Rec 2/17/15

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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.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 Jeremy Posey	
Department/Office Engineering Technology	Phone # (Office) 615-416-2830
MTSU Box # 19	Phone # (Cell) 615-642-7713
E-mail jeremy.posey@mtsu.edu	Submittal Date Feb 17, 2015

2. Project Categories (Select One)			
Select the category that best describes the project.			
X	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 Student Projects Solar Trailer
3b. Project Cost Estimate $7846.14
3c. Source of Estimate Detailed list of parts/supplies exported from project management plan
3d. If previous funding from this source was awarded, explain how this request differs? NONE

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

A new trailer will be purchased which will have a coefficient of drag in the 0.6-0.75 range and weighs under 2800lbs. This will replace the frankly dangerous, and woefully inefficient trailer currently in use that sports a drag coefficient of 1.18 and weighs in at 4480lbs.

This trailer will be outfitted with a nine-panel solar array, which will charge a bank of deep-cycle SLA batteries. The high efficiency charge controllers and inverter will allow over 96% of the charge from the solar panels to reach the lights and equipment used inside the trailer.

4b. Scope: Benefit Statement

This project will see the dangerous old 22' student projects trailer, which returned an average fuel efficiency during our last competition season of 5.2 mpg, be replaced by an aerodynamic 16' trailer which should return more than twice the loaded mileage, and will sport a solar roof. This solar roof, in tandem with a bank of highly efficient, power dense batteries, will power the tools and equipment of the MTSU Experimental vehicles team year-round.

4. Project Description (continued)

4c. Location of Project (Building, etc.)
Voohries Engineering Technology Building – room 108

4d. Participants and Roles
Jeremy Posey – Project Manager
Saeed Foroudastan – Faculty Advisor
Virginia Robinson – Purchasing
Cary Woodson – Electrical Installation team lead
Beau Hallavant – Mechanical Installation team lead
Multiple undergrads in the ET and Aerospace departments will be performing the work to complete the project.

4e. Student participation and/or student benefit

Design and implementation of the project will be carried out by MTSU students. As a result the students will gain valuable knowledge in the operation and installation of solar charging systems and their peripheral components.

4f. Future Operating and/or Maintenance Requirements

None – once the project is completed ownership will be transferred to the student projects laboratory, and future maintenance will come from their budget.

4g. Additional Comments or Information Pertinent to the Proposed Project
The solar student projects trailer will allow our students to safely transport their experimental vehicles around the country while using a substantially smaller amount of fuel, and running all of their equipment off of free and clean solar energy.

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.)

Fuel Savings – 966 gallons annually
Electric Savings – 2,142 kWh annually

5b. Annual Energy COST Savings ($)

Annual Savings in Fuel Costs (calculated at $2.50/gallon) = $2,490
Annual Savings in Energy Costs (calculated at $0.13/kWh) = $279

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

The switch to a newer, lighter trailer means that there will be massive reductions in tire wear / repair costs – which currently average $220 annually

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

None