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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 Dr. Cliff Ricketts	
Department/Office Agriscience & Agribusiness	Phone # (Office) 898-2430
MTSU Box # 5	Phone # (Cell) 615-308-7605
E-mail Cliff.Ricketts	Submittal Date January 28, 2015

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 checked="" type="checkbox"/> Alternative Fuels	<input type="checkbox"/> Other
<input checked="" 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. Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.</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>
3a. Project Title Running Vehicles off Gasification from Wood
3b. Project Cost Estimate \$4,500.00
3c. Source of Estimate LEAF Gasification, Smithville, Tn (An existing truck will be used)
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

A State of the Art Gasifier will be purchased from LEAD Gasifiers in Smithville, Tennessee rather than building one from scratch. This unit is compact and will easily fit in the back of a pick-up truck without looking awkward. An existing truck will be used to save cost. A pipe will need to be run to the engine and an appropriate carburetor will be installed to make use of the wood gasification. Trees that are already down due to age or storms will be the source of the wood in order to maintain sustainability.

4b. Scope: Benefit Statement

In case of a national emergency, this would be another alternative to provide fuel for automobiles and run generators to produce electricity. The goal of this project is to add to the sources of alternative fuel to run vehicles which the university has already developed. These include: ethanol, methane, natural gas, solar electric, solar hydrogen from water, and several hybrids. Students will be also benefit from this endeavor.

In Middle Tennessee, there is an abundance of wood that is renewable that grow on hilly lands that cannot be used for cropland. This is in addition to the waste wood that needs to be removed mentioned above.

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

The project will be completed in the Agricultural Education Alternative Fuel Lab. which is under Agribusiness & Agriscience.

4d. Participants and Roles

Dr. Cliff Ricketts will oversee the project as the faculty supervisor. Students have already taken the Alternative Fuels class will work on the project as as class project by enrolling in ABAS 4910, Special Problems in Agriculture.

4e. Student participation and/or student benefit

Student research is one of the missions of the university. They will have to research wood gasification and how to transition this to be used in an internal combustion engine. They will have to design the devices that change the smoke to a usable fuel within the engine. They will have to use their creativity to solve the complex problems in making this work. They will gain much hands-on experience and learn how to work with others.

4f. Future Operating and/or Maintenance Requirements

The future maintenance and operation will not be different from any other vehicles. Constant surveillance will be needed for optimal performance. Modification and improvements will be made as needed.

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

As mentioned above, this is an on going research process to find alternative fuel sources so America has less dependence on foreign oil and we help to continue to reduce to price or oil and gas.

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.)

A vehicle that would be driven 300 miles per week, averaging 20 miles per gallon would save approximately \$45.00 per week or \$2,340 per year

5b. Annual Energy COST Savings (\$)

\$2,340.00 minus the cost of a chain saw and fuel. Waste wood would be used.

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

A cost savings would be approximately \$2,000 per year on one vehicle. As stated above, the chain saw and fuel would be the only cost.

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

Some funding will come from Tractor Supply Company. Their funding was for a biodiesel project. However, some supply expense can be used in the engine modification process.

Linda Hardymon

From: Cliff Ricketts
Sent: Thursday, January 29, 2015 9:37 AM
To: Center for Energy Efficiency
Subject: Clean Energy Funding Request
Attachments: Clean_Energy_Project_Funding_Request_2015_-Final.pdf

Categories: Green Category

To Whom It Concern,

Attached is my MTSU Clean Energy Fund Request. Please contact me if you have any questions. I will be 67 this year and this will probably be my last endeavor. Any help would be appreciated.

Cliff Ricketts