

Public Works

Digest

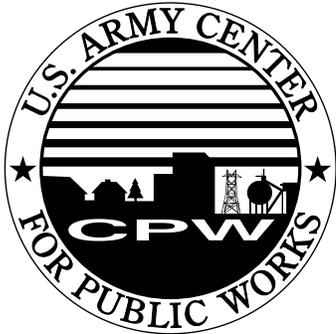
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In This Issue...

**Discovering
new ways to
manage energy**





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'Champions' pick up energy-saving tools at conference

by Richard H. Brown

You have to have a champion on your installation, or it's not going to get done."

Quaiser Toor was preaching these words to the choir, and he knew it. Toor, who works in the Utilities Branch at ACSIM, was part of the Army-unique wrap-up at this year's DoD Energy Managers Conference, held September 9-13 in Milwaukee.

The energy managers in the audience were the "champions" from the MACOM and installation world who had come to Milwaukee to pick up a few tools for the hard work of championing energy conservation back home.

CPW and ACSIM had put together this final morning of the conference for Army energy managers, who had spent the previous four days like sponges, soaking up all they could from DoD, Air Force, Navy and Marine Corps energy managers — and especially from each other.

More than 200 energy managers from around the world attended the conference, which was held in conjunction with the International Energy and Environmental Congress.

"The workshops this week are designed to provide you with tools to do your jobs harder, better, faster," said Millard Carr on the opening Monday. Carr, the Director of Energy and Engineering at the Office of the Assistant Secretary of Defense for Economic Security, also had a timely word of advice for something very much on the minds of DoD energy managers:

★ **"How do you get the commander involved? Money, money, money."**

The money "tool" that seemed to impress the energy managers the most was Energy Savings Performance Contracts.

ESPC is a contract in which the contractor may identify, finance, design,

implement, operate, maintain, and own infrastructure improvements that improve energy efficiency.

According to Satish Sharma, chief of the Utilities Branch at ACSIM, ESPC contracts offer installations an excellent opportunity to:

- **Modernize** — get expertise from the private sector on board. They can tell you where the latest technology can help you get the highest return on your scarce energy dollars.
- **Privatize** — wherever possible, get out of the utility business. Invite the utility companies to come onto your installations and do privatization studies.

"I heard a lot of encouraging success stories on ESPC contracting."

—Drake Gibbs, Taegu, Korea

ESPC was very much on the mind of Robert Jay, the energy coordinator for **US Army Medical Command**.

Jay said this contract might someday enable Army hospitals to better leverage their energy conservation dollars. For instance, hospitals could reduce their lighting load 50 percent with ESPC investment, for a 3-4 year pay-back. ESPC would also enable most hospitals to replace their chillers.

Bobby Starling from US Army Engineering and Support Center, Huntsville, had given a presentation on Areawide ESPC contracts — the first such project is scheduled for award early in calendar year 1997, for an area that includes Virginia, North Carolina, South Carolina and Georgia. (See story on page 9.)

Drake Gibbs planned to pursue overseas ESPC contracts when he got back to Korea. Gibbs is a staff engineer with **19th Theater Area Army Command in Taegu**. His office oversees

energy conservation throughout the peninsula.

"Since they stopped 'fencing' RPMA money in Korea, it's been tough. But I found out since I've been at this conference that we're not alone," Gibbs said. "I see dramatic potential for ESPC contracting in Korea. I intend to work hard to persuade people about ESPC. I got considerable encouragement from vendors here, and I heard a lot of encouraging success stories on ESPC contracting."

Greg Reiff supervises energy conservation programs for the Taegu and Camp Carroll area. Reiff said that getting DoD and Department of Energy perspectives on funding gave him a better idea about how to target his energy efforts.

"I also saw a lot of new technology that I'd like to see put to use in Korea," Reiff said.

Overseas ESPC contracts were also on the mind of Medhi Ghaderi, the energy manager for the **6th Area Support Group in Stuttgart, Germany**.

"For instance, I'd like to use an ESPC contract with a Stateside vendor to get motion and occupancy sensors installed in Germany," Ghaderi said. He had learned from vendors at the conference that these American-made sensors cost only a third of what they cost in Germany.

"And if we dealt directly with an American firm, we could more easily get an ESPC contract."

★ **"There's a synergy that comes out of these get-togethers"**

For Tim Brittain, the energy manager for **Anniston Army Depot**, "some of the most important stuff takes place one-on-one after the meetings and during the breaks.



"There's a synergy that comes out of these get-togethers."

That's how Brittain learned that funding for modernization for boiler systems will come open during the next few years.

"I finally got to meet Ben Hulbert, my MACOM counterpart at Army Materiel Command. I've spoken with him many times on the phone, but there's no substitute for getting together face-to-face," Brittain said. "It was through my face-to-face conversation with Ben that the whole idea of boiler modernization got kick-started. Ben told me about a new funding opportunity, and I got on the phone with my boiler operator the next day."

Stephen Rowley, the energy manager at **Fort Drum, New York**, heard a handy success story from Gary T. Meredith, the energy manager at **Fort**

Knox, Kentucky.

"Gary told me about his success with occupancy sensors, so I decided to give it a try. He even promised to share his guidance specifications with me."

In addition to the "excellent contacts" he made at the conference, Meredith heard a lot of good things about gas chillers.

"I'm going to get in touch with an expert on natural gas chillers as soon as I get back," Meredith said. "Since our electricity rates are highest in the summer time, and natural gas is cheaper in the summer, natural gas chillers sound like a winner to me. So I'm going to get the industry expert to tell me what works and what doesn't."

★ *"I'm encouraged to see proven commercial technologies applied to military facility management."*

Barnard S. Kemter saw several new technologies at the conference that he liked, especially in the area of renewable energy applications. Kemter is energy manager for **88th Regional Support Command**, with duty station in

Columbus, Ohio — his oversight includes US Army Reserve Centers in three states. He also has the additional duty of reviewing Military Construction projects throughout the Army Reserves for energy efficiency.

"I'd love to incorporate some of this technology in my next project," Kemter said. "I'm encouraged to see proven commercial technologies applied to military facility management."

"I'd like to combine wind generators and fuel cells to create a self-sustained Reserve Center the next time we build one, as a showcase or pilot project."

Naresh K. Kapur works in the energy conservation program at **Headquarters, US Army Forces Command**, and he was impressed with the fibre optic lighting he saw in the private sector presentations.

"Fibre optic lighting lasts a long time and does not generate heat," Kapur said. "It's a useful technology for background lighting at places like libraries and museums. It lights things like books and leather goods without damaging them."

"It gives me a valuable option."

Other conference highlights:

- Partnering with local utility companies has been a big success at Aberdeen Proving Ground, Maryland, and White Sands Missile Range, New Mexico. (See story on White Sands Missile Range's partnership with Public Service Company of New Mexico on page 10.)
- Funding for energy conservation — according to Millard Carr, even

though Congress is providing less and less money for this, "we're locked into \$20 million for fiscal year 1997."

- Technological success stories from the field, to include chilled water storage at Fort Jackson, South Carolina; artificial intelligence systems to monitor central heating plant at Twenty-Nine Palms Marine Corps base; and Air Force construction of a wind farm to generate electricity on Ascension Island in the remote South Atlantic.
- Three guidebooks developed by Oak Ridge National Laboratory and housing specialists from the Army and Air Force that will address energy efficiency in family housing. (See story on pages 18-19).

★ *"see our bases as assets"*

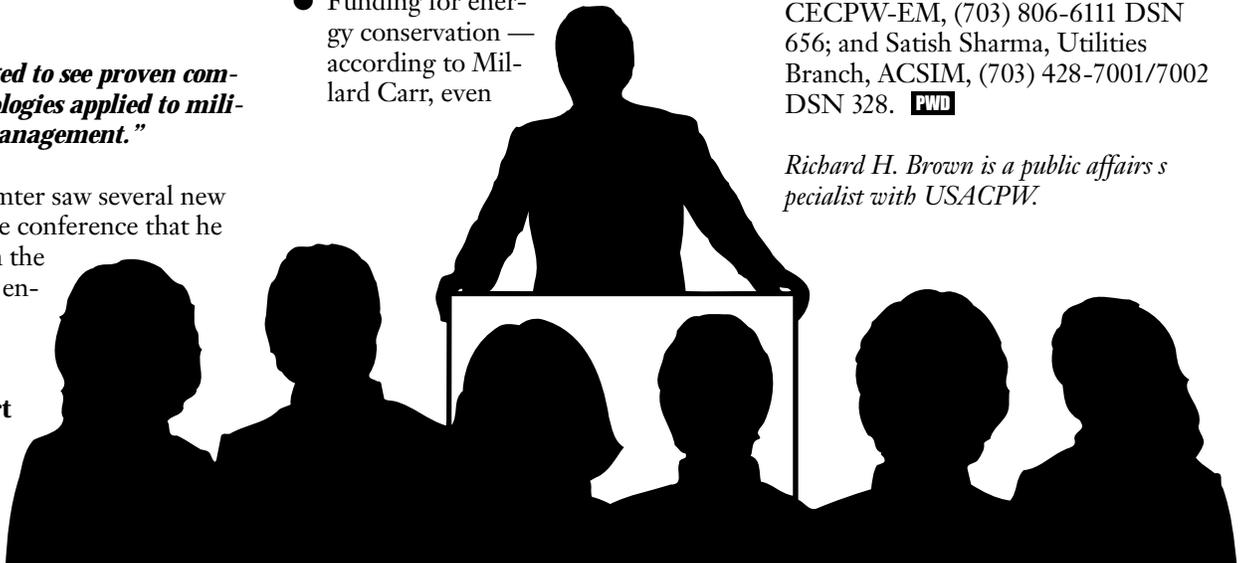
Those who looked for bad news at the conference had no trouble finding it, but for many, the changing times meant opportunity.

"Yes, Congress is providing less and less money for energy conservation," said Millard Carr. "But utility companies are running scared. If you'll recall, up until a few years ago the public utility companies were our enemies, and all we did was negotiate rates."

"We've got a real self-fulfilling opportunity here, and we're going to need a lot more innovation so we can see our bases as assets."

POC is Harry Goradia, CECPW-EM, (703) 806-6111 DSN 656; and Satish Sharma, Utilities Branch, ACSIM, (703) 428-7001/7002 DSN 328. **PWD**

Richard H. Brown is a public affairs specialist with USACPW.





Top energy conservers garner Secretary of the Army honors

The 18th Annual Secretary of the Army Energy Conservation Awards recently honored the Army's best energy conservers for fiscal year 1995.

Winners in the Active Army category included:

- 1st Place: US Army Intelligence Center and Fort Huachuca, Arizona.
- 2nd Place: US Army Garrison, Hawaii.
- 3rd Place: Anniston Army Depot, Alabama.

Army National Guard winners included:

- 1st Place: Nebraska Army National Guard.
- 2nd Place: Massachusetts Army National Guard.

Army Reserve winners included:

- 1st Place: US Army Reserve, Fort McCoy, Wisconsin.
- 2nd Place: 88th Regional Support Command, Fort Snelling, Minnesota.

Active Army

First place honors in the Active Army category went to US Army Intelligence Center and Fort Huachuca, Arizona, which saved approximately \$760,000 in energy and water usage during fiscal year 1995. (For a more detailed account of Fort Huachuca's energy conservation efforts during fiscal year 1995, see story on page 5.)

US Army Garrison, Hawaii won second place honors in the Active Army category. Thanks largely to a strong consumer awareness program, the Army cut its \$25 million annual electrical bill on the island of Oahu by more than \$1.7 million. (See story on page 11.)

Third place honors in the Active Army category went to Anniston Army

Depot, which achieved a 5.6 percent reduction in total energy consumption during fiscal year 1995, for a savings of \$673,000.

The Energy Policy Act requires an installation's energy consumption to be at least 30 percent less than fiscal year 1985 consumption levels by the year 2005. This allows installations to set intermediate annual goals for reduction. Anniston's adjusted energy goal for fiscal year 1995 was 122.07 BTUs per thousand square feet and the actual usage was 118.76 — a 12.8 percent reduction over fiscal year 1985.

Army National Guard

For the second year in a row, the Nebraska Army National Guard won top honors in the Army National Guard category. Nebraska's overall energy consumption for fiscal year 1995 dropped 17.3 percent compared to 1985, the year established as the base-



The Army honors its energy conservationists during a July 31 ceremony at the Pentagon. The 18th Annual Secretary of the Army Energy Conservation Awards recognized winners in the Active Army, Army National Guard and Army Reserves. Representing the Secretary of the Army was Robert M. Walker, Assistant Secretary of the Army (Installations, Logistics, and Environment), fourth from the left, front row.



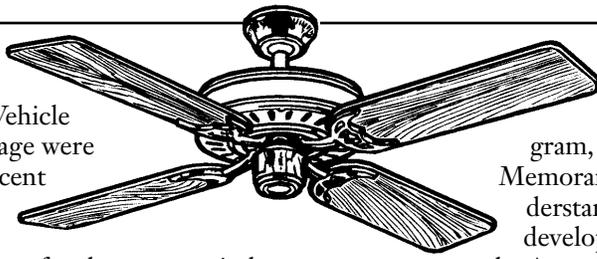
line for the competition. Vehicle and aircraft usage were down 22.2 percent and facility fuel usage was down 2.2 percent for the same period.

According to Chief Warrant Officer Steven L. Weber, supply systems analyst, there are many reasons for Nebraska's success in conserving energy in Guard facilities. "We have replaced windows with energy-efficient windows, replaced lighting with energy-efficient fluorescent lights, lowered ceilings, installed ceiling fans and added a new air cooling system to the Lincoln Armory." Nebraska also installed night set-back thermostats in most of its facilities a few years ago.

Vehicle and aircraft fuel conservation measures include training with computer simulators rather than fuel-consuming vehicles and aircraft, improved fuel accountability procedures, and conducting "lanes" training. "Lanes" training is usually crew-level training in which crews rotate through stations using the same equipment, rather than the larger-scale training exercises of the past which involved all of a unit's equipment.

The Massachusetts National Guard won second place in the Army National Guard category, with conservation measures that included:

- Massachusetts introduced the Green Lights Program in November 1995 for all Guard facilities. Green Lights



is a voluntary five-year program, based on a Memorandum of Understanding (MOU) developed between the Army National

Guard, the Environmental Protection Agency and the State of Massachusetts. Under the MOU, the Guard agreed to upgrade facilities with energy-efficient lighting, while maximizing energy savings, maintaining and improving lighting quality, and ensuring a profitable investment.

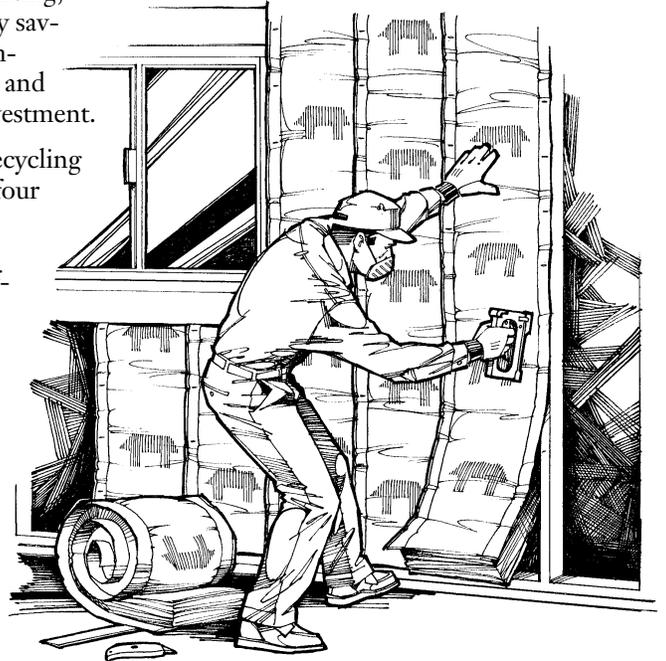
- The Guard initiated a recycling program in 1994 for its four largest facilities, Camp Curtis Guild, United State Property Fiscal Office, Lexington Armory and Framington Armory. The Camp Curtis Guild, Framington Armory and Lexington Armory Recycling Program started in 1995. The program has recycled 100,000 pounds of mixed white paper, computer paper and cardboard, resulting in savings of \$21,500 over a three-year period.
- Twenty-four buildings at Camp Edwards had individual gas meters. By installing one master meter servicing all 24 buildings, the Guard eliminated individual gas meter monthly rental charges and received a lower natural gas rate charge, because the larger volume of gas used qualified the Guard for a bulk rate.

US Army Reserves

Fort McCoy, Wisconsin, won first place in the US Army Reserve category for the second consecutive year. According to Fort McCoy's Utilities Division chief John Ryder, "The majority of our energy costs occur in the heating season. Our major savings

have come from upgrading heating systems by switching to gas heating or adding insulation or more energy-efficient features to buildings."

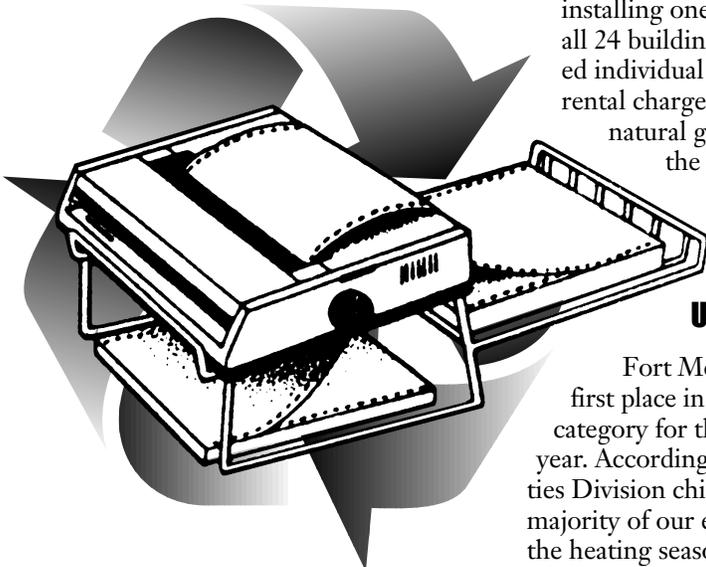
Energy conservation efforts ranged from physically renovating buildings to include more energy-saving features, such as new windows or additional insulation; or insulating new equipment, such as more energy-efficient lighting or computers.



"Renovated buildings provide a more comfortable work environment and better quality of life for post personnel and soldiers training here," Ryder said. "Money saved from energy conservation projects goes back to the post to fund other energy conservation projects. This helps perpetuate savings in the post's energy conservation program."

Energy retrofits during fiscal years 1994-1995 saved Fort McCoy \$144,907 and 20,467 mBtu. That represented a cost savings of 6 percent from fiscal year 1994 figures and a 5 percent savings in mBtu. Ryder said phasing out coal-heating plants and switching liquid propane to natural gas forced-air furnaces also have reduced emissions of sulfur dioxide, nitrous oxide and particulate matter.

Garnering second place honors in the US Army Reserve category was the 88th Regional Support Command at Fort Snelling, Minnesota.





Fort Huachuca wins top Army energy award



Bill Stein

According to Robert M. Sahler, facility management specialist and energy coordinator for the 88th, "We've saved close to 50 percent in kilowatt hours since we've implemented our program, and about 38 percent in natural gas usage."

The 88th had the greatest potential for savings in the area of electricity usage, and this is where they've seen the greatest savings.

Lighting initiatives with timers, motion sensors and lights with lower wattage requirements have helped lower kilowatt/hour consumption, but the single most important change was a variable speed drive for motors that run the air conditioning/handling systems, according to Sahler.

"In the past, these systems would run 365 days a year at full rpms. With the new variable speed drives, the usage is based on demand. When it's hot, the motors work hard, when it's cool they slow down. They are also programmed to turn on and off, depending on whether the building is occupied."

The 88th's headquarters buildings are just the beginning. Sahler's focus is now turning to the Arden Hills, Minnesota, facility and on eastward to the other high-population Reserve centers in the 88th's six-state region.

"The local power company will conduct an energy audit and make recommendations on how we can become more efficient and save money," Sahler said. "Then we'll implement changes at our other facilities."

POCs are Harry Goradia, CECPW-EM, (703) 806-6111 DSN 656; and Satish Sharma, ACSIM Utilities Branch, (703) 428-7001/7002 DSN 328. **PWD**

The US Army Intelligence Center and Fort Huachuca, Arizona, edged out three worldwide competitors to win first place, Active Army Category, in the Secretary of the Army's 18th Annual Energy Conservation Awards. Fort Huachuca had won the most improved award the previous year.

The post saved approximately \$760,000 in energy and water usage during fiscal year 1995.

"Partner units throughout the post were extremely helpful," said installation energy coordinator Bill Stein. "And Craig Hausen, our energy technician, was invaluable during the May on-site inspection. It was a total team effort from the installation."

According to Stein, several conservation projects enabled the post to take the top prize in the Active Army category. High-efficiency lighting was installed in administrative buildings, along with efficient new motors for ten large water well pumps and 67 smaller ones in Greely Hall. Boiler loop controllers, which significantly cut down on heating and hot water usage, and efficient insulation of administrative buildings formerly used as barracks also contributed to the overall energy savings.

In addition to these newer initiatives, ongoing projects such as the Dish-Stirling System, which uses energy from the sun to help power a portion of the post, xeri-scaping and replacing old housing fix-

tures with energy-efficient plumbing were helpful.

"Enforcing the post watering policy for family quarters is also helping," Stein said. "This is an ongoing effort, and we're doing everything possible to conserve our valuable water and energy resources."

But Stein said just because the fort has received top Army recogni-

tion for its efforts does not mean post officials will be doing nothing more to reduce costs. In fact, a contract is close to being awarded to a company which will have a long-term impact on how the post can save more energy and water.

Called a Base-Wide Energy Savings Contract, a company will be given up to 25 years to put in devices and do other work to reduce energy use and costs, Stein said. Whoever wins the contract will be required to do all the work, which will include doing surveys, studies, engineering, obtaining the equipment and installing the items.

"There will not be 'up front' government money," he added.

Currently, the United States Military Academy at West Point, New York, is the only Army installation with such a contract, and Fort Huachuca will be the second one, according to Stein.

POC is Bill Stein, Fort Huachuca Energy coordinator, (520) 533-1861 DSN 821. **PWD**

Story courtesy of US Army Intelligence Center and Fort Huachuca Public Affairs Office.

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Simplify ESPC procedures by establishing and selecting prequalified firms

DOD has an annual qualification process for firms desiring prequalification for future Energy Saving Performance Contracts (ESPC). A list of these prequalified contractors is provided to the services and agencies. Contractors remain prequalified for one year. Contractors who are competitively selected by regulated public utility companies to provide ESPC services shall be considered prequalified.

✓ Contracting procedures for pre-qualified firms:

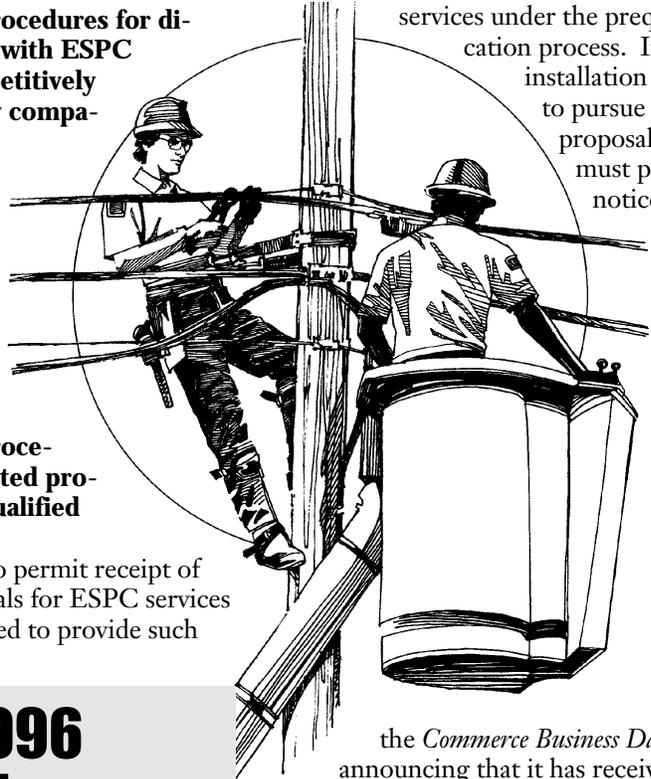
Installations may select at least three or more firms judged to be capable of performing the requirements of a specific project. Upon receipt of proposals, a local review board will evaluate the proposals and recommend a single firm to the contracting officer for negotiations.

✓ Contracting procedures for direct negotiations with ESPC contractors competitively selected by utility companies:

Installations may conduct direct negotiations with ESPC contractors who have been competitively selected by utility companies.

✓ Contracting procedures for unsolicited proposals from prequalified contractors:

Regulations also permit receipt of unsolicited proposals for ESPC services from a firm qualified to provide such



services under the prequalification process. If the installation wants to pursue the proposal, it must place a notice in

the *Commerce Business Daily*, announcing that it has received such a proposal and inviting other similarly qualified firms to submit competing proposals.

Army earns several 1996 Federal Energy and Water Management Awards

The recently announced 1996 Federal Energy and Water Management Awards included several Army winners:

- **Individual — Renewable Energy:** Rene Quinones, energy coordinator, Fort Irwin, California.
- **Individual — Beneficial Landscaping:** John Miller, forester, Fort Huachuca, Arizona.
- **Individual — Special:** Satish Sharma, chief, Utilities Branch, ACSIM.
- **Small Group — Energy Efficiency/Management:** Utilities Division, 411th Base Support Battalion, Heidelberg, Germany.
- **SSCOM's Energy Management Team:** Public Works Directorate, US Army Soldier Systems Command, Natick, Massachusetts.

- **Small Group — Renewable Energy:** Fort Carson, Colorado, and US Army Construction Engineering Research Lab.
- **Organization — Energy Efficiency/Management:** Directorate of Engineering and Housing, 235th Base Support Battalion, Ansbach, Germany; HQ, III Corps and Fort Hood, Texas; Newport Chemical Activity, Newport, Indiana; US Army Armament Research, Development and Engineering Center, Picatinny Arsenal, New Jersey.
- **Organization — Water Conservation:** HQ National Training Center, Fort Irwin, California; Iowa Army Ammunition Plant, Middletown, Iowa; Scranton Army Ammunition Plant, Scranton, Pennsylvania. **PWD**

This authority should allow us to do ESPC in less time, with less implementing costs. Army installations are encouraged to entertain unsolicited proposals and CPW stands ready to help facilitate these projects.

For a complete description of the contracting procedures, see the Department of the Army (DA) Policy Guidance for Army-wide Implementation of Energy Savings Performance Contracts.

- POCs for ESPC are:
- Policy, Qaiser Toor at the Office of the Assistant Chief of Staff for Installation Management, (703) 428-8030 DSN 328, e-mail: toor@pentagon-acsim3.army.mil.
- Implementation, Roger E. Cundiff at the US Army Center for Public Works, (703) 806-6102 DSN 656, e-mail: roger.e.cundiff@cpw01.usace.army.mil. **PWD**



Huntsville awards ESPC and shared energy savings projects

Energy Savings Performance Contracting is a contracting procedure in which a private contractor evaluates, designs, finances, acquires, installs and maintains energy saving equipment for a client, and receives compensation based on the performance of that equipment. The conditions of the contract determine the level of compensation to the contractor, with the remainder of the savings retained by the client.

Current statute allows DoD components to enter into such contracts for facilities owned by the component. This type of contracting provides an alternative method of implementing energy saving projects, when installation resources such as manpower, technical expertise or funding are not available. The Deputy Secretary of Defense, in his 1 March 1991 memorandum, titled *Defense Facilities Energy Management*, directed that each Military Department initiate a minimum of three energy savings performance contracts each fiscal year.

The following ESPC and Shared Energy Savings Projects have been awarded by the US Army Engineering and Support Center, Huntsville:

a. Fort Polk, LA

Description: HVAC retrofit in family housing area (4003 units)
Contract: Awarded 31 Jan 94; contract term = 20 years
Contractor investment = \$17,939,926
Government's projected share of savings = \$ 9,954,974 (22.5%)
Contractor's projected share of savings = \$34,223,679 (77.5%)

b. Fort Stewart, GA

Description: Propane air mixing plant (base-wide peak shaving)
Contract: Awarded 31 Mar 92; contract term = 15 years, with a 5-year option
Contractor investment = \$921,570
Government's projected share of savings = \$4,042,091 (50.5%)
Contractor's projected share of savings = \$3,968,921 (49.5%)

c. Fort McPherson/Fort Gillem, GA

Description: Propane air mixing plant (base-wide peak shaving)
Contract: Awarded 28 Jul 92; contract term = 15 years, with a 5-year option
Contractor investment = \$1,051,000
Government's projected share of savings = \$7,077,969 (71.6%)
Contractor's projected share of savings = \$2,811,852 (28.4%)

d. Aliamanu Military Family Housing, Honolulu, HI

Description: HVAC replacement in family housing plus other energy conservation
Contract: Awarded 7 Feb 91; contract term = 15 years
Contractor investment = \$10,150,088
Government's projected share of savings = \$ 7,841,051 (28%)
Contractor's projected share of savings = \$19,689,758 (72%)

e. Corpus Christi Army Depot, TX

Description: Chiller retrofit
Contract: Awarded 7 Sep 88; contract term = 25 years
Contractor investment = \$755,850
Government's projected share of savings = \$3,460,791 (31.4%)
Contractor's projected share of savings = \$7,572,105 (68.6%)

f. West Point, NY

Description: Base-Wide Energy Savings Performance Contract
Contract: Awarded 27 Nov 95; contract term = 25 years
Estimated maximum contractor investment = \$10,000,000

Savings: To be determined in individual task orders awarded under the contract.

g. SAGE Complex, Syracuse, NY (Fort Drum) Barnes Building, Boston, MA (Fort Dix)

Description: Base-Wide Energy Savings Performance Contract
Contract: Awarded 27 Nov 95; contract term = 15 years
Estimated maximum contractor investment = \$3,500,000

Savings: To be determined in individual task orders awarded under the contract.

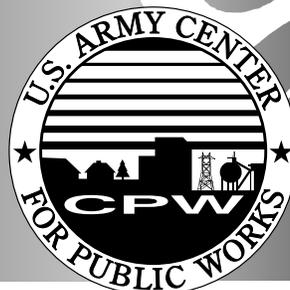
☎ The points of contact for ESPC are:

- For policy, Qaiser Toor at the Office of the Assistant Chief of Staff for Installation Management, (703) 428-8030 DSN 328, e-mail: toor@pentagon-acsim3.army.mil.
- For implementation, Roger E. Cundiff at the US Army Center for Public Works, (703) 806-6102 DSN 656, e-mail: roger.e.cundiff@cpw01.usace.army.mil. **PWD**

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Renewable energy sources conserve natural resources and installation dollars

The Army has an active interest in renewable energy sources — these include solar, geothermal, wind, and biomass sources. This technology will allow us to not only conserve irreplaceable natural resources, but also help conserve Army installation resources (money and manpower).

Although not all renewable energy options are universally attractive, almost all Army installations would benefit from at least one of the initiatives.

In one form or another, all of the renewable options have been applied at some installation. Unfortunately, not all of them have been totally successful. High installation and maintenance cost, poor or non-existent payback, or short life have resulted in a negative view of some renewable applications. However, there have been success stories as well.

For example, the Army has been implementing geothermal projects in the form of ground-coupled heat pumps (GCHP) for the past ten years. These have typically been of residential size, but higher capacity models are available.

The installation cost of GCHP has been more expensive than for more common-place heating and cooling systems, but in the last few years, installation prices have been coming down. Even when more expensive, the life-cycle cost and payback have been attractive.

Ground-coupled heat pumps are generally practical anywhere an air-to-air unit would be installed and in some applications where an air-

to-air unit would not be effective. While earth conditions will affect installation and economics, a 3- to 5-year payback is not an unrealistic goal.

We're also working on applications of solar energy, in the form of photovoltaic sources, which can provide reliable, cost-effective electricity. When the alternative is installation of a new power line to service a small load, the frequent replacement of expensive batteries, or the provision of a generator with the necessity of hauling fuel, photovoltaic applications can prove very attractive.

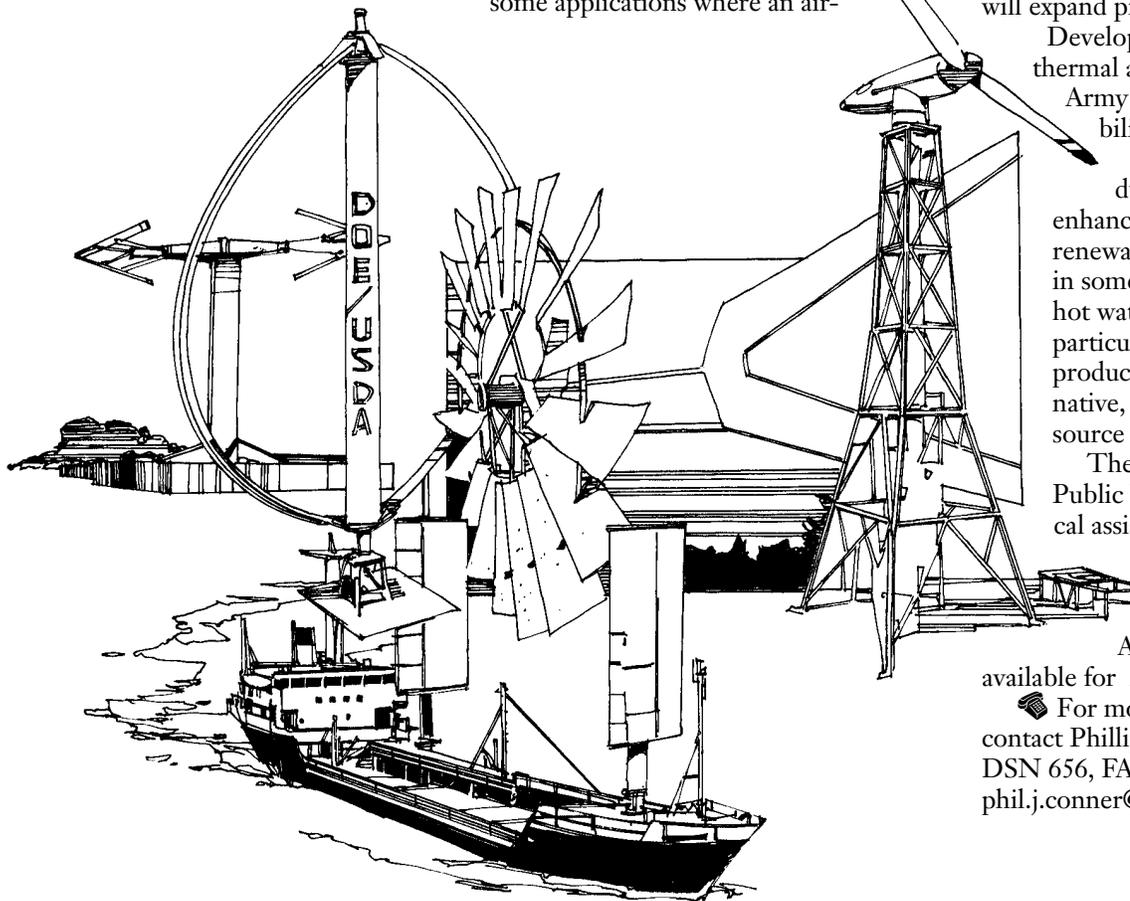
While locations remote from commercial power are generally the most frequently-considered application of photovoltaic power, other small power applications in close proximity to commercial power may also prove attractive. Ongoing development of more efficient, lower-cost photovoltaic modules will expand practical applications.

Development of wind and solar thermal applications within the Army has been slowed by reliability and cost considerations. However, cost reductions and reliability enhancements may make these renewable energy sources viable in some applications. Domestic hot water can be practical today, particularly where electrically-produced hot water is the alternative, or where no other energy source is available.

The US Army Center for Public Works can provide technical assistance in the evaluation of projects involving renewable energy sources. In some cases, Army funding may be available for renewable energy projects.

For more information, please contact Phillip Conner, (703) 806-6068 DSN 656, FAX: (703) 806-5220, e-mail: phil.j.conner@cpw01.usace.army.mil.

PWD





Energy savings performance contract for four-state area

by Robert E. DiMichele

A lot of needs compete for the scarce resources necessary to keep a military installation running—personnel, training, maintenance and energy, just to name a few.

The US Army Engineering and Support Center, Huntsville, is making it easier to address energy costs at military installations throughout a four-state area in the Southeast. The Huntsville Center is well on the way to providing an energy savings performance contract (ESPC) for installations and government facilities in Virginia, North Carolina, South Carolina, and Georgia.

An ESPC is an innovative partnership among the Corps of Engineers' Huntsville Center, a military installation, and private industry. In this type of partnership, the contractor provides the design, capital investment, construction, and operation and maintenance for new energy efficient equipment, products, or services.

With an ESPC, an installation no longer has to come up with dwindling defense dollars to repair and maintain resources needed to reduce energy consumption. The contractor provides the investment needed for the resources and then receives a profit from the energy savings the project generates. The resulting cost avoidance is shared by the government and the contractor.

"It's a win-win situation," emphasized Bobby Starling, the Huntsville Center's energy program manager. "This is an example of the government working a lot smarter and more efficiently."

The ESPC is not a new idea in itself. The concept was put into public law back in 1986 and has had its effectiveness proven by a pilot program at Corpus Christi Army Depot, Texas, and through completed projects at installations like Fort McPherson, Georgia; Fort Polk, Louisiana; and Fort Stewart, Georgia. Funding in fiscal 1996 for this program reached \$4 million at the Huntsville Center.

What's new is the contracting methodology. It makes an innovative,

cost-avoidance program easier to reach for an installation. There will be a 25-year contract term with a 10-year ordering period for a potential \$350 million. That means it is a stable contract that will allow private industry the opportunity to come into an installation and make major energy conservation efforts over the long term.

"An ESPC is an innovative partnership among the Corps of Engineers' Huntsville Center, a military installation, and private industry."

From this single solicitation, the Huntsville Center's Energy Team will make multiple awards. The intent is to award six contracts, five unrestricted plus one set-aside for small business. This is important because of the scope of the contract.

Army installations in the four states, plus any or all other federal and state government facilities in those states, can participate in the contract. Therefore, several contractors will be needed to maintain responsiveness to installation needs. To date, interest in the contract comes from such recognizable names as Virginia Power, Honeywell, and the Carrier Corporation.

Also, responsiveness will come from the task orders issued through the contract. These task orders need not be competed. So, a firm fixed-price energy project can be issued quickly for any installation in the covered area because of the Huntsville Center's contracting mechanism that is already in place.

"We can maintain a broad discretion on the selection of a contractor for a specific task order at an installation," said Starling. "This type of contract gives us some wide latitude so that we can efficiently address our customers

needs. We'll look at the project's location, the contractor's past performance, and many quality factors when placing an installation's order for an energy conservation opportunity."

Once Huntsville's Energy Team issues the task order, it can manage the contract throughout its life cycle or, if the installation so desires, it could be transferred to the installation for management.

Again, it is the contractor who carries the burden of the hard work to carry the project to fruition. Such requirements as site investigations, feasibility studies, project designs, and construction and operation for an energy conservation measure are handled by the contractor. For example, at Fort Polk, a contractor installed ground-source heat pumps for 4,003 family housing units without any capital investment from the installation. The installation or government agency simply has to offer its records and sites up for research and allow some access to its employee knowledge base.

The contract works under a very simple plan, according to Starling, "We're talking real savings. No savings, no payment." Annual payments to the contractor will not exceed the actual energy and ancillary cost savings. In fact, an annual energy audit has to be conducted to verify savings and ensure all payments are accurate based on the energy baseline, projected energy use, and savings measurement method identified in the Energy Team's task order."

The four-state ESPC is expected to be awarded in January 1997.

"This is an opportunity for installations and government agencies to save money for other programs that substantially affect their missions," Starling emphasized.

POC is Bobby Starling, energy program manager, ((205) 895-1531. **PWD**

Robert E. DiMichele is a public affairs officer at the US Army Engineering and Support Center, Huntsville, Alabama, (205) 895-1691.



White Sands Missile Range partners with local utility

Public Service Company of New Mexico (PNM) and White Sands Missile Range signed an agreement July 2 launching a comprehensive utility energy efficiency program that will save taxpayers an estimated \$2.8 million per year in reduced electric and water consumption.

"The ongoing drought in New Mexico has focused our attention on the conservation of our energy and water resources. This agreement will help PNM and White Sands more easily acquire the devices necessary to conserve energy, and save millions of taxpayer dollars in the process," US Senator Pete Domenici said. "This is good for everyone, now and in the long run. If these programs were implemented nationwide, the cost of government would be reduced by as much as \$1 billion a year."

This contract is part of the New Mexico Initiative for federal agencies that was signed between PNM and the General Service Administration in August 1985. The initiative allows federal agencies to work directly with PNM to provide comprehensive gas, electric and water conservation and efficiency services.

"PNM Energy Services will be using the latest in state-of-the-art technology to make these energy measures a reality," said PNM President and CEO Ben Montoya. "PNM is in a unique position to enter into these types of energy management partnerships since our company is already in the business of providing gas, electric, and water services to New Mexicans."

"PNM will be ready to start a feasibility study pursuant to the signing of this contract," said Phyllis Bourque, senior vice president of PNM Energy Services Business Unit. Bourque said she believes the project is an example of programs that could benefit other government agencies as well.

According to White Sands energy coordinator Julian T. Delgado, the New Mexico Initiative is a first-of-a-kind, customized utility program for delivery of the "Total Solution," which includes energy and water conservation and efficiency improvements and other utility-related services to all federal agencies in New Mexico by working directly with

Public Service Company of New Mexico. The benefits of the program include:

- Results in base operations cost savings.
- Helps to attain fiscal year 2005 energy reduction goal.
- Enhances mission capabilities
- Increases competitive advantage of services offered.
- Ensures self reliance and sustainability.
- Modernizes utility infrastructure.
- Complies with environmental/energy regulations.
- Places White Sands in national leadership role.
- Creates showcase model for federal DoD facilities.
- Improves quality of life.
- Leverages government and private sector resources.
- Expands job/retraining opportunities.
- Optimizes use of information highway.

With an investment level of \$15.1 million for a construction period of 2.5-3 years, the potential for White Sands is clear. The post's potential savings total \$9 million over the life of the contract, with between \$400,000-500,000 in income per year to White Sands, and options on how to use the energy savings.

"We hope to start realizing energy savings from this agreement with PNM within the year," said post Commander Brig. Gen. Jerry L. Laws. "The savings will be realized from a \$15.1 million investment, which we will pay off with generated energy savings."

POC is Julian T. Delgado, energy manager, White Sands Missile Range, (505) 678-2792; e-mail: jdelgado@wsm37.wsmr.army.mil

Story courtesy of the White Sands Missile Range Public Affairs Office.

Energy Audit and Retrofit Program succeeds

Back in February 1995, the Army awarded a contract for lighting, motor, and steam trap audit and retrofit services at CONUS Army installations. Since that time, the Army has done lighting audits in over 18 million square feet of buildings, surveyed motors and steam traps at 11 installations, and implemented over \$3 million in lighting retrofit projects under that contract. Those projects have a combined projected lifetime savings of \$10 million.

The program's success results from conducting multiple projects at different locations under one contract. This requires less time than to establish individual contracts for each project and establishes competitive prices due to the large volume of work done under a single contract. The process is streamlined by focusing on standard retrofit technologies for specific applications, avoiding conservation

measures that require lengthy analysis or design.

When first established, the program was centrally funded with

DoD Federal Energy Management Program funds. Installation DPWs identified requirements and MACOM energy coordinators prioritized them. Now, most work done under the contract is at sites as requested and funded by customers. Installation DPWs may use the contract to execute audit and retrofit projects at their facilities.

The contract is for one year with an option for a second year, which has already been exercised. In order to continue the program, CPW intends to have another contract with expanded services in effect upon expiration of the current contract.

For more information, please contact Jim Paton of the Mechanical and Energy Division at (703) 806-6091 DSN 656 or e-mail: jim.b.paton@cpw01.usace.army.mil



Schofield Barracks wins Army Energy Conservation Award

by Leslie Ozawa

Thanks largely to a strong consumer awareness program, the Army cut its \$25 million annual electrical bill on Oahu by over \$1.7 million. For this outstanding achievement, the US Army Garrison, Hawaii (Schofield Barracks), won 2nd place in the 1995 Secretary of the Army Energy Conservation Award program. Garrison energy manager Scott Bly received the award at a July 31 ceremony at the Pentagon in Washington, D.C.

"We're glad to get this award in that it helps perpetuate the awareness about energy conservation," said Bly. "Engineers tend to think more about using technology to reduce electrical costs, but this shows consumer awareness is very important. People turning off lights and being careful about how they use electricity can really make the largest difference," said Bly.

"We started a number of engineering projects in 1995, like switching off the lights on vending machines and improving maintenance," said Bly. "But most of the major initiatives didn't really happen until this fiscal year (starting in October 1995). So most of the energy savings we realized last year are due to public awareness."

The consumer awareness campaign included placing energy conservation inserts and articles in the post newspaper and newsletters. For Energy Awareness Month in October, Bly distributed education materials from the Hawaiian Electric Company to public schools located on Army installations on Oahu. He also arranged to broadcast videos on energy conservation on the Army closed circuit cable television channel.

The only extra expenses the Army paid to reap the energy savings was \$3,000 to purchase 12,000 stickers to distribute to tactical units and public schools on Army installations. The stickers are placed on light switches to remind people to turn off the lights.

In Army offices, building monitors and unit energy coordinators help with

fire regulations are being retrofitted with LED lights. An LED sign uses \$2 annually in electricity, compared to \$40 in a conventional sign.

The Army is actively involved in the

Hawaiian Electric rebate program that encourages the use of more energy-efficient equipment. The Army is getting a \$200,000 rebate for installing heat pumps in the Helemano housing area, \$100,000 for replacing the fluorescent lights at Fort Shafter, and another \$16,000 for installing highly-efficient chillers in soldier barracks. These monies will be reinvested in the energy conservation program.

In another program, the Army is now looking over proposals from private contractors to install more energy-efficient water heaters, lights and air-conditioning in the barracks. Under this program, a contractor will pay for installing and maintaining more energy-efficient equipment. Savings in utility bills are shared between the Army and the contractor, who pays for his costs and earns his profit through the savings realized over the life of the project, typically 20 years.

"1995 was the first year we had a full-time position devoted to energy conservation," said Bly, who has been the garrison's energy manager for about 18 months. Bly is confident of winning the energy conservation award next year. The work is more challenging, as quality of life projects like installing air conditioners raise electrical consumption. However, as projects started last year are completed and new projects get on line, combined with a stronger awareness campaign, "We think we'll win hands down," said Bly. "But it's our environment that ultimately wins."

POC is Scott Bly, energy manager, US Army Garrison, Hawaii, (808) 655-6383. **PWD**

"It's our environment that ultimately wins."

—Scott Bly, Energy Manager



Scott Bly

awareness training, displaying posters, arranging courtesy energy inspections, and supporting building system maintenance. A garrison energy council, composed of the garrison commander and senior leaders and directors, meets quarterly to exchange energy conservation information.

"They've been helpful in pointing out areas that have lights with long burn hours," said Bly. "The older warehouses and offices have inefficient lighting, so this gives us the chance to put in more efficient lighting as well as improve the lighting levels for occupants."

On the engineering front, the garrison has taken several steps. "What we've done are the no-brainers," said Bly. "We're using proven technology." Shutting off the lighting used on the front of vending machines throughout the installation saves about \$24,500 a year. A \$1 million grant from the Federal Energy Management Program was used to retrofit Fort Shafter offices with 30 percent more efficient fluorescent lighting. Lighted exit signs required by

Leslie Ozawa is a public affairs specialist in the Public Affairs Office, US Army Pacific.



Trade-in nets new generators for Prime Power

by Penelope Schmitt



A member of the 249th Engineer Battalion (Prime Power) shows off one of the unit's new 1500 kW generators. (Photo by Richard Brown)

The Prime Power Loan Program added three 1500 kW utility-grade fuel modules to its inventory in August—without spending a dime. The \$1.4 million-worth of equipment was acquired through a trade-in of obsolete equipment.

Mike Hunter, Prime Power Loan Program Manager, led the effort that resulted in the trade. “When I took the program on in 1994, I found that we had 13 Vietnam-era Caterpillar plants in depot storage. It had already been determined in the late 80s that it was prohibitively expensive to upgrade and recondition them.”

At first, it appeared to Hunter that the only option was to turn the equipment in to the Defense Reutilization and Marketing Office. “They would have been able to realize \$300,000 at the most, for equipment that had originally cost almost \$2.2 million,” he said. “What’s more, that money would have been turned in to the US Treasury general fund. It would have been a total loss to the US Army Center for Public Works Prime Power Program.”

Instead, Hunter looked into the potential for trade-in. “I found that federal regulations allow an organization to trade in old equipment as part of the price for new replacements the same as you trade in your old car to help pay for a new one. But in this case, we had no money to purchase new equipment—so we looked to see whether we could make a trade that would be beneficial to us and the government.”

In fact, this approach recaptured more than half the original cost of the generating equipment for the Prime Power Program, and future savings for the Army that could turn the trade into an actual profit-maker. “I would advise any organization that is going to dispose of excess property to think twice about it,” Hunter said. “It could be that what you think is ‘junk’ still has some significant value to you.”

The Center for Public Works placed a note in the *Commerce Business Daily*



249th engineer battalion (Prime Power) receives Superior Unit Award



MG Al Genetti and Ken Green of Wheeler Power Systems, Inc., cut the ribbon on a state-of-the-art digital control panel that operates the new generators. (Photo by Richard Brown)

The 249th Engineer Battalion (Prime Power) received a new ribbon for its guidon this July. MG Al Genetti added the decoration in ceremonies at Fort Belvoir, Virginia, honoring the Battalion with the Superior Unit Award.

In the first year after its activation on November 16, 1994, the unit carried out a host of missions at home and abroad.

Making sure that critical areas overseas have sustained electrical power is an important mission for the 249th. The battalion has continuously sustained electrical power at Soto Cano Air Force Base, Honduras; supported Operation Provide Comfort soldiers with base-camp power for more than a year, and provided assistance to the State Department in Northern Iraq, improving quality of life for the Kurds and keeping critical facilities operating.

The 249th's soldiers made important contributions to Operation Uphold Democracy in Haiti, life support for Cuban refugees in Guantanamo Bay and at Camp Safe Haven in Panama, and power for the Joint Task Force Provide Promise field hospital in Zagreb, Croatia, and hospitals in the former Soviet Union.

Disaster relief is a second major mission for the 249th, whose soldiers are a vital resource in the nation's Federal Response Plan. Hurricanes Luis, Marilyn, and Opal gave the battalion an end-of-year challenge when they blew through the Caribbean in 1995. The battalion performed damage assessments, provided power to critical facilities, and installed emergency generators at dozens of sites.

offering to trade the 13 power plants for new equipment. "Twenty-three companies expressed interest," Hunter said. "At that point, we knew we had something worthwhile to offer. It turned out that the companies were interested in the old generators as good sources of spare parts."

Hunter worked with the Baltimore Area Contracting Office to write a contract specifying the terms of the trade. Wheeler Power Systems, a representative of Caterpillar, Inc., presented the Prime Power Loan Program the three new generators in return for the old equipment.

"These generators are equipped with state-of-the-art electronic controls," Hunter said. "They also meet all current EPA emissions standards." The self-contained generators can be transported on the highway without special permits. "The old ones required several trailers to move them," Hunter said.

The units represent 4.5 megawatts of power generating capacity. Their first assignment? "We will install two units at the Pentagon to supply back-up power for the Pentagon Renovation project. The third will be available through the Prime Power Loan Program for emergency deployments and peak shaving projects."

"Helping US Army installations reduce their electric bills is a major activity of the Prime Power Loan Program," Hunter said. "For example, in 1995 alone we helped Fort Lee save more than \$500,000 and Fort Bliss save more than \$900,000 through peak shaving projects. This equipment will literally generate savings for the Army."

POC is Mike Hunter, CECPW-M-LP, (703) 805-2239 DSN 655. **PWD**

Penelope Schmitt is the chief of the DPW Liaison Office.



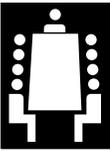
*Members of the 249th Engineer Battalion (Prime Power) pictured with new equipment they will use in worldwide power support deployments.
(Photos by Richard Brown)*

The 249th also supported military missions, including Exercise Bright Star, with base camp power for 5,500 soldiers, and provided more than \$500,000 worth of assistance to Army installations around the world.

During its short history, the 249th Engineer Battalion (Prime Power) has proven itself an important element in the force structure. Its soldiers, deployed worldwide, maintain a high state of individual and unit readiness. Since the period for which the battalion was recognized with the Superior Unit Award, Prime Power soldiers have continued to support many activities around the world, including base camps for American troops in Bosnia, and disaster relief to eastern states hard-hit by Hurricane Fran. **PWD**



MG Al Genetti and LTC John Rivenburgh attach the Superior Unit Award ribbon to the 249th's guidon.



Installation Management

CPW's Home Page—something for everyone

The US Army Center for Public Works' Home Page is geared toward installation support. It has something for everyone. There are many libraries with downloadable word processing files that users can customize to their individual installation needs, including:

- Standard Operating Procedures for the DPW work processes.
- Job descriptions.
- Contract support guides and contract statements of work.
- Training information.
- Real Property/Master Planning instruction.
- IFS-M and Work Management modules.
- Answers to questions on roofing issues.

Ever need a copy of an article in the **Public Works Digest**? No problem. Most of CPW's publications, including the **Public Works Digest**, **DPW Forum**, **SAV Bulletin**, **JOCKey**, **Visions**, **Red**

Book, IFS-M User Manuals and the **Gray Book**, are available on our home page. In addition, there are phone books, a bulletin board with job announcements, training schedules, conference and workshop information and a guest book. Even the latest HQEIS software is available for downloading as well as information about the DDS.

We are constantly working on improving our home page by adding features asked for by installations. We recently added a search mechanism that allows users to search for specific information available on the CPW web server. Our newest feature is a Chat Room, which promotes sharing of information

and provides a forum for getting questions resolved.

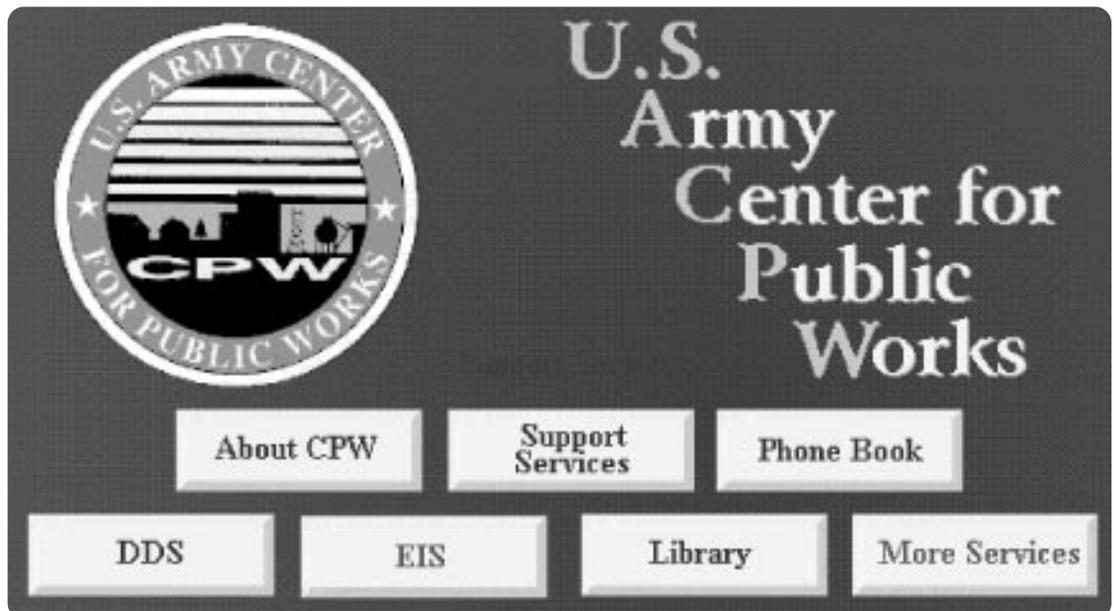
In the next few months, we will be making some major changes. The first will be a new look for our home page, which will include the new Corps banner in accordance with headquarters requirements. We're also putting emphasis on a user-friendly environment. This involves providing a point of contact page with e-mail links and phone listings.

We're currently working on a page of available programs and services with links to more information. There will be a database listing of contract services available through CPW. So if you haven't checked out our home page yet, now is a good time to do some surfing.

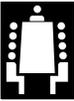
The CPW Home Page address is <http://www.usacpw.belvoir.army.mil>.

POC is Brigid O'Connor, CECPW-FM, (703) 428-8455 DSN 328. **PWD**

Here is what the CPW Home Page looks like today (right). We are currently working on a new design based on the new look of the Corps' Home Page (below).



Welcome to the US Army Corps of Engineers



Waiver on project orders approved

On 17 September 1996, Secretary Perry approved our waiver on the use of project orders. The Acting Chief of Engineers signed a letter on 18 September 1996 to all USACE Commanders/Directors lifting the previously-imposed suspension. As a result, we may now execute such orders in accordance with ER 37-1-26, 30 July 1993, Subject: Acceptance and Use of

Project Orders.

The DoD waiver of DoDI 7220.1 (Regulations Governing the Use of Project Orders) is truly good news for all US Army Corps of Engineers customers (installations/MACOMs). It relieves the administrative burden of turning monies in at the end of the fiscal year for incomplete work and then reissuing a new funding document at

the beginning of the next fiscal year.

However, it is important to note that the Corps and its customers must play by the rules—the projects must be done in-house, with a defined scope, and start within 90 days of receipt of the project order.

POC is Dale Ringer, (202) 761-0658. **PWD**

CPW PROFILE *by Alexandra K. Stakhiv*

After receiving a master's degree in mechanical engineering from Pennsylvania State University, Kevin McCulla began his career as a TRADOC intern at Fort Lee, Virginia. In 1986, he went to Fort Sill as the chief of the Engineering Resource and Management Division, and by 1990, he was back in the Washington, D.C., area working in EHSC's Directorate of Power Procurement.

Today, he's CPW's team leader on utility privatizations for utility contracting for all Army installations. "I recently helped Fort Dix to get their utility company to replace the old, leaky, and deteriorated heating system by negotiating a new contract," said Kevin. "If you need help with negotiations on privatizing your utility systems, please call me."

During the past year, Kevin worked on the staff of the Office of the Secretary of Defense as a participant in the Senior Executive Developmental Program for Engineers and Scientists (CP18). He helped seven installations (Tooele, Pueblo, Camp Parks, Ogden, Tracey, Sharpe, and Yuma) retain their hydro-electric allocations, which they receive from the Western Area Power Authority via Corps-operated dams. His integrated resource plan, which shows how the Army is "prudently" using the resource by implementing energy conservation measures, will result in a yearly cost avoidance of \$2.5 million. Next on the list is a resource plan for Southwest Power at Fort Sill and McAlester Army Ammunition Plant.

Kevin also wrote a report for Congress, titled "Procurement of Electricity from the Most Economical Source," to determine the most cost-effective way to buy energy for all of DoD. In it, he cites all the rules and regulations that

Kevin McCulla Directorate of Army Power Procurement



(Photo by Richard Brown.)

would have to be changed and asks for a model program with authority for test sites.

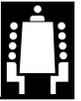
Thanks to Kevin's efforts, two installations will soon be reaping the benefits of programs designed to conserve energy and save money. At Fort Lee, 138 housing residents will enjoy energy-efficient new homes, where Corps of Engineers' construction standards were upgraded to meet the standards in the Environmental Protection Agency's (EPA) five-star energy home program. At Fort Riley, geothermal heat pumps will be installed instead of standard-designed Corps of Engineers heating systems.

"The difference in cost is being funded by OSD, which is going to monitor the projects to see if it's worth changing the Corps' specifications," said Kevin. "Each of these projects would cost about \$20 million if done in the traditional manner. The difference in the

cost to install the geothermal heat pumps and to meet the stricter EPA standards is about \$1 million each, which is minimal compared to the benefits."

"My role in these projects was to defend them to OSD and gain the additional funding as well as to see if the return on investment is worth the extra expense. The money has already been transferred from OSD to the Army and will be awarded in October 1996. After working on these projects for so long, it will be difficult to let go. I hope to oversee them and write a final report on their progress for OSD."

In July, Kevin completed the two-year Army War College Program. An avid golfer, he played on the Commandant's team at the War College. "We came in third," he said proudly. You may reach Kevin at (703) 428-7364 DSN 328. **PWD**



Supply chief works for Alaska's three posts

The Equipment and Supply Department at Fort Richardson has evolved into an effective working unit that is providing excellent service to the Directorate of Public Works and the military community.

The supply chief is the accountable officer for the stock records accounts at all three installations in Alaska. The supply function consists of traditional responsibilities such as material management, material handling, property book, and self-help. It also consists of non-traditional responsibilities such as mobile equipment repair, a machine shop, a welding shop, a sheet metal shop, and petroleum pipeline maintenance operation.

An equipment specialist totally manages the construction equipment program which includes the GSA vehicle fleet, all equipment rentals, and the au-

thorization/acquisition process.

This position serves all three posts in Alaska.

The supply operation at Fort Wainwright does not include a maintenance function, and the supply operation at Fort Greely does not include a maintenance function or self-help. The present organizational structure evolved from past commercial activity reviews, retirement of a senior foreman, and efforts to fully develop a public works concept of operation and to realize cost savings from combining certain logistics and maintenance functions.

The petroleum pipeline maintenance operation has been doing reimbursable work in Alaska for the Defense Fuels Supply Center for the past two years. That work was originally solicited to determine whether or not public works could effectively perform reimbursable work for an outside agency. Defense Fuels Supply Center is pleased with the work results and continues to solicit public works services.

In the Mobile Equipment Repair Operation, the supply chief assumes responsibility for keeping the construction equipment fleet operational. This process fixes total responsibility and results in a well-maintained, ready-to-operate fleet of equipment.

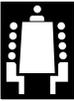
POC is Ernest E. Woody, chief, Equipment and Supply Division, Fort Richardson, Alaska, (907) 384-3630 DSN 317. **PWD**

New contractor to handle JOC hotline

U.S. Cost Inc. (USC) is the new contractor supporting the Job Order Contracting (JOC) hotline. USC currently provides hotline support for all government JOC users at 1-800-624-4307. The hotline is available to users from 0900 through 1800 hours (Eastern time) with 24-hour message capability. You may FAX questions to (703) 415-0836 anytime.

USC can answer questions related to the JOC Unit Price Book and the JOC Proposal Development System (JOC PDS) software. However, JOC policy and program questions should still be addressed to Lu Lillie, OACSIM, at (703) 428-7616 DSN 328.

If you need to order site-specific JOC Unit Price Books, please call Tim Sweeney, US Army Center for Public Works, at (703) 428-8184 DSN 328. **PWD**



Guidebooks for military family housing

by Mark P. Ternes

As the Army and Air Force upgrade existing family housing through new construction and revitalization, their goal is to meet future housing needs and provide housing quality comparable to what's available in the private sector. But efforts to upgrade family housing also create opportunities to improve the energy efficiency of these units.

And what about family housing that won't be revitalized any time soon? Retrofit programs directed exclusively at weatherizing aim to improve the energy efficiency of all family housing.

The Oak Ridge National Laboratory (ORNL) is working with housing specialists from the Army and the Air Force to develop three guidebooks that will:

- Address energy efficiency in family housing.
- Help the Air Force and the Army meet reductions in energy consumption mandated by the Energy Policy Act of 1992.

Oak Ridge has prepared a design guide for architectural and engineering firms commissioned to develop new construction and revitalization plans. We are also developing a retrofit program guide for Air Force and Army in-

stallation personnel, which establishes a comprehensive approach to weatherization for housing that will not be completely revitalized in the near future. And we will be writing a quality assurance, post-inspection guide for installation inspectors and contracting officers to ensure proper implementation of the previous two guides.

ORNL's field inspections at four military installations verified the need for these guides (see *Energy Efficiency in Military Family Housing: Inspection Results*, ORNL/TM-12692, Oak Ridge National Laboratory, and *Energy-Efficiency Evaluation of the Housing Community Plan Developed for Shaw Air Force Base*, ORNL/TM-12033). Recently revitalized family housing units were found to have the same types of construction flaws as units awaiting revitalization, indicating that current prescriptive standards alone do not ensure energy efficiency is achieved in new construction or revitalization projects.

Typical energy deficiencies included:

- Incomplete insulation coverage because of poorly-defined thermal boundaries and inadequate installation.
- Significant air distribution system leakage due to deterioration and poor system design.
- Selection of efficiency levels for heating and cooling equipment and other appliances that are not optimal for the given climate.

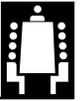
Installation housing also has unique problems that can seriously impact energy consumption. Although energy efficiency projects had previously been performed in family housing, ORNL observed that a comprehensive approach to weatherization had not been applied.

The design guide provides architectural and engineering firms with necessary information, as well as analytical tools that will enable the designer to make prudent and cost-effective decisions regarding the type and extent of energy-efficient measures to be implemented during new construction — or as part of the revitalization process. The Air Force distributed the design guide throughout its major commands in May.

In revitalization projects, the guide requires the designer to perform site inspections of existing housing to identify energy deficiencies. The guide also requires the designer to:

- Identify the thermal boundary of the housing unit and use civilian energy service providers to measure house and air distribution system leakage rates and identify leakage sites.
- Use procedures provided in the design guide to analyze and select among the various energy-efficient actions available.
- Use graphs to estimate savings of efficiency measures and manually complete tables to estimate cost effectiveness.
- Use specifications in the design guide to supplement industry standards and ensure that windows, heating and cooling equipment, air distribution systems, and infiltration mitigation measures are properly selected and installed.





USARC contracting for environmental management

by George Cromwell

Under a separate project being funded by the Construction Engineering Research Laboratory, the site inspection forms and analysis tables are being computerized to standardize military family housing audits, which will also make the design guide easier to use.

In new construction projects, emphasis is placed on defining the thermal boundary of the new housing unit and using current prescriptive standards (COSTSAVR and the Army's current version of *Architectural and Engineering Instructions Design Criteria*) to select the appropriate levels of insulation and equipment efficiencies. Performance standards for house and air distribution system air leakage are also required.

The retrofit program guide establishes a retrofit process similar to state, utility and other civilian weatherization programs to select and specify appropriate energy-efficiency measures for existing family housing. The auditing and analysis procedures parallel those outlined in the design guide. The guide also establishes an action plan for securing funds and implementing recommended measures. The guide recommends the use of energy service providers to execute initial inspection and diagnostics, perform analysis, and select retrofit measures. The retrofit guide has been field tested at Wright-Patterson Air Base, Ohio, and Fort Hood, Texas, and will be completed this summer.

The quality assurance guide will outline review activities to be performed by the contracting officer and/or construction inspector to ensure that the architectural and engineering firm thoroughly evaluated energy efficiency options for new construction and revitalization projects, and that housing units pass the specified infiltration and air distribution performance tests. The guide will also outline construction inspection procedures to ensure that energy efficiency measures are properly installed. Development of this guide has just been initiated, and is expected to be completed by the end of the year.

 Air Force POC is Roberto Castellanos, (703) 697-0157 DSN 227. Army POCs are Dick Hentz, (703) 428-8936 DSN 328, and Derya Smith, (703) 428-8013 DSN 328, e-mail — smithd@pentagon-acsim3.army.mil. 

HQDA is giving renewed emphasis to the Commercial Activities Program and the concepts of privatizing and contracting-out, especially in the logistics and public works areas.

The US Army Reserve Command (USARC) has a very successful environmental management program for its 10 Regional Support Command (RSC) "installations." (The RSC Engineer functions in many ways like a typical installation Director of Public Works.) The command employs a total contract work methodology for accomplishing its environmental management mission, and the work is performed through "task order contracts."

The USARC Headquarters oversight of the environmental management program is accomplished by one Army officer and three civilians who perform requirements identification and quality assurance functions for 13 task order contracts. COR functions are performed by the Environmental Analysis Branch of the Norfolk District, US Army Corps of Engineers. Program implementation at the RSC installations is through a similar process of one to two civilian environmental engineers/specialists providing contract oversight of several contracts, including task order contracts.

This approach allows minimal full time support while continuing to meet

upward reporting requirements, as well as varying State and local requirements. (The USAR has facilities and units in every State, Puerto Rico, and overseas locations).

USARC has an excellent, aggressive program with the capacity to rapidly expand or reduce the "work force" in concert with requirements. The program allows the RSCs to tap specific state expertise easily and at low cost.

This helps provide the flexibility to quickly mobilize for a specific issue, resolve that issue, and demobilize the contract support. The command is responsible for facilities in the 48 contiguous states and Puerto Rico and has been able to accomplish high volumes of work quickly with these task order contracts.

The environmental management program is sometimes sensitive and sometimes has significant legal impacts. USARC has reported that their use of contracts has helped to resolve quickly all issues addressed by regulators. They have had no cases of any compromise of government proprietary information.

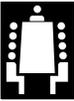
Supporting contractors have displayed a dedication to the protection of the environment and provision of excellent service.

The environmental management contract methodology is part of the major program management and support provided by Norfolk District of the US Army Corps of Engineers. (Similar support is available for BASOPS/Installation Management.) For more information about task order contracts for environmental management, including lessons learned, please contact LTC Michael Adams at USARC HQ, (404) 629-8228; and Jim Melchor at Norfolk District, (757) 441-7766. For an example of the level of detail required, please contact Jim Melchor for a copy of a scope of work. 

George Cromwell works in Facilities Policy Division, Facilities and Housing Directorate, ACSIM.

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Demand side management program becomes more flexible

Recent legislation provides greater flexibility for entering into electrical, gas and water demand side management (DSM) programs with public utility companies. Key incentives for installations include being able to:

- Accept any financial incentives, goods, or services generally available to the public from the utilities.
- Take advantage of published DSM rebates.

- Enter into comprehensive agreements with utilities to design and implement a cost-effective demand and conservation incentive program to meet the unique needs of the installation.

With the new legislation, utility companies can also advance financing costs to an installation under terms no less favorable than those applicable to their most favored customers. These

costs are repaid from funds available for the purchase of utilities services.

For more information on available DSM programs and opportunities, please contact your local public utility company.

POC for DSM is Roger E. Cundiff at the US Army Center for Public Works, (703) 806-6102 DSN 656, e-mail: roger.e.cundiff@cpw01.usace.army.mil. **PWD**

CPW PROFILE by Alexandra K. Stakhiv

It's never too late to start a new career. Just ask John Simmons. After getting out of the Navy in 1968, John spent 14 years doing car body and fender repairs. After nerve damage made his hands too weak for this type of work, he decided to go back to school. In 1986, he graduated from the University of Portland with a degree in business management. A summer job with the North Pacific Division led to a manpower office internship and subsequent move to the Washington, D.C., area.

John joined the staff of the Engineering and Housing Support Center (EHSC) in 1989 as a management analyst. Gradually, he moved from resource to information management, becoming a program analyst and working with standard query language and developing the training and staff assistance visits databases.

Today, John is a computer specialist in CPW's Mechanical and Energy Division. He is working on RADDs (Reporter Army Deis Data System), a project that will help CPW save money and give installations a more user-friendly graphic interface. Converting installations from the "PAX system" to the "batch-mode system" will also enable installations to print their energy reporting data immediately.

"With the PAX system," said John, "installations have to stay on-line with Illinois to do business. So if you're reporting data, you're probably on-line for 20 to 30 minutes. Now multiply that by about 300 installations and you will be paying \$20,000 or more every month for PAX service!"

In the new RADDs, the PC program will reside at the

John Simmons Mechanical and Energy Division



(Photo by Richard Brown.)

installation, enabling it to enter energy data right there and not have to rely on input windows. Installations will have immediate access to reports that show their actual usage so they can better plan their energy resources. "Most important," said John, "with the new system, the installation can be off-line all the time it is using it. At the end of the month, the installation will simply create an export file to send to Headquarters ADDS here at CPW, which will function more or less like a PAX or gathering place.

For the past year, John has been working on the Headquarters ADDS to collect data coming in from the installations. "I'll be creating the M-cards—summaries of energy data reported during the year by about 300 installations—and sending them up to DoD," said John. "DoD will then use this data to create reports that help Congress determine the energy budget needs for installations. Reports will also be set up that allow MACOMs, sub-MACOMs and DoD to perform statistical analyses to determine the savings from energy-related issues."

"The new batch-mode system is up but the PAX will still be in use for a few months while we verify the adequacy of the new system to meet our needs," concluded John. "We are aiming to go on-line in October 1996 and hope to be completely off the PAX system by the end of the year."

When not at his computer, John likes to go sailing and "rock hounding," which is searching for rocks that can be cut and made into jewelry. You may reach him at (703) 806-6066 DSN 656. **PWD**



Battery maintenance—an important component for high performance

by Tuan N. Duong

Batteries have always been critical, but they are often a forgotten link in standby emergency power systems. Although they are designed to function as the last line of defense with an independent power source, batteries have frequently caused many costly failures in emergency systems than any other component. Why? What makes batteries fail? The answer often lies in a lack of understanding of batteries and the importance of their maintenance.

By definition, a battery is a device that converts chemical energy contained in its active materials into electric energy. A battery consists of one or more cells, having a group of alternating positive and negative plates. The electrolyte, a liquid such as water with dissolved salts or acids, provides the medium for transfer of electrons between the anode (negative plate) and cathode (positive plate). Because a battery generates relatively low voltage and current, its condition and performance are highly correlated to every small external change.

A large fluctuation in temperature could seriously affect battery life and performance. Most of us have had experiences with dead car batteries on cold winter days. What really happens is the electrolyte's viscosity doubles as the temperature drops from 77 to 32 degrees, affecting the rate of diffusion of the cell acid through the pores of the plates. The increase in battery internal resistance leaves the battery with very low voltage.

In fact, the electrolyte's viscosity will increase even more rapidly below 23 degrees. Float-current, on the other hand, doubles for every 18-degree increase above the standard 77 degrees. Thus, at 95 degrees, excessive wear on the plates would cut battery life in half.

During charging, some of the water molecules in the electrolyte will break down into hydrogens and oxygens, and

bubble to the surface as gases. This gassing process will result in water loss and a higher acid concentration, which, in turn, causes an accumulation of lead sulfate. This build-up of lead sulfate will gradually insulate the negative plates from interaction with the electrolyte. Thus, water maintenance is the first and single most important step in battery maintenance.

Batteries are also subjected to severe strains due to improper charging. This can cause excessive sulfate crystal build-up and corrosion on the plates, leading to uneven heating and eventual plate buckling. Under or overcharging and discharging or charging a battery at an excessively high current rate are the main causes for plate buckling.

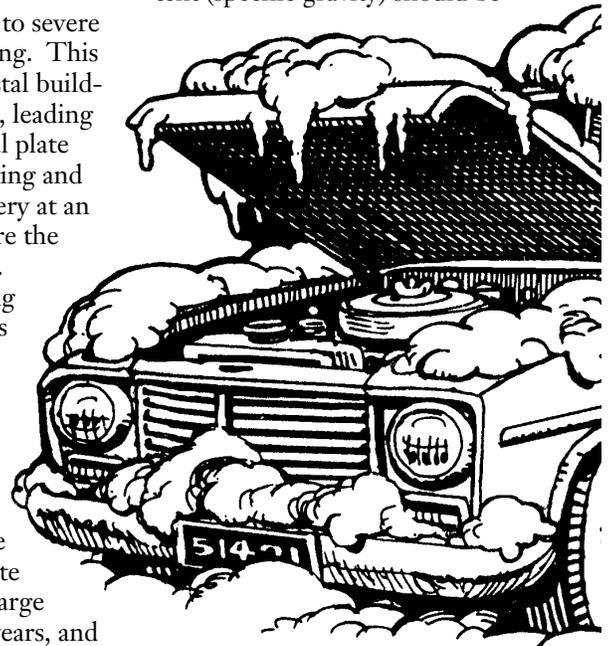
Conventional battery testing includes manual measurements of cell voltage, current and electrolyte specific gravity, along with visual checks of the fluid level, the battery's bank overall condition, any damage or corrosion and its terminal connections. One of the methods widely used to evaluate battery health is to deep-discharge new batteries once every five years, and increasing the frequency as batteries reach the end of their 20-year lives.

Deep discharging measures the amount of power a fully-charged battery is capable of supplying over a specific time period. The advantage of deep discharging is it helps to agitate the electrolyte, which is good for the battery. However, it also tends to reduce battery life.

Internal cell impedance comparison is a new alternative, which constantly monitors and measures cell impedance, temperature and voltage through a computer terminal. The advantage of this method is apparent, since batteries do not need to be taken off line or wait for a period of discharge. Some newer inter-

nal cell impedance monitoring systems even use fiber-optic cables or sensors, in place of regular wire leads, providing total electrical and noise isolation.

IEEE-450 suggests that batteries should be tested during the first year of installation, and every five years afterward. IEEE-450 also recommends that checking cells for water and acid content (specific gravity) should be



carried out quarterly. Other readings on battery maintenance and testing can be found in TM 5-684, Facilities Engineering Exterior Facilities; PWTB 420-43-1, Uninterruptible Power Supply (UPS) System Design and Operation/Maintenance; and NFPA 70B, Recommended Practice for Electrical Equipment Maintenance.

POC is Tuan N. Duong, CECPW-EE, (703) 806-5161 DSN 656; e-mail: Tuan.N.Duong@CPW01.USACE.ARMY.MIL **PWD**

Tuan N. Duong is an electrical engineer in the Electrical Division of CPW's Directorate of Engineering.



Energy-efficient windows save money

by John Lanzarone

When ordering windows for retrofit or new construction, do you request vinyl-framed, double-glazed units with low-emissivity (low-e) coated glass? If you don't, you may not be getting the most cost-effective window. That's why the Naval Civil Engineering Laboratory (NCEL) in Port Hueneme, California, recommended that type of window for Navy housing way back in a 1990 published report.

The information in that report is still applicable today. NCEL examined various types of windows to determine their cost effectiveness. They found that vinyl-framed, double-glazed windows with low-e glass can reduce heat loss by 80 percent, yielding a savings-to-investment ratio (SIR) of over 4. The purpose of the report (called a User Data Package (UDP)) is to supply users at the local level with the background necessary to make informed decisions on the selection of energy-efficient windows and window coverings.

Although written for the Navy, the UDP subject matter—windows—is not Navy specific or limited to housing. **Also applicable to the Army**, the UDP provides:

- A general overview on basic window and window covering function and performance.
- Guidance on the replacement of existing windows and window coverings.
- Assistance to those evaluating the energy-savings potential of selected window and window coverings, in-

cluding tear-out survey and worksheet forms and examples of how to perform a cost versus benefit exercise.

The report examined wood, aluminum with and without a thermal barrier, vinyl, vinyl-clad wood, aluminum-clad wood, vinyl-clad aluminum, steel, and fiberglass window frames. It also compared single-glazed windows to double-glazed, triple-glazed, and low-e coated windows.

Rigid vinyl was chosen for the window frame because of its many advantages: high energy efficiency, low maintenance, and immunity to rotting and insect damage. Double-glazing is favored because it reduces the rate of heat loss through the glass by nearly one-half, while increasing the price only slightly. Low-e coatings further increase the energy performance of the windows, making them comparable to triple-glazed units but at one-third less weight.

If you expect to be specifying windows soon, the UDP may provide some answers to your questions. It's well written, easily readable, and the tear-out sheets can speed-up your window survey. An 18-minute video which highlights the major items addressed in the UDP is also available.

For more information on the report or video, please call John Lanzarone, CECPW-EM, (703) 806-6067 DSN 656. **PWD**

John Lanzarone is a mechanical engineer in the Mechanical & Energy Division of CPW's Directorate of Engineering.



Inspect your underground heat distribution systems regularly

by Dennis Vevang

A regular program of inspection and maintenance of manholes in underground heat distribution systems is a must for all installations. The relatively low cost for the survey and remedial action is quickly regained through cost avoidance in preventing a major conduit failure.

Proper manhole condition is essential to efficient, economic, reliable operation of the underground heat distribution system. Poorly maintained manholes eventually result in a shortened service life for the system and large energy losses.

Before a full-scale inspection proceeds, the DPW must determine if the manhole contains asbestos materials. In general, manholes installed after 1972 can be considered asbestos-free. However, those constructed prior to 1972 should first be inspected from the outside to identify any covering damage or exposure of insulation. If any damage is noted, the insulation must be sampled according to OSHA requirements.

Installations should inspect their manholes thoroughly once a year and after each major rain storm where higher than normal rainfall occurred. It is important to follow an inspection checklist for a step-by-step survey of internal components. Inspectors should complete a checklist for each manhole surveyed.

During the inspection, look for evidence of conduit failure between manholes. This includes burnt grass or melted snow above the pipe route or steam or vapor rising from the manhole. Also look for a water mark on the manhole walls. Whenever the water reaches the carrier pipe, enormous energy losses can result. A manhole filled



with boiling water can waste \$50,000 to \$100,000 of energy a year. The conduit can also be damaged beyond repair. Costs to replace the underground distribution can be as high as \$300 per foot.

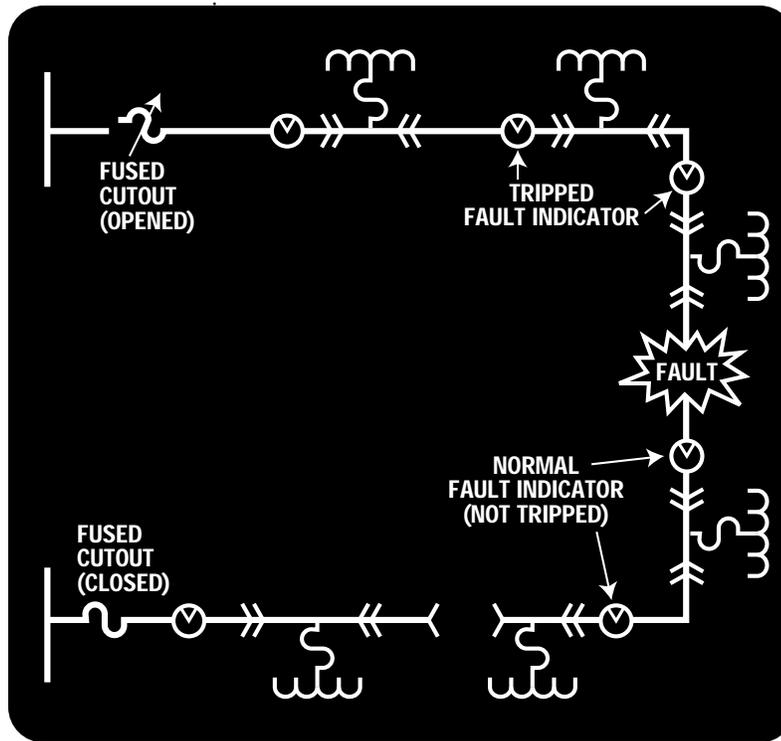
A manhole inspection can locate a minor, easily corrected deficiency, which, if left uncorrected, can cause major damage and loss of efficiency in the conduit runs. This can result in an extremely expensive replacement of the conduit. It's best to inspect and correct on a regular basis.

For more detailed information on manhole inspection, please contact Dennis Vevang, CECPW-EM, (703) 806-6071 DSN 656. **PWD**

Dennis Vevang is a mechanical engineer in the Mechanical & Energy Division of the US Army Center for Public Works, Fort Belvoir, VA.

Junction point sectionalizers increase safety and reliability

by Anh Vo



A typical looped underground system application.

Users may obtain an electrical power distribution system from more than one source. In this manner, faults may be isolated via junction point sectionalizers while maintaining power delivery to the users who are not near the faulted section, i.e., where the fault occurs.

To achieve this purpose, a variety of devices is arranged throughout the distribution system at appropriate locations to provide for the interruption and isolation of electrical faults. These devices include fuses, circuit breakers, reclosers, and sectionalizers.

Junction point sectionalizers are recommended for their more aesthetic appearance and greater reliability in the power system. They consist of isolation enclosures and fault indicators. Sectionalizing enclosures are used for tapping and manual isolation of cables in under-

ground distribution systems. Each phase may have three or four bushing wells, allowing three or four taps for future use. They provide greatly enhanced flexibility for future growth, and quicker replacements for a failed conductor.

Fault indicators are devices which show the passage of fault current. They can increase safety while reducing operating costs and service interruptions by pinpointing the section of cable which has failed.

The figure above illustrates a typical looped underground distribution system. The underground cable is looped into and out of each transformer to the open point. Typically, one fault indicator is placed on each incoming phase of the transformer. Current levels need to be specified for indicators. When the specified current level is detected, the fault indicator shows a red target.

The figure shows the fault indicator target position after a cable fault caused the fused cutout to open. If the line is followed from the source, the fault is between the last tripped indicator and the first normal (not tripped) indicator. The fault can quickly be isolated.

When the faulted section is isolated, electrical personnel may manually close the switch to provide power for the rest of unfaulted system.

Coupling fault indicators with sectionalizing enclosures provides for the quickest mitigation of underground faults. It eliminates the need for trial and error sectionalizing of the system while increasing safety and reducing service restoration time.

POC is Anh Vo, CECPW-EE, (703)806-5175 DSN 656. **PWD**

Anh Vo works in the Electrical Division of CPW's Directorate of Engineering.

Energy-efficient lighting catalog available

The Defense General Supply Center produces an excellent catalog for procuring energy-efficient lighting systems. It includes the latest technology in energy-efficient bulbs, ballasts, fixtures, occupancy sensors and solar lighting systems. The catalog has been specially designed so that customers can determine what to order with a minimum of effort.

To obtain a copy of the Energy-Efficient Lighting Catalog, just dial 1-800-DLA-BULB. **PWD**



Get ready for the 1996 DPW Training Workshop!

The annual DPW Training Workshop will be held 3-5 December 1996 in the Washington, D.C., metro area. The format will be similar to last year's workshop: general and breakout sessions, an awards luncheon, and a town hall meeting.

There will be an optional MACOM-sponsored pre-workshop on Monday, 2 December 1996 from 1200 to 1630. In addition, an ACSIM-sponsored MACOM Engineer Conference is scheduled for Friday, 6 December 1996 from 0800 to 1200.

The workshop agenda is currently being developed by a planning committee comprised of representatives from CPW, ACSIM, and USACE.

A memorandum was sent to all participating MACOMs, announcing the workshop and soliciting recommended topics for general sessions, breakout sessions, and information papers. Also, MACOMs have been asked to identify displays or exhibits they would like to have in place.

Please contact your MACOM Engineer for your organization's point of contact. In order to meet your needs, we need your input. Only through full participation from the field can we tailor an agenda that is truly representative of your desires and expectations.

POC is Tom Cook, CECPW-FT, (703) 355-0036 DSN 345. **PWD**

Navy offers Industrial Ventilation Operation and Maintenance Manuals

Since 1983, the Naval Facilities Engineering Service Center (NFESC) NAVOSH Air Branch has been investigating, correcting, and documenting industrial ventilation deficiencies in the Navy. A common finding is a deficiency in routine and preventive maintenance planning and implementation.

NFESC has published two Operation & Maintenance (O&M) Manuals to assist activities with their industrial ventilation O&M program. These manuals are not intended to replace the activities' existing O&M procedures—rather, to supplement them. They are:

- TM-2198-ENV, *Industrial Ventilation Systems Operations and Maintenance Manual*
- TM-2199-ENV, *Industrial Ventilation System Operation and Maintenance Field Manual*

TM-2198-ENV contains strategies, plans, and information for industrial ventilation O&M procedures. Use it to maintain and retain information for specific industrial ventilation systems or operations. NFESC recommends that each activity make a copy of TM-2198-ENV for each industrial ventilation system and keep it in an easily accessible location near the system.

TM-2199-ENV, an abridged summary of TM-2198-ENV, is a field manual for industrial ventilation O&M procedures. The NFESC recommends each activity copy and use TM-2199-ENV as a frequency checklist when performing industrial ventilation O&M in the field.

NFESC is distributing these manuals to the Navy Public Works Centers and local Public Works Departments/Directorates. To obtain copies of the manuals, please contact Robert Bonner at (805) 982-5317 DSN 551 or e-mail: rbonner@nfesc.navy.mil. **PWD**

PROSPECT course available for energy managers

The Energy Policy Act of 1992 (Public Law 102-486) established professional standards

for federal energy managers, requiring they be proficient in six specific areas. Those areas are:

- Fundamentals of building energy systems.
- Building energy codes and applicable professional standards.
- Energy accounting and analysis.
- Life-cycle cost methodologies.

- Fuel supply and pricing.
- Instrumentation for energy surveys and audits.

Army PROSPECT Course 055, Energy Management in Existing Federal Facilities, provides the necessary instruction to fulfill those training requirements. Lessons are geared toward the technical side and give ener-

gy program managers, planners, and designers the background to select, analyze, evaluate, and design

energy conserving measures into existing facilities.

Each year, the Army centrally funds tuition costs for one session. Installation energy managers interested in attending should contact their major command energy managers to forward nominations.

POC is Jim Paton, CECPW-EM, (703) 806-6091 DSN 656. **PWD**



Gas distribution system training available

In recent years, training for personnel involved with the management, design, installation, and operation and maintenance of gas distribution systems has been available through the Transportation Safety Institute (TSI) of the US Department of Transportation.

This course is a joint development of the Army and TSI, with the content designed to meet the unique requirements of the Army (and other DoD services).

This course was developed after an investigation of a fatal gas explosion on an Army installation showed a serious

lack of knowledge and training on the requirements applicable to gas systems. A follow-on survey of other Army installations indicated that the problem was systemic within the Army from the newest mechanic to the highest levels of installation management. This course was developed to fill the void for personnel involved in the design, installation, inspection, and operation and maintenance of gas distribution systems, including management personnel involved in these activities.

The course provides in-depth instruction in the requirements of 49CFR, Part 192 (the core document that dictates the management of gas distribution systems), as well as safety and other critical information applicable to the design and operation and maintenance of the system. This course is an excellent medium for personnel to obtain critical information applicable to not only their own responsibilities, but to the requirements of other areas as well.

While the TSI course is an excellent source of information on all aspects of the gas distribution system, the installations may not always be able to afford having their "hands-on" mechanics participate in a two-week course, away from the essential day-to-day gas system tasks. For this reason, the Army has joined with the Air Force to offer the services of the Air Force Mobile Gas System Training Team. The team will travel to the installation, and provide three days of instruction to the distribution system mechanics. This course is intended strictly for the "hands-on" personnel with the day-to-day responsibility for operating and maintaining the system.

The TSI course schedule for FY 97 will be published shortly. In the meantime, early reservation applications are being accepted. The FY 97 training list for the Air Force training has already been completed. However, additional slots may become available in the Third Quarter of FY 97. For additional information on these two training programs, please contact Phillip Conner, CECPW-EM, (703) 806-6068 DSN 656, e-mail: phil.j.conner@cpw01.usace.army.mil. **PWD**

ALMC offers course for energy coordinators

One of the most successful courses offered at the Army Logistics Management College (ALMC) at Fort Lee, Virginia, is the Army Energy Coordinator Course.

Open to installation energy coordinators and potential energy coordinators, the course is conducted by the US Army Logistics Integration Agency and the US Army Center for Public Works. It emphasizes and cultivates the coordinator's ability to recognize low-cost/no-cost energy saving opportunities that can be promptly implemented to realize quick savings that can be then reinvested in the energy conservation program.

Taught by functional experts, the course provides an in-depth treatment

of the engineering, housing, Defense Utilities Energy Reporting System requirements and

procedures, petroleum, and managerial aspects of the Army Energy Program. Upon returning to their installations, students can immediately apply their new knowledge to save energy and reduce energy costs.

Commanders should ensure that energy coordinators and potential coordinators take advantage of this timely and important training. The course is centrally funded for travel, TDY and course costs. The US Army Logistics Integration Agency sends out a message each year to solicit nominations.

POC is Jeff Hager, USALIA, (717) 770-7304 DSN 977. **PWD**

DA sponsors Energy Awareness Seminars

One of the key elements of a sound energy management program is individual awareness. To support awareness at the installation level, the Department of the Army sponsors energy awareness seminars, managed by the US Army Logistics Integration Agency (USALIA).

The seminars consist of a series of workshops for supervisors, building energy monitors, engineering and production personnel, and building occupants. They include recommendations and provide the installation with specific opportunities for low-cost/no-cost energy conservation and associated cost savings.

MACOMs should provide a list of potential seminar sites annually to the Director, Logistics Integration Agency, ATTN: LOIA-FS, 54 M Avenue, Suite 4, New Chamberland, PA 17070-5007, no later than 30 April of each year. Negative responses are also requested.

The Army Energy Office will review the list and coordinate the proposed schedule with the MACOMs. If you would like to have a seminar conducted at your installation, please contact your MACOM energy manager.

POC is Jeff Hager, USALIA, (717) 770-7304 DSN 977. **PWD**

Public Works

Digest

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