

Automated Meter Reading

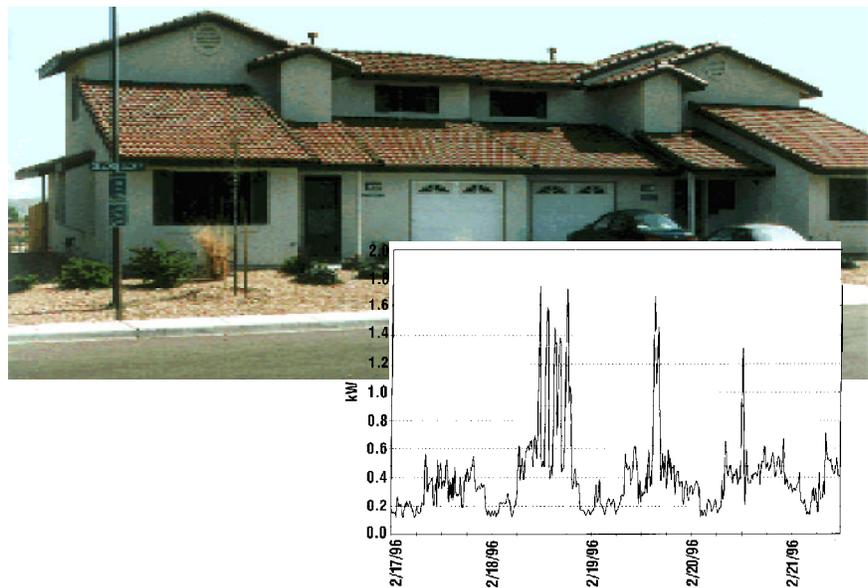
Automated meter reading systems are an attractive technology for cutting costs while increasing speed and control of metering activities. When organizations, such as utilities, military installations, large industrial parks and school districts consider automated meter reading technology, they discover most available systems carry high initial capital costs. Organizations that purchase systems without first evaluating the full costs and benefits often find they are locked into a technology that accomplishes much less than they need.

At the Pacific Northwest National Laboratory, we can assist organizations in assessing their automated meter reading requirements and available technologies to provide the best solution for their needs. We can help implement pilot systems for collecting energy or water consumption data, including sensors, communications links, collection system and database management software.

Technical Resource for Decision-Making

Organizations want to assure they make the best AMR choice for their needs. Researchers at Pacific Northwest can provide

- assessments of data and technology requirements, including non-standard functions and different energy and/or resource flows
- assessments of AMR system life-cycle costs
- demonstration systems that help determine the exact measures needed by the facility and an expectation of what a full system can offer



Researchers are evaluating a hybrid fixed radio network and power line carrier system installed in 26 family housing units at Fort Irwin, CA. The system meters electric and gas consumption.

- system integration of technologies, including merging new technologies with legacy systems into a cohesive AMR package
- information enterprise architectures that enable incorporation of diverse data bases, including geographical information system databases, with AMR data
- development of applications and access tools to present AMR data over local area networks, intranet, or the Internet
- assistance in defining and implementing applications, such as real-time pricing, load management, and automated billing
- coordination in procuring the correct AMR system.

Demonstrated Experience

Pacific Northwest has assisted several organizations in evaluating, defining or installing AMR systems:

Fort Irwin AMR System Pilot Demonstration—Pacific Northwest is providing technical assistance to the U.S. Army National Training Center, Fort Irwin, California in evaluating an on-going pilot demonstration of an AMR system. The multi-purpose AMR system provides monthly accounting and billing for special on-base accounts, high-resolution time-series data on energy consumption, and load control or peak shaving. The system being demonstrated is a hybrid fixed radio network and power line carrier system.

Life-Cycle-Cost Assessment of AMR Options—Pacific Northwest staff evaluated automated meter reading technologies for use at the

U.S. Army's National Training Center, Fort Irwin, California. The evaluation considered the technical performance and cost of seven generic automated meter reading technologies, with specific case studies focused on the needs of Fort Irwin. The AMR technologies included long-range radio, distribution line carriers, dial-out and dial-in telephone systems, mobile (drive-by) meter reading, and two manual options requiring the presence of a meter reader with a hand-held computer at or near the meter to be read. A hybrid fixed radio network and power line carrier system was recommended.

Hanford Utility Metering Option Assessment—In 1995, Pacific Northwest completed a study of electric, gas, water and steam utility metering at the Hanford Site in Richland, Washington. Researchers assessed the current state of metering activities and prepared a long-range plan that would provide direction and focus for future metering programs.

Hanford Operations & Maintenance Evaluation Tool Development—Pacific Northwest is developing a tool to allow facility managers throughout the DOE's Hanford Site to view utility-related information. Users can retrieve AMR data aggregated by building, facility or meter number with a graphical user interface that allows them to point and click on a Hanford map to select an area of interest. Once the selection is made, the system determines which meter to query and where the data resides. The system also provides extensive additional detail to help facility

managers assess and ultimately improve the energy efficiency in their buildings.

How We Work with Clients

The Pacific Northwest National Laboratory meets the needs of customers through federal programs and government-industry partnerships. Battelle, which operates Pacific Northwest for the U.S. Department of Energy, has a contract that enables researchers to use equipment and facilities for federal, state, and private sponsors. The contract allows access to our capabilities through conventional as well as government contracts for research and development.

For more information about automated meter reading systems, visit the AMR web site at <http://ased.pnl.gov:2080/tesd/amr.htm> or contact

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