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

Contract Number: 582-11-12630-3264

Grantee: MJ EcoPower Hybrid Systems

Report for the Monthly period: September 2012

Date Submitted: October10, 2012

Section I. Accomplishments

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

Electrical design:

- The system has been fused based on short circuit information from supplier testing.
- Analysis of crane drive interfaced with hybrid power plant control is under evaluation for the next weeks. Preliminary electrical design and drawings are completed at 95%.

Battery:

- First batch of cells was received and quality control for alternating current (AC) impedance and open cell voltage measurement is completed. Part of the cells is followed to evaluate and characterize self-discharge.

Battery Management System (BMS):

- Communication software development between hybrid power plant programmable logic control (PLC) is ongoing.
- BMS was tested for module balancing, functionality is confirmed
- Electromagnetic interference (EMI) sensitivity of BMS communication tests are ongoing to confirm that BMS will not be affected by EMI.

Thermal and mechanic:

- Request for Quotes (RFQ) was sent for modules parts assembly, battery rack, and genset enclosure. Waiting on final information to validate final production completion date.
- To plan immersion in salt water of one module for safety analysis, the test would be prepared in October 2012 and executed early November 2012.
- To plan an electrolyte spraying test to validate electronic
- Final version of drawings of the battery rack assembly is completed including new connections strategy ready. To be used for fabrication.
- Design of fixture and gages for module assembly are completed
- Structural analysis of welding for the battery rack using finite element analysis (FEA).
- Process and Design failure mode and effects analysis (FMEA) for the battery module is completed at 75%

Module:

- Procurement for fabrication of 40 modules is started. 13 will be used for testing and 27 will be used for the crane hybrid power plant.

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

- No technical problems are identified at this point. Schedule remains very tight.

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

- NA

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

- We are still following carefully all activities to mitigate any potential delay on schedule.

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

Electrical design:

- Preliminary electrical drawings completed
- Preliminary testing with crane drive has started

BMS:

- Optimized final communication and intercommunication is to be designed and tested at pack level. Preliminary strategy to be established in the next weeks.
- EMI sensitivity of BMS communication tests completed
- To design and test redundancy using a second BMS in parallel on one module. Second set of BMS will be delivered in October 2012.

Thermal and mechanic:

- To validate final production completion date for the 40 modules from RFQ answers for fabricated parts, racks and cabinets.
- To plan immersion in salt water of one module for safety analysis, the test would be prepared in October 2012 and executed in November 2012.
- To plan electrolyte spraying test to validate protection for potential shorts.
- To update final version of drawings of the battery rack assembly from final information received from RFQ process and ongoing modification.
- To redo vibration test with updated module design
- To complete module Design and Process FMEA
- To complete calibration of thermal model.

Date: October 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.*