

**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 (Ecopower)
Report for the Monthly period: February 2013 **Date Submitted:** March 8, 2013

Section I. Accomplishments

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

Electrical design:

- All material required for control and power management panel (CPMP) is ordered and the panel assembler is selected, contract process is to be completed.
- Location and physical verification of integration were performed and completed in Houston, Texas, on the rubber tire gantry (RTG) crane to be retrofitted.
- Programmable logic control (PLC) programming for lithium technology is now completed at 20%.
- Electrical design review of the system is completed including bridging of existing crane signals in the electrical design.
- Sequential flow chart of operation is completed at 20%.
- Shop test planning is started and will be completed next month.

BMS:

- Final conception of battery management system (BMS) enclosure and connections to be installed in the battery rack are successfully completed.
- Module assembly verification and tests for fan and BMS wiring strategy is completed.
- Module assembly for the crane is currently on going 10% completed

Battery:

- Missing replacement cells were received from manufacturer.
- Rejected battery cells are replaced in the module and re-bundle was done.
- Module assembly for the pack is started.

Thermal and mechanic:

- Heating, ventilation, and air conditioning (HVAC) system installation inside battery rack was installed.
- Battery rack accessories were installed.
- Design of fuse panels to replace breakers in the e-house was done.

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 (Engineering) and Task 3 (Manufacturing) 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

- Schedule remains very tight.

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

- We are currently increasing internal effort to deliver on time

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

- Plan is finalized and the unit will be ready on time for shipping to Houston, Texas.
- 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:

- Electrical design review of the system will be started
- Sequential flow chart of operation will be updated to reflect advancement
- Shop test planning will be completed
- Continue PLC programming for lithium technology
- Inverter will be tested individually
- The CPMP will be completed and tested, and shop commissioning will be completed.
- Failure mode and effect analysis (FMEA) of CPMP document will be ready next month

BMS:

- Module assembly verification and tests for fan and BMS wiring will be completed for complete battery pack modules.
- New BMS firmware will be tested.

Thermal and mechanic:

- Installation of the generator/genset and auxiliary equipment inside the cabinet will be completed.
- Installation of auxiliary equipment on fuel tank will be completed
- Genset will be connected and ready for commissioning.
- Battery cyclers to be used for final module testing will be configured
- Battery module assembly will be completed
- Connection of HVAC condenser with evaporator by a specialized technician

Date: March 8, 2013

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.*