



**US Army Corps
of Engineers**
Construction Engineering
Research Laboratory

Fact Sheet

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April 1999

(CF 65)

ENERGY MANAGER PROJECT ASSISTANT (PA)

The Problem

Evaluation of energy conservation opportunities (ECOs) has historically been time-consuming, inaccurate, and inconsistent from one Army installation to the next. While there is a format for energy project submissions and life-cycle cost analyses, there is no one procedure for carrying out engineering calculations. Typically, energy managers each develop their own means of analysis and insert them into the DD1391 submission. Sometimes the analyses are over-simplified or contain factors of unknown origin. Some submissions contain mathematical errors or fundamental flaws in analytic methodologies. Headquarters faces a laborious task in evaluation, comparison, and ranking of individual submissions since the calculation and narrative procedure for each submission are unique. Engineering staff spends an inordinate amount of time developing and reviewing energy projects.

The Technology

The U.S. Army Construction Engineering Research Laboratory (CERL) created the Energy Manager Project Assistant (PA) software program to provide a standard methodology for energy project calculations. This program allows energy managers to choose among various energy conservation opportunities and quickly and accurately carry out engineering calculations and prepare DD1391s and supporting economic analyses using standard algorithms.

The prototype PA software contains three lighting energy conservation opportunities (ECOs): (1) retrofit/replacement of 4-foot linear fluorescents with T8 lamps and electronic ballasts, (2) retrofit/replacement of incandescent with compact fluorescent (CFL) lamps, and (3) retrofit/replacement of exit signs with light-emitting diode (LED) technology. Work performed during 1998 included improving the user interface and activating the print function, building in compatibility with the Renewables and Energy Efficiency Program (REEP) for ease of expansion, and incorporating design information to help energy engineers make informed project decisions. This version was completed in February 1999 and is included, along with user instructions, on the Strategic Energy Planning web site at CERL (<http://owww.cecer.army.mil/emap/>).

Benefits/Savings

It is estimated that the application of energy-efficient technologies Army-wide would produce a life-cycle savings of \$3.0 billion, an annual savings of \$205 million, and a 30% reduction in 1985 energy consumption levels by the year 2005. This savings could be achieved with an estimated \$1.0 billion

investment. Tools such as the PA enable energy staff to quickly and accurately evaluate energy-saving alternatives to capitalize on available funding mechanisms. There are other benefits to the PA program in addition to quick, accurate, and consistent project preparation. PA will allow accurate "what-if" analyses of individual conservation opportunities within a building or set of buildings. It can be used to evaluate Energy Savings Performance Contracting (ESPC) and Utility Energy Service Contract proposals for estimated energy/cost savings.

Status

The product of upgrade efforts now underway will be a revised PA containing 14 additional ECOs/WCOs (water conservation opportunities) in addition to the existing three lighting ECOs. Technologies to be added include gas furnaces, motors, single-loop digital controls, direct digital controls, chiller replacement, and water conservation. The software will be made available for incorporation in a future version of the Construction Criteria Base (CCB) as well as remain on CERL's web site. Completion of the upgrade is scheduled for August 1999.

Point of Contact

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