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10/5/18

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MTSU Clean Energy Initiative Project Funding Request

1. General Information	
Name of Person Submitting Request Forrest Higginbotham	
Department/Office Building Services	Phone # (Office) 615-898-5537
MTSU Box # 32	Phone # (Cell)
E-mail forrest.higginbotham	Submittal Date 10/5/18

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. 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	Champion Way Parking Garage LEDs
3b. Project Cost Estimate	\$18,329.00
3c. Source of Estimate	Product Supplier and RSMeans estimating software
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 involves replacing the 621 fluorescent lights in the Champion Way Garage with Insta-Fit LED lamps.

4b. Scope: Benefit Statement

Approval of this project would bring the benefits of LED lights over fluorescent lights to the parking garage. These advantages include energy efficiency, reduced future labor costs, and less waste produced. Unlike fluorescent lights, LEDs have no mercury, allowing for non-hazardous disposal.

4. Project Description (continued)
4c. Location of Project (Building, etc.) Champion Way Garage
4d. Participants and Roles Project coordinator: Forrest Higginbotham
4e. Student participation and/or student benefit Students will benefit from this project by having a safely and efficiently lit parking garage.
4f. Future Operating and/or Maintenance Requirements Unsure at this time. LED's are rated for 50,000 hours. Anticipated lifespan is equivalent to 5 years 8 months.
4g. Additional Comments or Information Pertinent to the Proposed Project Please see attached information.

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.)

49,810.8 kWh saved per year

5b. Annual Energy COST Savings (\$)

\$8,703.93 saved in electrical costs per year

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

Total savings over the lifespan of the LEDs = \$84,319.00

ROI = 6 months

Please see the attached worksheet.

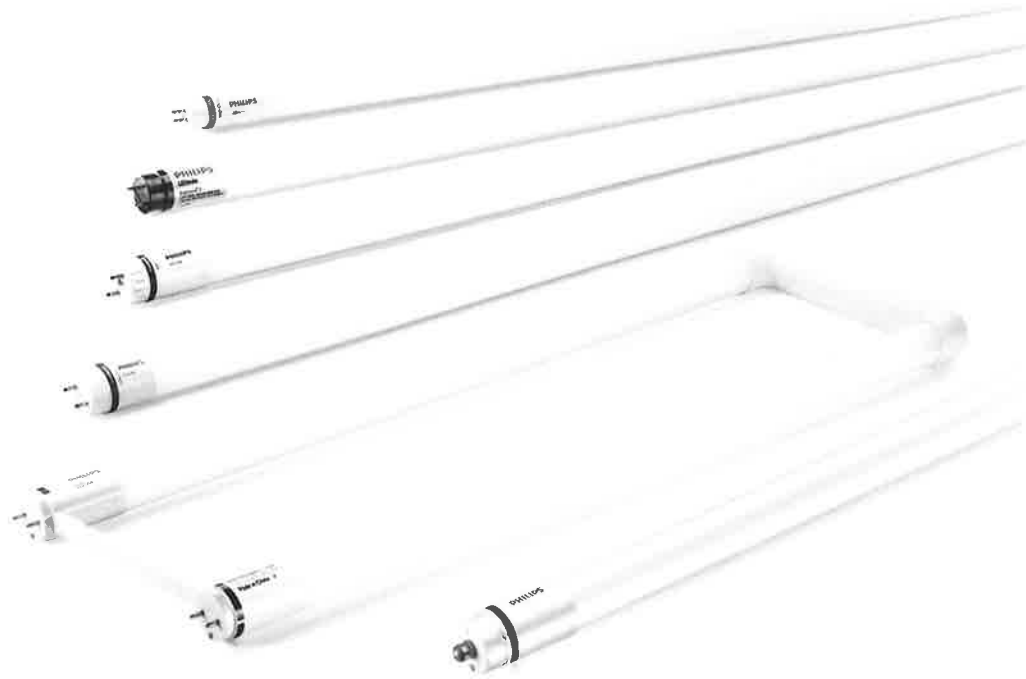
5d. Matching or Supplementary Funding (Identify and Explain)

N/A

PHILIPS

LED

InstantFit lamps



This is **real compatibility**

Other lamps claim compatibility, but only InstantFit has been proven to work with 50% more ballasts¹ delivering even light output, proven energy savings and a long average lifetime. That's true compatibility.

- **InstantFit works with over 200 ballasts** — more than any other lamp — so you know it's going to perform as expected and keep you from having to redo any jobs
- **Proven over 40% energy savings²** over fluorescent means a satisfied customer and no time wasted going back to a job
- **Lifetime delivered** — average life rating of 50,000 hours³, with up to 70,000 hours³ in the portfolio, means satisfied customers
- **Improved profit** and more time growing business instead of doing rework
- **Light quality and performance predictability**— consistent light output and no flicker means satisfied happy customers and no wasted time redoing a job
- **Proven product history** and a company with a long history of innovation and reliability in the lighting industry



LED Waves' LED Savings Calculator

Making the switch to LED lighting?

Answer the following questions on your current lighting usage, plus the LED replacement, to calculate your savings.

Form		Results																																											
Number of fixtures to be replaced 621 units		Number of light units to be replaced to LED units: 621 units																																											
Old fixture (to be replaced) Wattage: 32 Watt Price per unit: 1.00 US\$ Lifespan: 8,000 hr (Fluorescent / CFL) ▼ 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		<table border="1"> <thead> <tr> <th></th> <th>Old fixture</th> <th>LED fixture</th> </tr> </thead> <tbody> <tr> <td>Initial cost</td> <td>Total of \$621.00 (\$1.00 each)</td> <td>Total of \$8,675.37 (\$13.97 each)</td> </tr> <tr> <td>Wattage</td> <td>Total of 19,872 Watt (32 Watt each)</td> <td>Total of 9,936 Watt (16 Watt each)</td> </tr> <tr> <td>Electricity cost (10¢/kWh)</td> <td>\$17,407.87 per year</td> <td>\$8,703.94 per year</td> </tr> <tr> <td>Lifespan (continuous use)</td> <td>8,000 hours</td> <td>50,000 hours</td> </tr> <tr> <td>Lifespan when used for 24 hours a day, 7 days a week</td> <td>10 months 29 days</td> <td>5 years 8 months 15 days</td> </tr> <tr> <td>No. of times an old fixture to be replaced each year</td> <td colspan="2">Total of 680.00 times per year (1.09 times each fixtures)</td> </tr> <tr> <td>No. of times an old fixture to be replaced during the LED fixture's lifespan (5 years 8 months 15 days)</td> <td colspan="2">Total of 3,726 times (6 times each fixtures)</td> </tr> <tr> <td>Cost of replacements each year ((Incand. bulb cost] × [Number of replacement per year])</td> <td colspan="2">Total of \$680.00 per year (\$1.09 each fixtures)</td> </tr> <tr> <td>Annual labor cost for relamping ((Labor cost per relamping] × [Number of replacement per year])</td> <td colspan="2">\$6,799.95 per year</td> </tr> <tr> <td>Total annual cost (([Cost of replacing fixtures] + [Electricity] + [Labor cost])</td> <td>\$24,887.82 per year</td> <td>\$8,703.94 per year (same as the annual electricity cost)</td> </tr> <tr> <td>Total cost (after 5 years 8 months 15 days)</td> <td>\$142,674</td> <td>\$58,355</td> </tr> <tr> <td>Total savings /w LED fixture (ROI) (after 5 years 8 months 15 days)</td> <td colspan="2">\$142,674 – \$58,355 = \$84,319</td> </tr> <tr> <td>Break-even point (per unit) (The amount of time necessary to save as much money as you invested initially)</td> <td colspan="2">5 months 30 days</td> </tr> </tbody> </table>			Old fixture	LED fixture	Initial cost	Total of \$621.00 (\$1.00 each)	Total of \$8,675.37 (\$13.97 each)	Wattage	Total of 19,872 Watt (32 Watt each)	Total of 9,936 Watt (16 Watt each)	Electricity cost (10¢/kWh)	\$17,407.87 per year	\$8,703.94 per year	Lifespan (continuous use)	8,000 hours	50,000 hours	Lifespan when used for 24 hours a day, 7 days a week	10 months 29 days	5 years 8 months 15 days	No. of times an old fixture to be replaced each year	Total of 680.00 times per year (1.09 times each fixtures)		No. of times an old fixture to be replaced during the LED fixture's lifespan (5 years 8 months 15 days)	Total of 3,726 times (6 times each fixtures)		Cost of replacements each year ((Incand. bulb cost] × [Number of replacement per year])	Total of \$680.00 per year (\$1.09 each fixtures)		Annual labor cost for relamping ((Labor cost per relamping] × [Number of replacement per year])	\$6,799.95 per year		Total annual cost (([Cost of replacing fixtures] + [Electricity] + [Labor cost])	\$24,887.82 per year	\$8,703.94 per year (same as the annual electricity cost)	Total cost (after 5 years 8 months 15 days)	\$142,674	\$58,355	Total savings /w LED fixture (ROI) (after 5 years 8 months 15 days)	\$142,674 – \$58,355 = \$84,319		Break-even point (per unit) (The amount of time necessary to save as much money as you invested initially)	5 months 30 days	
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LED fixture (new fixture) Wattage: 16.5 Watt Price per unit: 13.97 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 ▼ 24 hours/day ▼																																													
Other factors (optional) Labor cost for relamping: \$10 per fixture ▼																																													
<input type="button" value="Calculate savings"/>																																													
<input type="button" value="Print the result"/>																																													