ever the challenge of focusing outward as the nation’s preeminent academic center in high-performance computing while maintaining and growing connections of all forms locally with the campus. As General Revenue Funds continue to shrink, NCSA necessarily must become somewhat less reliant on campus allocations for operation and infrastructure, while bolstering support for the continuing financial support through high-visibility, high-value connections to the campus.

In answering the question of how NCSA might go about maintaining and growing the necessary “high-visibility, high-value connections to the campus,” the Project Team made recommendations regarding the oversight and management of the Blue Waters Project, NCSA’s Institute for Advanced Computing Applications and Technologies (IACAT), IACAT’s Faculty Fellowship Program (FFP), and the campus consolidated computing clusters. One of the Team’s principal recommendations is that IACAT be separated from NCSA and be restructured to enable it to act as the organizing structure to coordinate campus supercomputing initiatives and resources. Since the issuance of the team’s report, NSCA leadership and the campus have taken many steps to respond to the information and the recommendations made by the Project Team.

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1 NCSA places that estimate at 24% for FY 10 and 17% for FY 08.
In making its recommendation to separate IACAT from NCSA, the Project Team noted the
decrease in funding for IACAT's Faculty Fellows Program and predicted a future of decreasing
NCSA connections with the broader campus community. As a result of its strategic planning
process, NCSA 2015, and in response to the Stewarding Excellence review, NCSA has
restructured IACAT. This restructuring has included a re-positioning of the fellowship program
within the IACAT umbrella and increased funding for that program. For AY 2012-2013, NCSA
has awarded seven IACAT Fellowships, supporting collaborative research between faculty
members from seven different units across campus and computer technology experts at NCSA.
Additionally, as discussed below, NCSA has created structures and processes within IACAT to
ensure that the Blue Waters project has the maximum impact on Illinois research and
educational programs.

As the Project Team explained, in return for our investment in Blue Waters, the campus is
provided with 7% of its computing cycles. The Project Team correctly noted that the 7% of
Blue Water computing cycles is an incredibly large amount of access for one institution,
representing at least four times the computing power available to any other campus in the
world. Importantly, however, the Team also noted that although this is a very large amount of
computing resources, the number of campus researchers who will use those resources is a
relatively small number. In order to maximize the impact of Blue Waters on campus research,
the Project Team recommended that the campus provide oversight and strategic planning to
create a broader yet cohesive community of campus researchers and users of high performance
computing. In particular, the Project Team called for a campus-focused body to assist with the
allocation of the campus Blue Water computing resources.

NCSA and the campus have created the Blue Waters Campus Initiative, formed a Blue Waters
Allocation Committee, and drafted an Allocation Policy. Appointed by Interim Vice Chancellor
for Research Dutta, the Blue Waters Allocation Committee is comprised of two computing
experts from NCSA and nine faculty members representing the campus at large. The
Allocations Committee is responsible for implementing the Allocations Policy, for establishing
criteria to guide distribution of Blue Waters time and for identifying and recommending
research areas. The Allocations Policy and the Blue Waters Campus Initiative can be found at:
http://www.ncsa.illinois.edu/BlueWaters/Illinois_research.html.

The Blue Waters Campus Initiative, which will begin in fall 2012 and continue for up to 3
years, is the campus structure for coordinating the efforts to recruit up to ten new faculty
members to build the multidisciplinary teams necessary to achieve the high-performance
computing breakthroughs promised by Blue Waters. Most of these hires will be made using
existing faculty lines within the units/colleges. In its report, the Project Team discussed the
newly created Center for Extreme-scale Computation (CESC), a unit within IACAT, but
questioned how it would provide an organizing structure for the campus. NCSA has brought
greater clarity to how CESC will fulfill that role. Specifically, CESC will partner with the
academic units to recruit faculty in targeted areas. All faculty hired under this initiative will be
designated Blue Waters Professors and will have a 0% appointment in CESC. The Blue Waters

2 The campus was allocated 9% of the Blue Waters computing cycles but has committed 2% of that allocation to
the Great Lakes Consortium for Petascale Computation, a campus partner in the Blue Waters proposal to NSF.
Professors will have 4% of the campus computing cycles set aside for their use and the directors of IACAT, CESC, and the relevant department heads will make decisions regarding the amount of computing cycles awarded to each Blue Waters Professor. With the creation of these new structures, IACAT is better situated to realize its purpose, which, as explained on NCSA website, is to “promote synergies between research faculty and NCSA staff, positioning both for contributing to the solution of the nation’s most challenging problems, providing a supporting cyberinfrastructure that will enable extraordinary research advances, and extending the impact of that research by deploying it beyond the original point of inquiry.”

Finally, the Project Team recommended that the campus reconsider the decision to have NCSA operate the campus consolidated computing clusters, citing its concerns that NCSA’s national focus will negatively impact the ease of access, flexibility and responsiveness to the campus users of the consolidated clusters. Here too, since the issuance of the team’s report, NCSA has taken actions that respond to the concerns and interests identified by the campus and articulated in the Stewarding Excellence report. For instance, individuals, research groups, and units that utilize the campus clusters are able to provide input into operation of those clusters through a governing board. The board members may be elected by the clusters’ users or appointed by the Vice Chancellor for Research, and they have authority to make policies, review budgets and otherwise ensure that the clusters meet the campus research computing needs.

In closing, the Project Team played an important role in helping the campus and NCSA look at many aspects of NCSA’s relationship to the campus and in identifying areas to strengthen those connections and the significant contributions that NCSA makes to our research mission. Through that process and the careful and responsive strategic planning carried out by NCSA leadership, the campus is poised to continue its unparalleled success in high-performance computing.

Sincerely,

Richard P. Wheeler
Interim Vice Chancellor for Academic Affairs and Provost