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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: Dr. Cliff Ricketts	
Department/Office: ABAS, SAG 113	Phone # (Office) 615-898-2430
MTSU Box #5	Ricketts Cell 614-308-7605
E-mail: <a href="mailto:srickett@mtsu.edu">srickett@mtsu.edu</a>	Submittal Date: September 26, 2011

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

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>
<b>3a. Project Title: Impact and Usage of Solar Electric Vehicle Charging Stations at MTSU</b>
<b>3b. Project Cost Estimate: \$9,500.00</b>
<b>3c. Source of Estimate:</b> Coulomb Technologies, Charge Point, Charge Net, and Ecotality
<b>3d. If previous funding from this source was awarded, explain how this request differs?</b>

#### 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:

Installation of an electric vehicle charging station at MTSU is a vital service to the student community considering the increased availability of electric vehicles such as the Nissan Leaf and the Chevy Volt, as well as plug-in hybrid vehicles. MTSU's Cliff Ricketts and students are already well-known for showcasing the potential of alternative fuels: hydrogen, solar, electricity, and bioethanol, to decrease the consumption of gasoline. Dr. Perry and co-workers have also contributed to MTSU's reputation for promotion of green technology with the invention of a retrofit wheel hub motor that extends gas mileage as it generates and stores/uses electricity.

Placing charging stations at MTSU is a public acknowledgement of the environmental benefits of electric vehicles that could encourage the early adoption of this environmentally friendly and cost effective technology. The PI and student co-workers will inform the campus community about the availability of the stations and build an online schedule to manage and maximize their usage.

This request includes support for research to determine the usage rates of the charging stations, costs to operate, and economic and other benefits to users. Undergraduate students will work with the PI to collect and analyze data for the year following installation (at minimum). Results will be reported at Scholars Week and other scholarly venues.

The charging station will utilize our existing solar collection panels obtained through a partnership with the TVA's Green Power Switch, Generation Partners. An existing MTSU electric vehicle will be adapted to match the new charging station.

**4b. Scope: Benefit Statement:**

The charging station will be available to MTSU students. It will be value-added compared to a standard charging station since it will be solar powered. It will also be excellent for public relations between the university and the community since the Nissan Leaf is being manufactured in Rutherford County.

**4. Project Description (continued)****4c. Location of Project (Building, etc.):**

The electric vehicle charging station will be installed on the exterior of the Vocational Agriculture Building (west side of the building at the corner, adjacent to the solar system and parking lot). This proposal requests support for two charging stations.

**4d. Participants and Roles:**

The PI will arrange for the purchase and installation of the charging stations. Any student or university employee can use the stations. Students from the School of Agribusiness & Agriscience's Alternative Fuel class, or the Engineering Technologies Department Experimental Vehicles program will participate in studies involving the charging stations and their users. Students will apply for funding from URECA to support research projects. Tracy Woodard, director of public relations for the Nissan Leaf will provide free consulting.

**4e. Student participation and/or student benefit:**

Many MTSU students are commuters. The presence of charging stations will allow students to decrease their environmental impact and save money as they pursue a college degree. The charging stations will be available 24 hours a day, even at night or a cloudy day through a partnership with TVA's Green Power Switch, Generation Partners Program.

**4f. Future Operating and/or Maintenance Requirements:**

These will be minimal and a non-issue.

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

This proposal is in line with the original intent of the Green Energy Fee/Clean Energy Initiative to create a cleaner environment, energy conservation, etc.

## 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.):

Potential savings can be estimated based on the example of a Toyota Prius hybrid and a Nissan Leaf. The Nissan Leaf goes 100 miles on a full charge. A Toyota Prius that has been converted to a plug-in hybrid uses 0.33 kilowatts per mile. The price is \$0.07 per kilowatt, thus, the cost to go 100 miles is \$2.28. Gasoline at \$3.50 per gallon, even in an efficient 30 mpg car, costs \$11.67 for the same 100 miles. This results in a savings of \$9.39, or about \$28 saved compared to purchasing enough fuel to go 300 mi, an average tank of gas.

### 5b. Annual Energy Cost Savings (\$):

Two cars per day X 5 days X 100 miles = 10,000 miles X 52 weeks = 52,000 divided by 100 = 520 X \$9.39 savings (see above) = \$4,045.60 annual savings. In addition, the university has electric vehicles that could be charged overnight. This system would save the university \$3,000-\$4,000 dollars annually.

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

See 5a above

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

The solar unit has already been installed at a cost of \$65,000 dollars.

**Subject:** Green Fee Proposal  
**From:** "S. Cliff Ricketts" <srickett@mtsu.edu>  
**Date:** Mon, 26 Sep 2011 12:31:02 -0500  
**To:** <cee@mtsu.edu>

Dear Committee,

The attached proposal is being send with collaboration with Dr. Andrienne Friedli. Please contact me if you have any questions.

Cliff Ricketts

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**Charging Station Proposal.doc**

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