

**November 21-22, 2019**

**ITEM 185-2006-R1119**

**Request for authorization to design and construct campus core infrastructure improvements, Montana State University**

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**THAT**

Consistent with provisions of MCA 18-2-102(b), the Board of Regents of Higher Education authorizes MSU to design and construct energy infrastructure improvements to the core of campus. This authority request is for \$2,500,000.

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**EXPLANATION**

MSU intends to perform maintenance work on the core of campus to improve existing utility, hardscape, and landscape systems. Concurrently, MSU desires to perform the requested infrastructure improvement to increase cost effectiveness, energy efficiency, and decrease future disturbance in the core of campus.

1. Over the last decade, MSU has gradually increased the use of geothermal wells to heat and/or cool buildings such as Leon Johnson Hall, Jabs Hall, Tietz Hall, Wilson Hall, Norm Asbjornson Hall, and eventually the American Indian Hall which is currently under construction.
2. The use of the geothermal wells in this plan will allow multiple buildings to be heated and cooled using this low-cost, environmentally responsible technology. Geothermal wells serving Leon Johnson Hall, Jabs Hall, Tietz Hall, and Wilson Hall have contributed to energy use reduction of 40% among those buildings. Geothermal wells serve Norm Asbjornson Hall and will serve the American Indian Hall making them likely among the most energy efficient buildings on campus and possibly the region. In aggregate, MSU uses 19% less energy per square foot than it did in 2007, partly due to these systems.
3. Geothermal assets consist of bores (wells) that are drilled 500-700 feet in the ground with a liquid heat exchanger installed. At 500 to 700 feet deep, the earth's temperature is relatively constant year around between 50 and 60 degrees. Mechanical systems can either extract heat from, or inject heat into, the earth depending on the needs of the connected buildings. This approach avoids the future cost of installing costly, noisy, and high-maintenance cooling equipment in the core of campus where it significantly detracts from the campus environment.
4. This project will install additional geothermal bores (wells) in the core of campus and connect this asset to the South Campus energy district serving multiple buildings.

This project will be funded with \$2,500,000 of non-State funds.

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**ATTACHMENTS**

Attachment #1: Physical Plant B Section 1003.7