

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

Contract Number: 582-11-13472-2019

Grantee: Transportation Power, Inc.

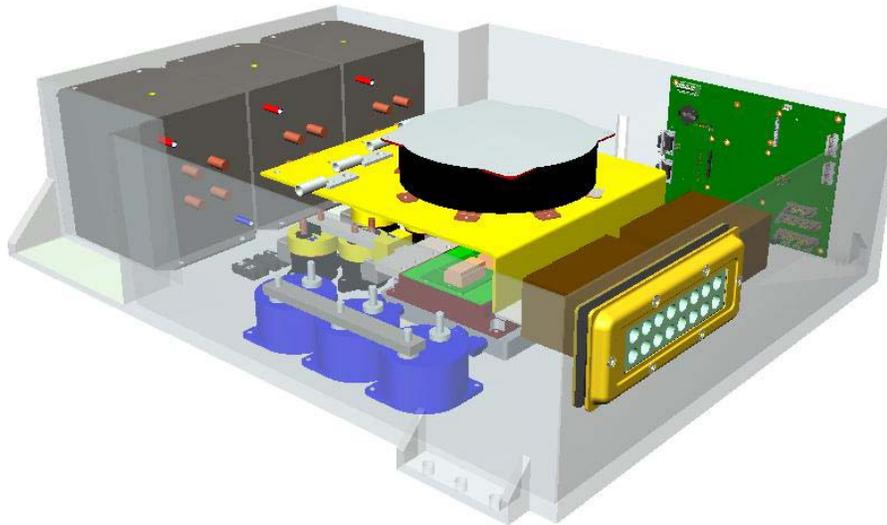
Report for the Monthly period: 08/06/11 – 09/09/11 **Date Submitted:** 09/09/11

Section I. Accomplishments

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

- Reviewed design of our standard battery enclosure and developed a cost reduction plan to reduce its manufacturing costs. This was an important review and the cost reduction plan is important because after obtaining price quotations on battery enclosure parts, it was determined that the initial design would be too costly for practical implementation.
- Completed fabrication of our first electrically-driven accessory subsystem, which is an important step toward developing the capability to drive tractor accessories on electric power.
- Neared completion of the design of our standard onboard inverter-charger, which is important because this is one of the major components required for electrification of the terminal tractors. Figure 1 shows a CAD illustration of our inverter-charger, whose development is being led by TransPower partner EPC Power Corp.

Figure 1. CAD illustration of TransPower-EPC inverter-charger.



- Supplier Cargotec initiated manufacturing of the first terminal tractor vehicle to be converted to electric drive on this program, which is important because it brings us a step closer to receiving the vehicle and being able to begin the conversion process.

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

- The first three accomplishments listed above relate to Task 2.1.1, “Final Component Selection and Procurement.” The last task above relates to Task 2.2.1.2, which is to procure two terminal tractors.

Section II: Problems/Solutions

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

- a) As indicated in Section I, a review of our standard battery enclosure design revealed that its construction cost would be prohibitive.
- b) We were advised by Cargotec that they are encountering some production delays and that the first tractor will be delivered 2-3 weeks later than the latest target date, which was September 12. We now expect to receive the tractor around October 1.

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

- a) Possible solutions to the battery enclosure cost problem that were considered included substituting less expensive materials and simplifying the design.
- b) The delay in manufacturing the first tractor by Cargotec is beyond our control so the only solution we have is to work around the delay and accomplish as much without the vehicle as we can. Therefore we are focusing on building and testing components that do not require installation in the vehicle for their continued development.

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

- a) The selected approach to reducing the battery enclosure cost was to undertake a major simplification of the design of the enclosure. This may have long-term impacts on vehicle operation due to structural fatigue or other factors, but in our judgment these long term risks are justified by significant near term cost savings.
- b) We are continuing to make progress on the design of our battery enclosure, inverter-charger, and electrically-driven accessories without possession of the first tractor. The latest delay should not have a significant effect on the overall program 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

During the coming period our main goals are to receive the first terminal tractor from Cargotec and to begin the process of customizing the design of major components to fit within the constraints of the vehicle. We will also begin to make preparations for removal of the diesel engine from the vehicle, along with any other components not required for operation of our electric drive system.

Date: 9/9/2011

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.*