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## M TSU 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](mailto:cee@mtsu.edu) or mail to MTSU Box 57.

<b>1. General Information</b>			
Name of Person Submitting Request Ray Wiley			
Department/Office Campus Recreation Department		Phone # (Office) 615-898-5701	
MTSU Box # <b>556</b>		Phone # (Cell) 615-785-7805	
E-mail <a href="mailto:ray.wiley@mtsu.edu">ray.wiley@mtsu.edu</a>		Submittal Date 2-04-19	
<b>2. Project Categories (Select One)</b>			
Select the category that best describes the project.			
<input checked="" type="checkbox"/>	Energy Conservation/Efficiency	<input checked="" type="checkbox"/>	Sustainable Design
<input type="checkbox"/>	Alternative Fuels	<input type="checkbox"/>	Other
<input type="checkbox"/>	Renewable Energy		
<b>3. Project Information</b>			
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 <b>Variable Speed Drive Motor Additions</b>			
3b. Project Cost Estimate <b>Phase #2 \$15,997 Spring semester 2019</b>			
3c. Source of Estimate Barry McMahan / Carlton Brown			

Energy Management Solutions  
615-663-7701

3d. If previous funding from this source was awarded, explain how this request differs?

**The only difference from the first phase that was awarded fall semester 2018 to the second phase, is the cost of some of the parts needed for the project have increased in price.**

#### 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

Campus Recreation is still using the original motors and pumps (23 years old) in our building that are not energy efficient .This proposal is to install a thermal dynamics Energy Controller System with proprietary algorithms using VFD'S to efficiently regulate electrical demand.

\* A **Variable Frequency Drive (VFD)** is a type of **motor** controller that drives an electric**motor** by varying the frequency and voltage supplied to the electric **motor**.

#### 4b. Scope: Benefit Statement

***With the installation of these VFD's Campus Recreation can expect to save 275,000 KWH per year. This equates to a savings of \$23,100 per year. The payback period would be less than 22 months on the investment.*** Additionally, this addition would help Campus Recreation extend the life of the current motors, pumps, and belts in the facility by the reduction of the overall wear and tear and energy demand.

#### 4. Project Description (continued)

##### 4c. Location of Project (Building, etc.)

Two Air Handling units located at the Campus Recreation gym and track mechanical rooms.

##### 4d. Participants and Roles

Ray Wiley- Associate Director Campus Recreation

Joe Whitefield-Assistant VP Facility Services

Alan Parker –Building Services Engineer

##### 4e. Student participation and/or student benefit

The reduction in energy consumption and decreased demand will result in budget saving that can be used for student programming, equipment, and facility improvements.

#### 4f. Future Operating and/or Maintenance Requirements

Once these VFD'S are in place, there is very little maintenance requirements. This equipment has been known to last over ten years without any parts or labor needed.

4g. Additional Comments or Information Pertinent to the Proposed Project :I feel very confident with the estimated numbers included in this proposal as they were provided by **Energy Management Solutions** which has been recognized by TVA in 2016 for **"Top 3 VFD Install of the Year"** ! Additionally, **Energy Management Solutions** has been a **"TVA Top 10 PPN Member"** multiple times for KWH's removed annually. Finally, **Energy Management Solutions** won **"Installation of the Year – Region 2"** from the AEE (the Association of Energy Engineers) in 2016 for an install at NHC's National Headquarters .

### 5. Pro-ect 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. **Conservative estimates are a 275,000 KWH savings per year.**

5b. Annual Energy COST Savings: **Conservative projections are at an estimated savings of 275,000 KWH per year.**

**5c. Annual Operating or Other Cost Savings. Specify. (\$) After the installation of these drives, Campus Recreation would conservatively expect an annual savings of \$23,100 per year. This would result in a payback period of less than 16 months on the return on investment.**

**5d. Matching or Supplementary Funding (Identify and Explain) In addition to the stated annual energy savings for Campus Recreation , Middle Tennessee State University would see additional savings in Chill Water cost, BTU'S and KWH reductions based on the allocation formula set by the university.**