

### **Minot State University, September 15, 2011**

Request increase in geothermal project authority from \$3.5 million to \$9.35 million, to be funded from \$7.35 million in state appropriations and \$2.0 million in Department of Commerce ARRA funds. Furthermore, authorize MiSU to seek Budget Section approval of a reduced project scope per NDCC 48-01.2-25; and following Budget Section approval, authority to proceed with Area A completion and begin installation of the main campus loop.

### **PROJECT DESCRIPTION**

MiSU is beginning the transition from an inoperable coal-fired boiler to a primary geothermal system with secondary alternative sources. MiSU's campus buildings have been heated through a central steam plant and distribution system, while cooling for individual buildings has been provided through a variety of distributed cooling methods. The primary heating fuel for MiSU's central plant is coal, with natural gas backup. The coal-fired steam boiler is in need of replacement at this time. Using natural gas/fuel oil boilers as a backup comes at a significantly higher cost than using the coal-fired burner. Reliance on natural gas is not practical, as the cost of natural gas continues to rise.

Funding of \$9.35 million allows the University to complete the first project area, consisting of a central well field, associated distribution loop and utilities, and connection of four buildings (Dome, Swain Hall, GB Olson Library, and Wellness Center). The connection of these four buildings will reduce utility costs by approximately \$100,000 per year. In addition, MiSU intends to begin work on the main campus distribution loop (a major component of the second project area). The loop will be completed to the extent that funding is available.

To date, MiSU has received legislative project authorization of \$16,234,555, with the expectation that this would complete the entire campus geothermal project, including wells, campus loop, and all building connections. In earlier proposals the projects was identified in areas as follows:

- Area A – Construct North well field and connect/convert Swain Hall, GB Olson Library, Dome, and Wellness Center
- Area B - Construct SE and SW well fields, install main campus loop, and connect/convert Moore Hall and Hartnett Hall.
- Area C – Connect/convert Lura Manor, McCulloch Hall, Dakota Hall, Crane Hall, Administration, Student Union, Old Main, Model Hall, Memorial Hall, Cook Hall, and Pioneer Hall.

However, since development of the original project estimates in 2009, inflation and a poor bidding climate in Minot have resulted in significant cost increases. For example, the mean construction cost factor increased from 86.8% in 2009 to 125% in 2011 for Minot. In addition, project engineers have determined that the campus utility tunnels cannot be used to house the geothermal loop (adding cost for trenching a new loop). Current estimates put total project completion at \$27 million, not \$16.2 million, meaning existing funding will not be sufficient to complete the second project area (which was to include two additional well fields, the main campus loop, and two buildings) or the third project area (which was to include connection of all remaining buildings).

Because high-density geothermal pipe is a major factor in the increased project cost, the construction plan has been redesigned to focus on installation of the main campus loop (to lock in pricing and eliminate volatility). With the loop in place, the remaining project components (building connections and distribution utilities) will be pursued as additional funding is identified, which could include grant funds, private funds, energy performance contracting, and possible future legislative appropriation requests.

**CONSISTENCY WITH CAMPUS MASTER PLAN AND BUDGET**

The campus master plan includes conversion of environmental systems from coal/natural gas boilers to geothermal systems.

**SBHE AND/OR LEGISLATIVE HISTORY**

In 2008, MiSU requested funding for repair or replacement of the existing coal boiler (\$2.5 million). The 2009 Legislature subsequently authorized the University to apply the appropriation to a campus geothermal system (funding carryover was authorized to the 2011-13 biennium). During the 2011 session, the legislature appropriated an additional \$4.85 million in state general funds and authorized \$8,884,555 in other funds, “including federal funds, private funds and energy performance contracts”.

The Department of Commerce has also provided \$2.0 million in ARRA funds to support the geothermal project (which is included in the \$8,884,555 of other funds authority).

In September 2010, the SBHE authorized MiSU to proceed with Phase I of the geothermal project at a cost of \$3.5 million (\$2.5 million state appropriation from the coal boiler and \$1.0 million of ARRA funding). The \$3.5 million request was to complete the North well field, with distribution and piping to Wellness Center, GB Olson Library, and Swain Hall.

**ESTIMATED TOTAL PURCHASED OR DONATED COSTS**

<b>Planning, Permits and Insurance</b> (design and preplanning costs, architect and engineer fees, permits, insurance, commissioning)	\$660,000
<b>Land/Building Preparation and Purchase or Donated Costs</b> (site survey and soil testing)	\$0
<b>Demolition and Disposal</b>	\$0
<b>Construction</b> (foundation and building construction, infrastructure and utilities, mechanical and electrical)	\$7,900,000
<b>Furniture and Equipment</b> (fixed or movable appliances, furniture and equipment)	\$0
<b>Other third party costs</b>	\$0
<b>Institutional work</b> (value of work completed by institution staff and billed to the project)	\$0
<b>Contingency</b>	\$790,000
<b>Hazardous Material Abatement</b>	\$0
<b>Other</b> (please describe)	\$0
<b>TOTAL</b>	<b>\$9,350,000</b>

**FUTURE OPERATION/IMPROVEMENT COSTS**

Completion of the first project area, with connection of four buildings, will reduce utility costs by approximately \$100,000 per year.

**SOURCE AND AVAILABILITY OF FUNDS**

09-11 state appropriation (coal-fired boiler)	\$2,500,000
11-13 state appropriation	\$4,850,000
DOC ARRA funding	<u>\$2,000,000</u>
TOTAL	\$9,350,000

In addition to state appropriations and ARRA funds already received, the University will pursue federal funds, private funds, state appropriations, and energy performance contracts. If additional funding becomes available, MiSU will return to the SBHE and Budget Section for added spending authorization.

**ESTIMATED PROJECT TIMELINE AND COMPLETION DATE**

The \$9.35 million project outlined above is anticipated to be complete by Spring 2013.