

ELECTRIC RATE ANALYSIS FOR PV/BATTERY ENERGY SYSTEMS

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The objective of this study is to determine how the utility rate system will be affected by increasing penetration of customer-side-of-the-meter photovoltaic/battery systems. ANL will analyze the efficiency and practicality of alternative utility rate designs including time-of-day rates, demand charges, and load management contracts.

The solar/utility interface problem was analyzed within a standard economic representation of the periodic load problem. The basic approach was to use the welfare function formation of traditional peak load pricing theory as the framework for investigating the pricing and welfare implications of the solar/utility interface. In representing the essential features of solar supply technologies, both the periodic and the intermittent nature of the solar output was considered.

Work on this contract was completed March 1982.

Recent publications

- 1 J. G. Asbury and R. O. Mueller, *The Peak Load Problem with a Periodic (Solar) Supply Technology*, Argonne National Laboratory, May 1982.

CONSULTATION ON INTERACTIVE SOLAR ENERGY SYSTEMS FOR SMALL UTILITIES

C. H. Guernsey and Company, 3555 N.W. 58th Street, Oklahoma City, OK 73112 (U.S.A.)

C. H. Guernsey and Company, a utility consulting firm is providing engineering services for the grid-connected wind energy/battery storage (WEBS) project on the island of Molokai, Hawaii. Expertise is required to evaluate the utility aspects of

- Technical feasibility of the WEBS experiment;
- System and hardware design including the utility-wind turbine-battery interface and control equipment, transmission lines, and necessary inter-ties for special loads; and