Rec 10/5/18

26

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 or mail to MTSU Box 57.

1. General Information	
Name of Person Submitting Request Keith Lawwell	
Department/Office Building Services	Phone # (Office) 615-898-5537
MTSU Box # 32	Phone # (Cell)
E-mail vlawwell@mtsu.edu	Submittal Date 10/5/18

2. Project Categories (Select One)			
Select the category that best describes the project.			
☑	Energy Conservation/Efficiency	☑	Sustainable Design
☐	Alternative Fuels	☐	Other
☐	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. **Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.**
c. List the source of project cost estimates.
d. Provide a brief explanation in response to question regarding previous funding.

3a. Project Title
Retrofitted LEDs for Outdoor Lamps: Old Main Circle and Walnut Grove

3b. Project Cost Estimate
$19,706.00

3c. Source of Estimate
Lighting vendor

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

This project is to retrofit the existing lighting located within the area of Peck Forrest and around Cope Administration. The manufacturer is phasing out the current technology (Cosmopolis lamps). The alternative is a sustainable design utilizing LED's. The work involves removing the current (55) bulbs and installing the LED retrofit.

4b. Scope: Benefit Statement

The current technology is a proprietary technology which is being phased out by the manufacturer. Although LEDs cost more up front, over their anticipated lifespan they save in electrical and labor costs. The current technology has an anticipated lifespan of 2 years 4 months and 23 days. The LED has an anticipated life of more than 6 years.

4. Project Description (continued)

4c. Location of Project (Building, etc.)

Old Main Circle/Walnut Grove

4d. Participants and Roles

Building Services to purchase and install.
Vendor to supply materials.

4e. Student participation and/or student benefit

This project benefits students and guests by keeping campus safely-lit at night.

4f. Future Operating and/or Maintenance Requirements

Due to their longevity, future operating and/or maintenance costs are unclear.

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

The current technology is being phased out. The utilization of LED is more sustainable.

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.)

105.12 kWh per fixture (9460.8 kWh total) saved annually

5b. Annual Energy COST Savings ($)

$10.512 per fixture ($946.08 total) saved annually

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

TOTAL SAVINGS over the lifespan of the LEDs = $58,661
ROI = 5 years

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

Facility Services to provide labor for retrofit.

Form

Number of fixtures to be replaced

1 units

Old fixture (to be replaced)

Wattage: 140 Watt

Price per unit: 58.00 US$

Lifespan: 7,000 hr

Incandescent / Halogen: 1,250 hours
Metal Halide: 6,000 hours
Fluorescent/CFL: 8,000 hours
Pulse Start Metal Halide (PSMH): 15,000 hours
High Pressure Sodium (HPS): 20,000 hours

LED fixture (new fixture)

Wattage: 96 Watt

Price per unit: 325.71 US$

Lifespan: 50,000 hr

LED: 50,000 hours

Energy rate (electricity cost)

10¢/kWh

The average residential price of electricity in the U.S. in 2015 was 12.66¢/kWh.
To find the price per kWh (Kilo Watt hour) for your state and sector, check your energy bill or go to the EIA website.

Hours of operation

Used 7 days a week | 8 hours/day

Other factors (optional)

Labor cost for relamping: $75 per fixture

Calculate savings

Results

Number of light units to be replaced to LED units: 1 unit

	Old fixture	LED fixture
Initial cost	$58.00	$325.71
Wattage	140 Watt	96 Watt
Electricity cost (10¢/kWh)	$40.88 per year	$28.03 per year
Lifespan (continuous use)	7,000 hours	50,000 hours
Lifespan when used for 8 hours a day, 7 days a week	2 years 4 months 23 days	17 years 1 month 14 days
No. of times an old fixture to be replaced each year	0.42 times per year	-
No. of times an old fixture to be replaced during the LED fixture's lifespan (17 years 1 month 14 days)	7 times	-
Cost of replacements each year ([Incand. bulb cost] × [Number of replacement per year])	$24.19 per year	-
Annual labor cost for ralamping ([Labor cost per relamping] × [Number of replacement per year])	$31.29 per year	-
Total annual cost ([Cost of replacing fixtures] + [Electricity] + [Labor cost])	$96.36 per year	$28.03 per year (same as the annual electricity cost)
Total cost (after 17 years 1 month 14 days)	$1,708	$805
Total savings /w LED fixture (ROI) (after 17 years 1 month 14 days)	$1,708 − $805 = $903	
Break-even point (per unit) (The amount of time necessary to save as much money as you invested initially)	3 years 11 months	

Print the result