

**Texas Commission on Environmental Quality
New Technology Research & Development (NTRD) Program
Monthly Project Status Report**

Contract Number: 582-11-12630-3264
Grantee: EcoPower Hybrid Systems
Report for the _____ **Date** _____
Monthly period: June 2012 **Submitted:** July 10, 2012

Section I. Accomplishments

Provide a bulleted list of project accomplishments as well as a description of their importance to the project.

- Scheduling and task reorganization is completed. A revised budget will be presented in July 2012 to adjust the part of subcontractor job to be realized internally.
- Final choice for cells is made and the first version of battery module detailed design is completed.
- A system to cycle cells for preliminary thermal model validation and to test BMS was built from design completed in May.
- 2 battery management system (BMS) kits were bought for testing purposes. Each kit allows to test performances on 12 cells in series or 43.8V. Basic functionalities, reliability, ease of use, balancing algorithms, catastrophic failures and electro-magnetic compatibility (EMC) will be tested. 40% of planned tests are completed.
- Thermal analysis using computational fluid dynamics (CFD) for module is completed and was validated using 2s5p modules used during task 1.
- Thermal model obtained for module is currently incorporated in CFD thermal analysis of the battery enclosure thermal management.
- Two options for modules cooling were identified. Fans for testing are bought and will be tested on module prototype.
- 3D modeling of general arrangement of the hybrid power plant is completed using chosen cell. Drafters are completing 2D drawings required for fabrication and quote purposes at identified potential suppliers.
- All Quality Control equipments required are selected. We are currently analyzing quotes for long lead items.
- Preliminary electrical design is started. Calculation for short circuit protection is completed. The analysis of design scenarios to retrofit the prototype hybrid power plant on the existing rubber tire gantry (RTG) crane is on-going.
- Overall all objectives set in last report are completed at the exception of final budget modifications. At this point, the final work plan is reviewed and we can confirm that no problem affecting delivery is encountered at this point.

Indicate which part of the Grant Activities as defined in the grant agreement, the above accomplishments are related to:

All realizations are related to task 2 of the project.

Section II: Problems/Solutions

Problem(s) Identified: Report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project

- a) No technical problem is identified at this point.

Proposed Solution(s): Report any possible solution(s) to the problem(s) that were considered/encountered

- a) See below

Action(s) Conducted and Results: Describe the action(s) taken to resolve the problem(s) and its effect

- a) As mentioned, we are currently completing budget modifications to assign resources to fit the final work plan. Amended budget will be submitted to TCEQ following the rules in July 2012.

Section III. Goals and Issues for Succeeding Period:

Provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen

- To have budget modified, completed and submitted to TCEQ
- To complete BMS testing at module level
- To complete procurement and fabrication of a first prototype module.
- To charge and discharge prototype module to test ventilation and to validate CFD thermal model for a single module.
- To survey RTG crane in Houston in order to complete electrical integration analysis.

Date: July 10, 2012

Authorized Project Representative's Signature

NOTE: *Please attach any additional information that you feel should be a part of your report or that may be required to meet the deliverable requirements for tasks completed during this reporting period.*