

North Dakota State University, November 21, 2013

*Authorize NDSU to increase the project authorization and scope of the **Center for Computationally Assisted Science and Technology** project from \$660,000 to \$4,270,000, an increase of \$3,610,000, funded by grant funds; to change the funding sources from one federal grant to a second federal grant; to seek legislative Budget Section approval per NDCC15-10-12.1; and to proceed with project once all approvals have been received.*

Project Description

As a part of the overall strategy to fulfill the primary objective of the U.S. Department of Energy's (DOE) Biological and Environmental Research Program (BER) project No. DE-SC0001717 entitled "Advancing Science Through Computation at NDSU" (PI: Philip Boudjouk) to establish the Center for Computationally Assisted Science and Technology (CCAST, formerly called the Center for High Performance Computing) at NDSU, CCAST would like to proceed with obtaining complementary electrical and cooling capacity in one of its computer rooms. This request is dictated by the present saturation of CCAST's extant power and cooling lines in the room which was not originally designed to support operations of a high-performance computing (HPC) facility, uniquely characterized by utilization of high-power, high-density computing equipment on a relatively small areal footprint. This additional capacity is imperative to assure continuation of the Center's growth and is, therefore, within the scope of the DOE BER contract with NDSU and consistent with the intent of the original Congressional Earmark that was the source of this DOE BER contract with NDSU.

Currently CCAST has very limited ability to add or refresh hardware in its HPC facility and without such complementary electrical and cooling capacity, its HPC operations will be severely impeded. This project will make available an additional 0.5 MW of cooled power providing support for CCAST HPC hardware maintenance, refresh and growth for the next ten years and is, therefore, critical to CCAST's ability to fulfill its contractual obligations under this DOE BER grant as well as another ongoing grant from the National Science Foundation. Several more external grant proposals for computational research have been recently submitted by NDSU. NDSU's ability to secure future contracts with federal funding agencies and to seek public-private partnerships in the HPC area, thus enabling progress of computational science at NDSU, hinges on obtaining the complementary electrical and cooling capacity for the CCAST computer room.

In January 2013, the SBHE ratified the Chancellor's interim approval to request an amendment to the 2013-15 appropriation bill to include this project. The pre-study completed in 2012 determined the existing infrastructure would support this project but during the design phase, the contracted engineer discovered that additional mechanical and electrical requirements are needed. This change in scope requires the addition of a dedicated chiller, transformer, generator and associated equipment. While the project will provide 0.5 MW of power to CCAST's computer racks at its completion, the conductors and the generator are sized to support potential expansion to 1 MW should such expansion be needed in the future.

The original grant was set to expire before the design could be altered and all approvals received. However, another DOE grant has been secured with adequate funds to complete this project.

Consistency with Campus Facility Master Plan and Budget

The project directly affects the three traditional principal responsibilities of land-grant universities as stated in the NDSU Campus Master Plan: Teaching – Research – Public Service. The complimentary electrical and cooling capacity is needed to assure continuation of the growth of the Center for Computationally Assisted Science and Technology at NDSU.

SBHE and/or Legislative History

January 17, 2013 – SBHE ratified the Chancellor’s interim approval to request an amendment to the 2013-15 appropriations bill; following legislative approval, is authorized to proceed.

May 2013 – \$660,000 in federal fund authority included in the 2013-15 Appropriations Bill SB2003.

Estimated Total Purchased or Donated Costs

	Original Amount	Current Amount
Planning, Permits and Insurance (design costs associated with current project, OMB preplanning revolving funds, architect and engineer fees, permits, insurance)	\$70,000	\$126,000
Land/Building Preparation and Purchase or Donated Costs (land acquisition and site preparation/development)	\$0	\$0
Demolition and Disposal	\$0	\$0
Construction (foundation and building construction or renovation, including fixed equipment, landscape, infrastructure and utilities, mechanical and electrical, parking and driveways or roadways)	\$510,000	\$3,756,500
Institutional work (value of work completed by institutional trade staff)	\$7,500	\$7,500
Contingency	\$72,500	\$380,000
Hazardous Material Abatement	\$0	\$0
Other, including 3rd party costs (please describe)	\$0	\$0
SUBTOTAL	\$660,000	\$4,270,000
Furniture, Fixture and Equipment (FF&E)	\$240,000	\$290,000
TOTAL		

No other work, other than that specified within this request, is required for the completion of the project not is other work planned to supplement this project using funding or authority not included within this request.

Future Operating/Improvement Costs and Funding Sources

Operating costs are estimated at approximately \$4,000 per month for utilities in the beginning. Funding will be provided by local and grant/contract funds.

Source and Availability of Funds (including FF&E)

U.S. Department of Energy’s (DOE) Biological and Environmental Research Program (BER) federal grant entitled “Advancing Science Through Computation at NDSU” (Project No. DE-SC0001717, PI: Philip Bou-djouk). Available budget in the grant as of 08/10/2013 is \$9,525,444.82.

Estimated Project Timeline and Completion Date

Project to start once approved with an anticipated completion date of August 31, 2014.