

Rec 9/30/22

32<sup>1</sup>

## 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.shtml> for funding guidelines. Save completed form and email to [cee@mtsu.edu](mailto:cee@mtsu.edu) or mail to MTSU Box 57.

1. General Information	
Name of Person Submitting Request Dr. Rita Whitaker	
Department/Office Building Services	Phone # (Office) 615-898-2393
MTSU Box # 32	Phone # (Cell) 615-478-4662
E-mail <a href="mailto:rita.whitaker@mtsu.edu">rita.whitaker@mtsu.edu</a>	Submittal Date 9/30/22

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	

3. Project Information	
a. Please provide a brief descriptive title for the project.	
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>	
c. List the source of project cost estimates.	
d. Provide a brief explanation in response to question regarding previous funding.	
3a. Project Title Alumni Memorial Gym Arena	
3b. Project Cost Estimate \$38,500.00	
3c. Source of Estimate Thompson Electric	
3d. If previous funding from this source was awarded, explain how this request differs? N/A	

#### 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

Remove 49 existing high bay HID fixtures and dispose off site.

2. Install 49 new LED high bays and connect to existing circuits.

3. Install wire guards for each fixture for protection of fixture.

4. Install TVSS unit on panel feeding new hi bay lights so no electrical surges occur.

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

Currently, the lights are 440 watts per fixture for 49 fixtures, which burn 21,560 watts. The new LED light will be 130 watts per fixture for 49 fixtures , and will burn on 6,370 watts when they are on. If we change the current fixtures to LED, we will save energy. Currently, the lights are staying on 24 hours a day in order to prevent some from not going out, from turning them off everyday. With these new LED fixtures, the lights would be only in use for about 12 hours a day insted of 24 hours, saving energy and money.

<b>4. Project Description (continued)</b>
<p>4c. Location of Project (Building, etc.) Alumni Memorial Gym Arena</p>
<p>4d. Participants and Roles Boniface Amuzu - Murphy Center Complex Director Diane Turnham - Sr. Associate Athletic Director Dr. Sonya Sanderson - Health &amp; Human Performance Chair Forrest Higginbotham - Building Services Dr. Rita Whitaker - Building Services</p>
<p>4e. Student participation and/or student benefit Health and Human Performance Activity Classes, MTSU Volleyball Team Practice and Team Competition, and future events that may be scheduled by MTSU Departments.</p>
<p>4f. Future Operating and/or Maintenance Requirements There will be no maintenance required for these lights for the next five years. These lights will not lose any lumens when they are turned on, and will turn on immediately, without having to warm up like the current metal halide fixtures in the arena. Currently, due to the high maintenance requirements, the lights are staying on 24 hours a day.</p>
<p>4g. Additional Comments or Information Pertinent to the Proposed Project Each year before the fall semester starts, Facilities Services replaces (FSD) and repairs the lights in arena for Health and Human Performance classes and the MT Volleyball season. On September 6, 2022, FSD replaced and repaired 4 lights for the first home volleyball matches for September 9-10. The lights were on, and someone turned them off on September 21, and when they were turned back on, 5 different lights were out. FSD had to repair those before the next volleyball match on Saturday, September 23, and they have decided not to turn off the lights again.</p>

## 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.)

127,596 kWh

5b. Annual Energy COST Savings (\$)

\$8,002.09 for a Return on Investment (ROI) in 4.8 months.

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

These new LED lights will have a 5 year warranty on them.

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

If the committee sees that the cost of this project is more than they would like to fund at the \$38,500 estimate, maybe it will be possible to get at least \$23,000 of the project funded through the Clean Energy Project. Facilities Services will be willing to fund the remainder of the project costs.

# MTSU AMG Lighting Replacement

Fill in shaded cells

## 1. Calculate original Metal Halide 440 wattage

Original Halide Lamp Wattage	Number of Lights Per Lamp	Estimated Total Fixture Wattage
<u>440 Watts</u>	<u>X 49</u>	<u>= 21560</u>

## 2. Calculate power saved by upgrading 130 Watts fixtures to LED replacements

Original Halide Lamp Wattage	LED Replacement Lamp Wattage	Watts Saved Per Fixture	# of Fixtures To Replace	Total Watts Saved
<u>440.00 Watts</u>	<u>- 130 Watts</u>	<u>= 310.00</u>	<u>X 49</u>	<u>= 15190 W /1000 = 15.19 kW</u>

## 3. Calculate total energy saved per year

Total Kilowatts Saved	Hours of Use Per Day	Days of Use Per Week	Weeks of Use Per Year	Total kWh Saved Per Year
<u>15.19 kW</u>	<u>X 12</u>	<u>X 7</u>	<u>X 50 Wks/yr</u>	<u>= 63798 kWh</u>

## 4. Calculate Energy Savings

Total kWh Saved Per Year	Energy Cost Per kWh	Yearly Energy Savings
<u>63798 kWh</u>	<u>X #####</u>	<u>= \$ 3,317.50</u>
Total Monthly Demand Saved	Demand Cost Per kW	Yearly Demand Savings
<u>15.19 kW</u>	<u>X \$ 7.50</u>	<u>= \$ 1,367.10</u>

Total Yearly Savings: **\$ 4,684.60**