

**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 Monthly period: May 2012 **Date Submitted:** June 11, 2012

Section I. Accomplishments

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

- Task 1 was realized successfully. Following this single go-no-go milestone, the notice to proceed for all other tasks of the project was received.
- For scheduling reasons, we decided to perform part of the tasks planned originally for subcontractors internally. Revised budget will be presented as soon as we complete project preparation.
- Battery module detailed design is started. Preliminary drawings are completed for quotation.
- Potential options for modules cooling fan are investigated.
- Contact was established with subcontractors (part of “battery pack integrators in the budget”) for simulation of thermal and mechanical properties by finite element method.
- Thermal analysis using computational fluid dynamics (CFD) is in progress for preliminary module design under different duty cycles.
- We are initializing CFD system analysis for the battery enclosure thermal management.
- We started evaluation of standard heat pump split systems for thermal management of battery enclosure.
- 3D modeling of general arrangement of the hybrid power plant is started base on prismatic cell options.
- Potential suppliers are currently contacted and procurement process initiated.
- 3 battery management system (BMS) suppliers were contacted. We are buying system to test performances on 12 cells in series. Basic functionalities, reliability, ease of use, balancing algorithms, catastrophic failures and Electro-Magnetic Compatibility (EMC) will be tested. These tests will be performed during June and July 2012.
- A system to cycle cells and testing BMS was designed.
- All quality control equipments were selected. Request for quotes were sent.
- Revision of cycling data from Task 1 are currently performed to refine design parameters for specific cells.

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.
- b) The final work plan need to be reviewed now to insure proper delivery of the project in due date.

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

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

- a) As mentioned, we are currently reallocating budget resources to fit the final work plan. Amended budget will be submitted to TCEQ following the rules

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 BMS testing started
- To have budget modified, completed and submitted to TCEQ
- To have confirmation of the cell to be used
- To have completed preliminary thermal CFD analysis for the module
- To have a near completed pack arrangement on 3D model

Date: June 11, 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.*