



HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

Vol. 3, No. 2

November 3, 1981

ENERGY WEEK



Members of the PPL Energy Management Administrative Committee posed with laboratory Director Dr. Harold Furth to help kick off Energy Week. Pictured are (back, left to right) Donald Harnsberger, Ramon Pressburger, committee vice-chairman Dave O'Neill, (front, left to right) committee chairman Frank Fumia, Dr. Furth, and Robert Gulay.

November 9 has been designated as the start of PPL Energy Week, a time when all of us can become more familiar with the energy conservation requirements and activities of the laboratory.

The effect of the rapidly increasing cost of all forms of energy on our expanding operations requires commitment of all staff members to energy conservation. Last year PPL saved one and one-half million dollars in fuel and electricity costs, compared with the costs before energy conservation measures were instituted. We hope to improve upon this accomplishment this year, since the severe budget constraints that we face in FY 1982 make energy costs a critical factor in all of our decisions. Every dollar that we save through energy conservation is another dollar that we can apply productively toward our program objectives.

I want to express my wholehearted support for energy conservation resources throughout the laboratory, and I urge all of you to give this effort your personal support. An outline of the proposed energy conservation program is presented in this issue of HOTLINE.

**ENERGY MANAGEMENT ADMINISTRATIVE
COMMITTEE**

Frank Fumia – Chairman
Dave O'Neill – Vice-Chairman
John Edwards
Robert Gulay
Donald Harnsberger
Ramon Pressburger

ELECTRIC POWER SUBCOMMITTEE

Robert Gulay – Chairman
Dave O'Neill – Vice-Chairman
Larry Dudek
John Edwards
Frank Fumia
Richard Farley
Donald Harnsberger
Marvin Richey
Richard Terhune

**EMPLOYEE ENERGY AWARENESS
SUBCOMMITTEE**

Ramon Pressburger – Chairman
Frank Anderson – Tech Shop
Harold Barbour – Warehouse
Bob Bergman – TFTR
Mary Ann Brown – Secretary/Public Relations
Robert Goodwin – Security
Robert Gulay – Energy Awareness Coordinator
John Hirthler – FOM
Spence Holcombe – Warehouse
Paul Jones – PM&O
Joe Wood – 1-K Coil Shop
Pat Zeedyk – Transportation Services

EMA Goals

The Energy Management Administrative committee supervises and administers related energy conservation projects. The committee serves to aid its two subcommittees in furthering their projects.

The Employee Energy Awareness subcommittee is responsible for developing, organizing, implementing and monitoring the in-house energy awareness plan for PPL. The Electric Power subcommittee has been charged with developing, organizing and implementing energy conservation methods to reduce the laboratory's energy bills.

Project engineer Nicholas Stecky is responsible for the implementation of major energy retrofit projects which receive special funding from DOE. Three projects currently being pursued include extension of the new central chilled water system into the original C-Site buildings, where old chillers will be dismantled or placed on standby service; installation of a "free winter cooling" system into the central chiller plant; and installation of a computerized energy monitoring and control system.

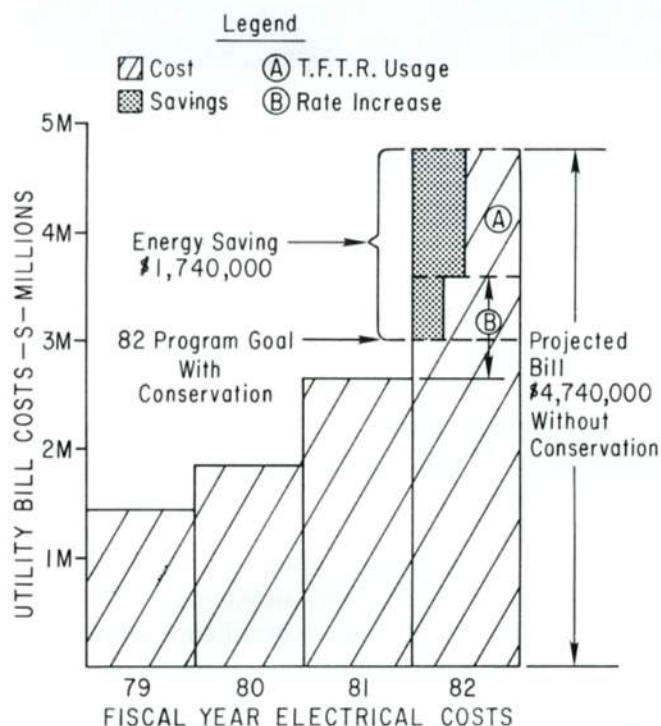
We urge employees who are dedicated to seeking out and eliminating energy waste to join either the Electric Power or the Employee Energy Awareness subcommittees.

EMA Committee

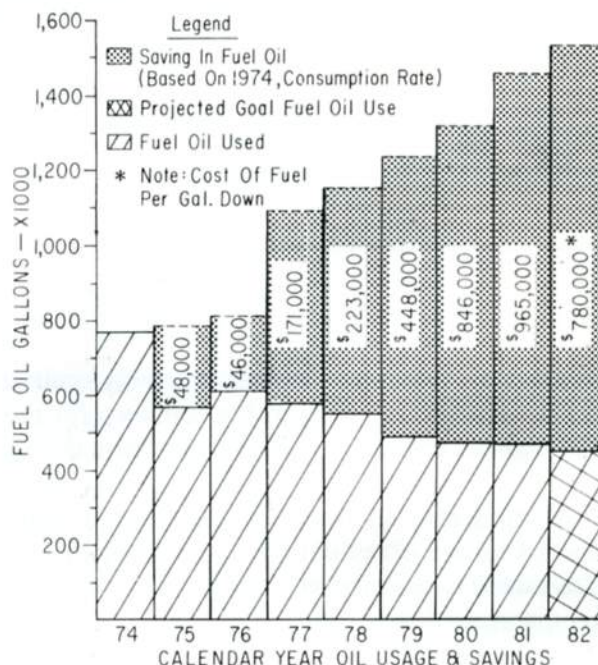
The Energy Management Administrative committee, working with the Electric Power and Employee Energy Awareness subcommittees, has devised a number of methods to reduce energy use throughout the laboratory. These measures, which will be put into effect in the near future, include:

- Delamping of electrical fixtures by removing 25 percent of the existing lighting in the laboratory.
- Enforcement of temperature rules and regulations, as mandated by University policy.
- Electrical demand control program.
- Shutting off and reporting on unnecessary lighting use by security forces during their tours of the facility.
- Building/area monitors, to seek out and eliminate all forms of energy waste.
- Display of energy awareness posters, as part of the employee energy awareness program.
- Talks on energy conservation delivered by department heads.
- Energy library services, provided by Joe Wood, Bldg. 1-K, ext. 3061.
- Janitorial cleaning done during daylight hours.
- Dedicated program of turning off unnecessary equipment throughout the facility.

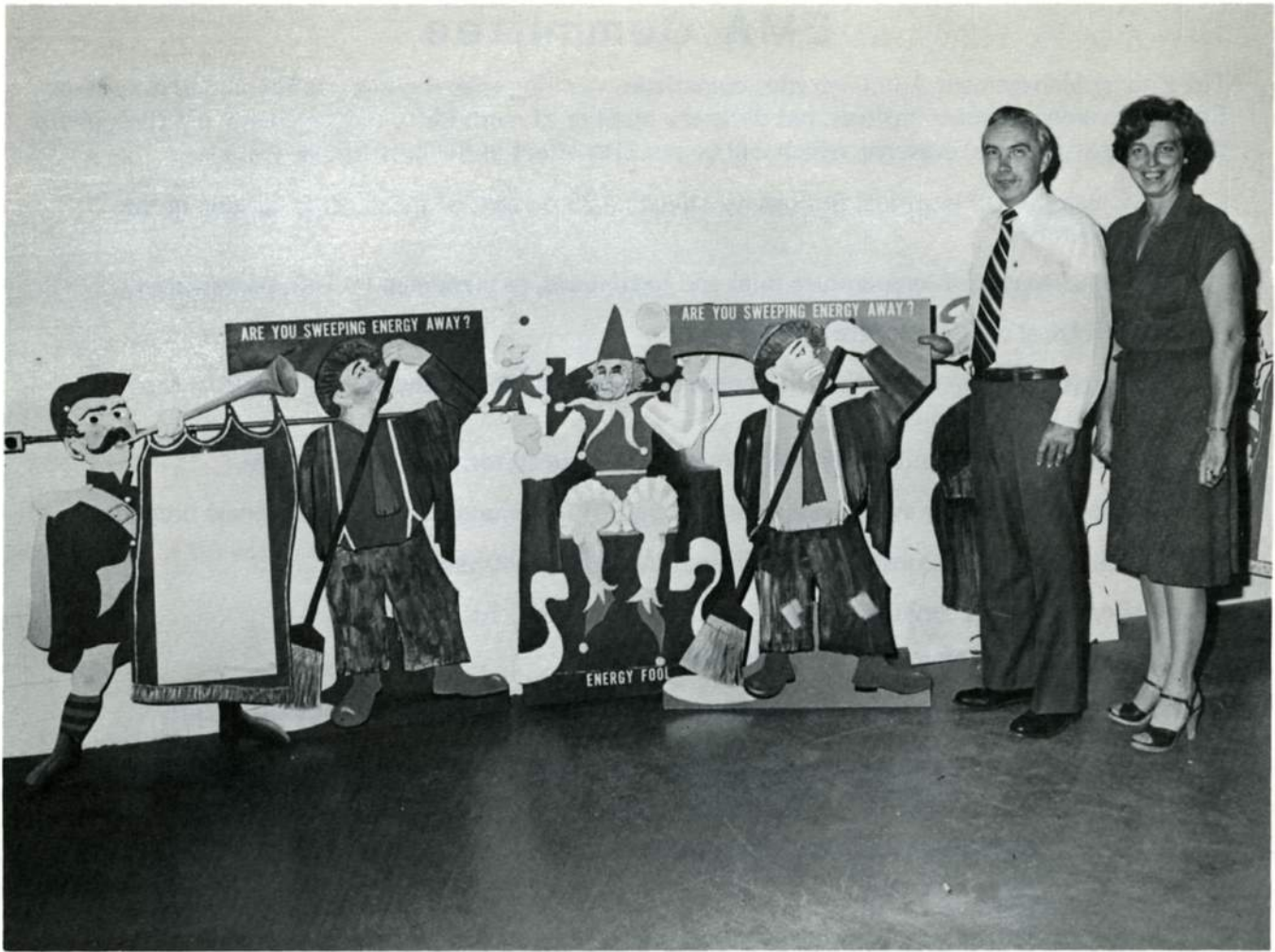
These measures are being implemented to achieve PPL's goal of energy reduction. Energy usage will be reported to the PPL Council on a monthly basis, and comparisons will be made to determine the rate of reduction.



The Electrical Costs Graph indicates a projected 1982 electrical cost of \$4.7 million. The energy cost saving goal of the energy program is \$1.7 million.



The Oil Usage and Savings Graph depicts a \$965,000 savings in fuel oil for 1981, despite PPL operations growth from 382,000 sq. ft. in 1974 to 726,000 sq. ft. in 1981. Employee conservation measures made this savings possible.



Management observer Conrad Stout and Mary Ann Brown, Public Relations coordinator of the Employee Energy Awareness subcommittee, examine a series of energy awareness posters. The posters, designed by Mary Ann McBride, will be placed in key locations throughout the laboratory to remind employees of PPL's efforts to conserve energy.

Heating Policy

In an effort to combat increasing energy costs and deal with budgetary restrictions, PPL is continuing the winter heating policy it has followed for the past several years. The policy has resulted in significant savings through conservation efforts throughout the laboratory.

The policy restricts thermostat settings to maintain temperatures of 65 degrees Fahrenheit. Heat will also be turned off or cut back on weekends on a weather permitting basis. Exceptions will be made for designated experimental areas, but unannounced inspections will be held to insure compliance with temperature restrictions.

Space heaters, which can only be purchased with the approval of Plant Engineering, or individual room controls should be set to maintain the 65 degree level. Unneeded lights should be turned off.

If you have an office or space you feel needs supplemental heat, call Plant Engineering. If you know of any energy wasting situations, call Plant Maintenance at ext. 3092.

Conservation

Demand charges, based on maximum power consumption at one time, are a major part of PPL's electric bill. It may surprise some employees to learn how much money could be saved by simple conservation measures. Approximately \$10 could be saved if a 1000 watt electric office heater was turned off on a peak demand day. A window left open for four hours wastes \$20.85 in the summer, and a whopping \$69.90 in the winter. An exterior door left open for three minutes wastes \$4.05 in the summer and \$13.36 in winter.

At peak demand periods, lights left on in an unoccupied office waste \$9.38 per hour on summer rates and \$6.92 in the winter. A typical office with four lighting fixtures uses \$256 per year on lighting alone.

Benefit Help

Employees with questions about Blue Cross, Blue Shield, Major Medical and the filing of claims can get help from Eleanor Schmitt. Effective November 3, Eleanor is available for consultation each Tuesday from 9 a.m. to noon in conference room 345, LOB-W.

FTS

Extended



All FTS calls to Alaska (area code 907), Hawaii (area code 808), Puerto Rico (area code 809) and the Virgin Islands (area code 809) can now be dialed direct. Simply dial FTS access code 8, the area code, and the seven digit telephone number.

The General Services Administration is now billing FTS calls on call duration, rather than on number of calls per site. This change was necessitated by recent increases that GSA must pass on to the user.

This doesn't mean FTS use should be curtailed; it is still less costly to use FTS for all commercial business calls. It merely means conversations should be planned so calls can be rapidly expedited.

The PPL Hotline is issued by the Princeton University Plasma Physics Laboratory, a research facility supported by the U. S. Department of Energy. Correspondence should be directed to PPL Information Services, Module 2, C-Site, James Forrestal Campus, ext. 2754.

Patent Program

PPL now has a Patent Awareness program, as well as a Committee on Inventions, to increase the patent awareness of laboratory staff. Four invention disclosures were filed with the committee during October:

- Bag Molding System, by J.C. McDade and L.E. Dudek
- A minimum-Average-B Stellarator, by T.H. Stix
- A modular Snake Stellarator, by H. Furth, G. Sheffield and S. Yoshikawa
- Deuterium Filter for a Helium Mass Spectrometer Leak Detector, by H. Furth, H.F. Dylla, W. Blanchard and R. Krawchuk

For further information about the committee or the program, contact committee secretary Nancy Jones at ext. 2659.

Patent Granted

A patent covering a scheme for generating plasma current waves, recently granted to PPL's Nathaniel J. Fisch, has been mentioned in the New York Times.

Fisch, who has been with the laboratory for three years, is on the research staff in the Theory Division. He received the patent for work done while he was a graduate student at the Massachusetts Institute of Technology (M.I.T.) in 1977.

The patented concept involves a method of providing for a steady-state tokamak fusion reactor by injecting radio frequency (RF) waves into a tokamak plasma to maintain the plasma current. This corrects a major defect in the tokamak approach to controlled fusion, since tokamaks are presently pulsed devices. The commercial appeal of a steady-state device would be far greater.

"If this idea works," Fisch said, "it would allow the tokamak reactor to run steady-state rather than in the pulsed mode. It's not something that people hadn't thought of doing before, but they thought it would necessarily consume much too much power."

Fisch's idea involves injection RF waves that interact only with a certain group of energetic electrons, thereby demanding much less power than was originally believed to be possible. Fisch likens his concept to "inventing power steering

before inventing the automobile." He feels the concept is "possibly an important design feature in a fusion economy, but we have much, much more important problems to solve before we develop a fusion economy."

The patent application Fisch filed required design specifications to outline the idea. "It's no longer necessary to build a model of a concept to get a patent," he explained. "But I did include some designs to show where it could phase into a reactor." He emphasized that the scheme is not yet proved, but experiments to test it are now being conducted at PPL (on the PLT and ACT-1 machines), in major programs at M.I.T. and in Japan, and in smaller projects at other institutions.

Fisch has two other patent applications for generating current, employing waves at different frequency ranges. The rights to his current patent are held by the Department of Energy.



No, this isn't the new PPL dentist; this is a piece of government surplus material that the Laser Group intends to cannibalize. The inner works will be used in many different pieces of equipment that the laboratory is called upon to fabricate.