

**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:** December 2011 **Submitted:** January 9, 2012

**Section I. Accomplishments**

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

- Richard Laliberte visited ECS from December 19, 2011, to December 20, 2011, to support welding schedule development. This visit was planned after ECS informed Ecopower that welding was problematic on some cells. A meeting was scheduled with welder manufacturer Miyachi Unitek; they are actively supporting welding procedure development. Proposed solutions are currently in test.
- The project remains on schedule in regard of cell testing. We still expect to have cell testing including accelerated testing completed by the end of January 2012.

**Cell Testing**

- Characterization of baseline capacity at 20 degrees Celsius is completed on 6 cells.
- Power testing is completed at 3 temperatures on 2 cells and on 1 temperature on 1 cell.
- Heat rejection at 1 degree Celsius is completed on 4 cells. In order to increase accuracy, the test will be re-performed at higher current on all cells.

**Module assembly**

- We ordered enough of energy and power cells from K2 to assemble four modules. Only cells meeting minimal performance criteria will be assembled in sub-modules. We have confirmation that all cells potentially required to assemble modules will be delivered in time at ECS.
- All cells required to assemble modules were delivered at ECS.
- Bus bar material to be welded to cells for test module assembly is in procurement. Delivery date is planned for second week of January.

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

All these realizations are related to the phase one 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) Welding issues delayed module assembly and module testing schedule.
- b) Cell testing planned for December 2012 is late. Power testing planned was not completed due to technical problems and loss of one technician attached to the project at ECS.

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

- To continue addressing welding issues with some 26650 cells. We expect supplementary testing, procedure development and module fabrications to be completed in the second week of January. Ecopower and welder manufacturer Miyachi Unitek continue to support ECS to resolve issues.
- Visits on site are planned for every week in January 2012.
- Additional full time ECS technician is dedicated to the project and supplementary equipments were made available to catch-up on schedule.
- Current schedule is optimistically achievable. In case of significant technical problems, it could be necessary to postpone final reporting for phase 1 by 30 days to March 30, 2012. This would not affect the final delivery of the project.
- In parallel, as mentioned last month, we have planned to run performance tests on one commercial module as potential fallback plan. Testing is ordered from manufacturer site and will begin early January 2012.

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

- We are currently working on welding issues. We expect to have it fixed by the second week of January 2012 and to be ready to assemble from January 14, 2012.
- Note that 2 cells can be assembled in module without welding issues. One of these could represent the final solution for the battery pack assembly. It is very important to us to complete the program to present what we think represent an optimal solution from technical and cost stand point.

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*

**Cell testing:**

- To complete all testing at cell level.

**Module fabrication:**

- To address welding issues with 26650 cells. Completing supplementary testing, procedure development and test module fabrication in January.

**Module testing:**

- To finalize cycling protocol scaling based on final module configuration.
- To complete battery management system set-up required to test 4 X 12.8V modules in serial configuration to demonstrate capability to complete Crane duty cycle.
- To complete cycler code instruction to reproduce crane duty cycle.
- To complete testing on module built with cells without welding issues.

Date: January 9, 2012

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*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.*