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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 Matthew Wade	
Department/Office TN Livestock Center	Phone # (Office) 898-5575
MTSU Box # 105	Phone # (Cell)
E-mail matthew.wade@mtsu.edu	Submittal Date 2/22/2013

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. 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 Alternative Fuel (Biodiesel) Production
3b. Project Cost Estimate \$2500
3c. Source of Estimate Internet, local pricing
3d. If previous funding from this source was awarded, explain how this request differs?
<small>Indirect funding through Dr. Charles Perry was used for initial setup. This request is for equipment to be used for more efficient operation and supplies.</small>

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

The scope of the project involves students collecting used vegetable oil from campus cafeterias, transporting it to the production facility and processing it. They are producing both filtered vegetable oil (FVO) and biodiesel. Students from the Chemistry Department are involved in testing. They are testing for possible uses of the by product of production: glycerin. Dr. Charles Perry's students in the Mechanical Engineering Department are involved in setting up the facility and bio-bus. The Department of Agribusiness and Agriscience uses the production facility for a hands on example for the alternative fuel class.

4b. Scope: Benefit Statement

There are several advantages to this project:

- 1) It involves 4 campus Departments: TN Livestock Center, Chemistry Department, Mechanical Engineering Department and Department of Agribusiness and Agriscience
- 2) Student involvement: Both directly and indirectly
- 3) Recycling campus waste as a viable campus fuel alternative
- 4) Financial benefit for the TN Livestock Center and the campus bus fleet through reduced fuel costs.

4. Project Description (continued)
4c. Location of Project (Building, etc.) The production facility is located at the TN Livestock Center. Partial testing is done in the Chemistry Dept. Engineering development is accomplished in the Voorhes building.
4d. Participants and Roles The TN Livestock Center, both management and students, is directly involved in transportation and production. The students of the Chemistry Dept. are directly involved in testing. The Mechanical Engineering students are directly involved in development. The Dept. of Agribusiness and Agriscience students are involved in using the production facility as a learning module.
4e. Student participation and/or student benefit The project is supervised by the manager of the TN Livestock Center, Dr. Chong of the Chemistry Dept. and Dr. Perry of the Mechanical Engineering Dept. Students participate in every aspect of the operation including, but not limited to: transporting, production, testing, development and using the end product. The learning module experience involved with this project will provide necessary knowledge and "hands on" experience for every aspect of production from transportation, scheduling, production, quality testing, development and oil crop production.
4f. Future Operating and/or Maintenance Requirements These funds will be used for developing more efficient production, transportation and metering of the end product. A portion of these funds will, also, be used for continued production supplies.
4g. Additional Comments or Information Pertinent to the Proposed Project This project began with a few students experimenting with the use of vegetable oil to power campus buses. It has since grown to include the production of biodiesel to power the equipment at the TN Livestock Center. The Chemistry Dept. is involved in testing the potential of the by product of production. The Dept. of Agribusiness and Agriscience is using the project as a learning module. This project is exciting, and continues to grow. Therefore, these funds are needed to insure continued production and learning potential for all those involved.

<p>5. Project Performance Information</p> <p>Provide information if applicable.</p> <p>a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.</p> <p>b. Provide information on estimated annual energy cost savings in monetary terms.</p> <p>c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.</p> <p>d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.</p>
<p>5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)</p> <p>In an 8 month period, the TN Livestock Center (TLC) has used 100 gal less of regular diesel over the same 8 month period a year ago. We believe we can greatly increase this reduction as use continues at the TLC, and as the Bio-bus comes online in the near future.</p>
<p>5b. Annual Energy COST Savings (\$)</p> <p>In the same 8 month period comparison as used above, the TLC has on average 24% per month in direct diesel fuel cost.</p>
<p>5c. Annual Operating or Other Cost Savings. Specify. (\$)</p> <p>At the present rate, the TLC will have a direct fuel savings of \$500 for current fiscal year. With the funds requested, we plan on doubling that number during next fiscal year.</p>
<p>5d. Matching or Supplementary Funding (Identify and Explain)</p> <p>N/A</p>