

Rec 10/8/15

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## MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See <http://www.mtsu.edu/~sga/cleanenergy.htm> for funding guidelines.

1. General Information	
Name of Person Submitting Request : Leslie Mayberry	
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E-mail : LMayberr@mtsu.edu	Submittal Date 10-2-2015

2. Project Categories (Select One)			
Select the category that best describes the project.			
<input checked="" type="checkbox"/>	Energy Conservation/Efficiency	<input type="checkbox"/>	Sustainable Design
<input type="checkbox"/>	Alternative Fuels	<input type="checkbox"/>	Other
<input type="checkbox"/>	Renewable Energy	<input type="checkbox"/>	

3. Project Information
<p>a. Please provide a brief descriptive title for the project.</p> <p>b. The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. <b>Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.</b></p> <p>c. List the source of project cost estimates.</p> <p>d. Provide a brief explanation in response to question regarding previous funding.</p>
3a. Project Title : Closed loop air and sediment(Wright Music Building)
3b. Project Cost Estimate : \$8,900
3c. Source of Estimate : Dillingham & Smith (HVAC Contractor)
3d. If previous funding from this source was awarded, explain how this request differs? The committee approved the system for 11 of 11 buildings requested in 2007 thru 2015. It has proven very successful.

#### 4. Project Description

(Completed in as much detail as possible.)

- a. The scope of the work to be accomplished is a detailed description of project activities.
- b. The benefit statement describes the advantages of the project as relates to the selected project category.
- c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
- d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
- e. Provide specific information on anticipated student involvement or benefit.
- f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
- g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

##### 4a. Scope: Work to be accomplished

Purchase and install a Spirotherm closed loop filtering system to remove air and sediment from the heating system in Wright Music.

The filtering process will clean debris (sediment, rust, other particles) suspended within the fluid in the loop in the building; and control the air in the closed loop.

##### 4b. Scope: Benefit Statement

Energy savings is realized by increasing density of the fluid by removing air for better thermal efficiency. Removing air from the system requires less energy to pump the fluid. Removing the contaminants/sediments from the piping and coils increases the thermal conductivity and eliminates clogged heating coils. Keeping the fluid clean as water is reintroduced into the close loop system improves the overall efficiency of the system. This system will improve heating of the building in colder weather for occupancy comfort.

#### 4. Project Description (continued)

4c. Location of Project (Building, etc.) Filtering system to be placed in Wright Music Building.

#### 4d. Participants and Roles

Energy Services Department and Dillingham and Smith.

Energy Services will purchase the Spirotherm closed loop filtering systems. Dillingham and Smith will install the system.

#### 4e. Student participation and/or student benefit

No student involvement is planned at this time; however, the comfort level for the occupants in each building should be improved.

#### 4f. Future Operating and/or Maintenance Requirements

Future requirements should be minimal. Cleaner loop systems should lessen the need for repairs through elimination of the air and contaminants, keeping the lines cleaner, lessening the sediment, rust, lessen corrosion, and equipment should last longer.

#### 4g. Additional Comments or Information Pertinent to the Proposed Project

The clean surfaces provided by the filtering system provides a more efficient thermal heat transfer surface, which means less hot water and steam are needed to heat a building and less gas is needed to produce the steam, saving dollars in utilities costs.

The improved and more efficient heating system also means fewer maintenance requests. This system was approved by the committee

for installation in KUC, VET, LIB, LRC, Mass Comm., MC, Todd, Stark Ag., Nursing, BAS, and KOM, and has shown a noticeable improvement in the equipment performance and comfort level in the building.

## 5. Project Performance Information

Provide information if applicable.

- a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
- b. Provide information on estimated annual energy cost savings in monetary terms.
- c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
- d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)

Difficult to determine.

5b. Annual Energy COST Savings (\$)

TBD, includes energy savings from reduced steam production, less gas required, less water usage, improved thermal heat transfer, better control, water pumps to run more efficiently causing less wear and better flow through the loops, etc., and other items as already mentioned. Maintenance avoided cost \$500-\$750/yr., estimated energy saving \$500 per yr.

5c. Annual Operating or Other Cost Savings. Specify. (\$)

TBD, increases life of the equipment, fewer maintenance issues.

5d. Matching or Supplementary Funding (Identify and Explain)

None at this time.