

ACCELERATED BATTERY TESTING STUDY

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The objective is to develop testing procedures to accelerate aging of electrochemical cells intended for solar applications, so that cycle life data can be acquired in less time. The cells of interest initially for base line information are lead-acid, both vented and sealed, and for both shallow and deep discharge applications.

There is a need to develop testing procedures to accelerate aging of electrochemical cells so that cycle life data can be acquired in less time than real time testing. The initial emphasis has been on lead-acid-type batteries. A literature review and manufacturers survey was conducted to identify the status of accelerated testing and published information pertinent to battery life.

The principles of accelerated testing are reviewed in the final report with reference to lead-acid batteries. Preliminary experimental designs for accelerated testing of batteries for solar applications are discussed with reference to current laboratory tests at SNL covering minimal factorial design, the team approach to generally accepted accelerated test designs, and a suggested new approach to accelerated testing with minimal failures.

This contract was completed in December 1981.

Recent publications

- 1 J. E. Clifford and R. E. Thomas, Study of battery accelerated testing techniques, SAND82-7049, Battelle Columbus Laboratories, April 1982.

SYSTEM PERFORMANCE AND ECONOMIC ANALYSIS OF WIND POWERED GENERATORS WITH BATTERY STORAGE (PHASE I)

Hawaii Natural Energy Institute (HNEI), a research institute of the University of Hawaii

The objective is to complete the Phase I preliminary battery/wind turbine system feasibility study. This study will attempt to determine the value of batteries to a small utility network that may have a high penetration of its generating capacity supplied by wind turbines.