**Live Green Loan Fund – Project Proposal**

**Live Green Loan Fund – Project Profile**

**Jeff and Deb Hansen Agriculture Student Learning Center**

**Project Background:**

The Jeff and Deb Hansen Agriculture Student Learning Center is a facility of the College of Agriculture and Life Sciences focused on building tomorrow’s agricultural leaders through providing a year-round learning environment for young people through both coursework and extracurricular events.

The center, scheduled for completion fall 2013, will include:

* A 125-by-250 foot arena with seating for 900 people and a floor covered by 18 inches of dirt for events;
* Heated arena and animal holding areas during the winter for livestock judging and skills competitions, short courses, training sessions and livestock, dog and equestrian shows; and
* Four climate-controlled classrooms, accommodating up to 35 people each and situated beneath the arena seating area, thus reducing the facility’s footprint and improving energy efficiency.

In considering additional efficiency opportunities for the facility, the design team requested bid alternate quotes as a part of the bid application process – specifically focused on efficiency opportunities for the Center’s heating and cooling system through geothermal technology.

**Project Description: Project # LG0021:**

This project focuses on the opportunity to enhance the energy efficiency through replacement of the boiler and air-cooled chiller system included in the original project bid package with a geo-thermal (horizontal bore field) water source heat pump system. This system specifically targets heating and cooling needs for the administrative and classroom areas of the facility. Specific products and processes that will be utilized include:

* Twenty-seven bore, horizontal field, closed loop geothermal system;
* Constant volume, variable speed end suction water pumps; and
* Thirteen single-zone high efficiency heat pumps connecting to a building integrated control system.

Geothermal heat pump systems typically have lower annual operating costs, have less maintenance and replacement costs, and use cleaner fuel through the utilization of energy gained from temperature transfer from bored pipes buried in the soil. By incorporating this added efficiency during construction rather than as a renovation, significant savings related to implementation costs, site disturbance, and loss of functional space are assured and immediate savings through reduction of heating and cooling costs are achieved.

As well as offering an anticipated annual gas and electrical savings of $12,000, this project offers a high-visibility opportunity to demonstrate a geothermal system in a highly and diversely utilized university facility.

Project installation is planned for summer of 2013to be operational late fall 2013.

**Project Contact:**  Maynard Hogberg, [hogberg@iastate.edu](mailto:hogberg@iastate.edu) 515-294-2160

Department of Animal Science/College of Agriculture and Life Sciences

**Project Return on Investment:**

Total costs related to the Hansen Agriculture Student Learning Facility are estimated at $6,099,000. Costs specific to the focus of this funding request are estimated at $39,000. A $39,000 loan is requested. Expected annual savings equals $12,000/year with a payback period of 3.25 years.

**Applicant**

Name/Contact Info: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Name/Location: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Project Outcomes:**

In addition to annual budget savings for ISU and Iowa taxpayers, the College of Agriculture and Life Sciences will have an opportunity to showcase significant reduction in energy consumption, through an alternative energy heating and cooling system. In being a new facility that will incorporate a geothermal system, this project offers the College as well as the design and construction teams the opportunity to monitor and evaluate an alternative energy system and to share the efforts, results, and accomplishments with building occupants and visitors.

In all facets of a learning, working, and strategic planning environment, as the College of Agriculture and Life Sciences represents, implementing energy efficiency products and processes, as outlined above, provides unique and valuable ongoing relevant demonstration for students, faculty, staff, alumni, grantors, donors, and ISU’s academic and research peers and partners throughout the US and around the world.

**Confirmation of Due Diligence:**

Technical and financial viability is considered satisfactory for the scope of this project.

Required signatures for project administrative approval have been received (see attached application signature page).

**Funding Recommendation by Live Green Loan Fund Committee:**

$39,000

**Recommended Action by Live Green Loan Fund Committee:**

Project approval by President and signature of attached Funding Agreement.

**On Behalf of the Live Green Loan Fund Committee**

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Merry Rankin, Director of Sustainability Date