

**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:** 06/06/2011 – 07/08/2011      **Date Submitted:** 07/15/2011

**Section I. Accomplishments**

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

- Completed testing of two different lithium battery products, which is important to the project because understanding battery characteristics increases our likelihood of selecting a battery product that will work under the high power loads created by the tractor application.
- Selected Voltronix 260 ampere-hour battery cells as the battery type to be used in our first generation of tractors and trucks, which enables us to move forward with battery pack design.
- Acquired vehicle specifications from Cargotec.
- Ordered the first Kalmar tractor from Cargotec, which resulted in their putting the vehicle into their production queue, and will enable us to obtain the vehicle by September.

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

- The first two accomplishments listed above, regarding battery testing and selection, relate to Task 2.1.1, “Final Component Selection and Procurement.”
- The third accomplishment listed above, acquisition of vehicle specifications, relates to Task 2.1.2, “Prepare Integration Drawings and Procedures,” and specifically to Task 2.1.2.1, which involves the acquisition of “vehicle drawings and specifications from the terminal tractor manufacturer...”
- Ordering of the first terminal tractor, the fourth and final accomplishment listed above, relates to Task 2.2.1.2, which requires the Performing Party to “procure two conventional diesel terminal tractor vehicles.”

## Section II: Problems/Solutions

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

- a) Potential manufacturing defects were found in one or two of the battery cells acquired for testing under Task 2.1.1.
- b) We were advised by the TCEQ that we cannot be reimbursed for the cost of the conventional diesel terminal tractors until after they have been paid for. Since the tractors cost approximately \$110,000 each, this presents a cash flow problem for TransPower.

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

- a) We have decided not to use the battery cell product which had the possible defects, and are proceeding with Voltronix batteries which thus far have shown good quality.
- b) We have elected to purchase the tractors one at a time and will time making of the payment for each tractor so that the time required for subsequent reimbursement from the TCEQ is minimized.

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

- a) We are planning to order 12o Voltronix batteries so we can perform testing of a full 384-volt string within the next 90-120 days. Successful testing of a full string of the Voltronix batteries would make it unnecessary for us to consider purchasing alternative battery products, including the one that exhibited the potential defects.
- b) In addition to the steps listed above, one or more of the company principals will take out personal loans to secure the first tractor, and we will request that the TCEQ do everything possible to expedite processing of invoices that include reimbursements for the tractors or other high-cost items.

### **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*

For the coming period, our goals are to begin developing designs for integrated battery packs and for electrically-driven accessories, two of the main components to be installed into the electric terminal tractors. The only notable challenge that can be foreseen is that we will not have a tractor vehicle in our possession until September, so for the next two months we will have to design all components without having the benefit of being able to see a vehicle first-hand. To compensate for this, we will attempt to acquire vehicle drawings from Kalmar or other sources, and will consider visiting a local owner of similar model tractors to obtain a preview of what we will see when we receive our own tractor.

Date: 07/15/2011

---

*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.*