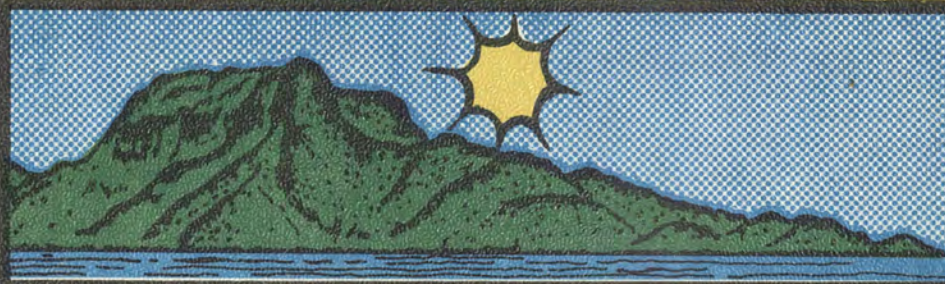


ENETI

SAMOA'S ENERGY NEWS



JULY 1982 TERRITORIAL ENERGY OFFICE, AMERICAN SAMOA, PAGO PAGO VOL.4 NO.3

WIND MACHINES A NEW TECHNOLOGY FOR SAMOA

Take a ride on the airport road and about a quarter of a mile from the airport terminal is the site of Samoa's Energy House. This is also the location of Samoa's newest wind machine.

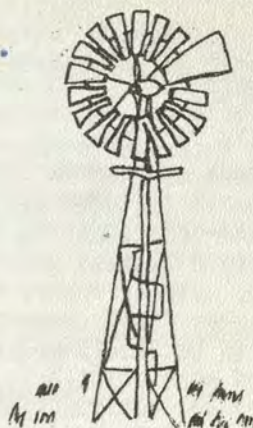
Pivoted on top of a 60 foot pole, the wind machine is driven by the force of the winds on its three 16 foot blades. This action turns a small generator in the machine, producing a current.

In winds of 25 miles per hour the machine can produce 3,000 watts of direct current (DC) electricity. This is not the same current that you normally use in your home, which is called alternating current (AC). In order to use DC power in an AC home, the machine has an extra device which automatically converts DC to AC.

The blades are positioned in such a manner as to always face away from the oncoming wind, regardless of which direction the wind is blowing.

If the wind machine produces more electricity than is needed at the Energy House, the excess power is fed back into American Samoa Power Authority (ASPA) lines. But if the wind machine does not produce enough electricity, compensating power is then drawn from ASPA lines.

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Another windmill, manufactured by Enertech and designed to produce 1,800 watts of power at 24 miles per hour, will be situated at the Afalava Quarry near Aoloau Fou Village. Aoloau was selected because of its favorable winds and location, but the Energy House is a much more convenient place to view this new and coming technology.

Both machines were provided to the Territorial Energy Office by the U.S. Department of Energy to determine if wind generation could provide power economically to the people of American Samoa.

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TERRITORIAL ENERGY

PHASE II CONTINUES

After all the meetings and talks, Phase II of the energy assessment for the territories is now down to only another compilation of data that have already been acquired.

This Study is mandated under Section 604 of P.L. 96-597, the Omnibus Territories Act of December, 1980. Since President Reagan took office, the objectives of the Study have been almost completely ignored. The Pacific territories will certainly be the victims should Congress fail to recognize the importance of this energy assessment study. Doing the best they can with the very limited funds available, DOE and the territories are still attempting to produce a report which is required to be submitted to Congress by December of this year.

In an area of interest to American Samoa, Mr. David Schaller and Dr. Ronal Larson of Black Hawk Associates visited the Territory, under contract by DOE, to assess photovoltaic systems application for local use. Their report will become a part of the final report to the U.S. Congress in December. Projects which were proposed were pilot-actuated runway lights for an outlying island (Ofu) airport to permit emergency medical evacuations at night and a photovoltaic power supply for communications and refrigeration of medical supplies on Swains Island, some 200 miles north of Pago Pago.

While here, Mr. Schaller instructed two TEO staff members in the installation and operation of a LICOR pyranometer and recorder at the LBJ Tropical Medical Center to measure solar insolation. Since LBJ Tropical Medical Center is the site for solar cooling, accurate solar insolation data is pertinent to the design of the cooling system for maximum efficiency of operation. The recorder tapes will be sent to the University of Hawaii every month for data analysis.

ENERGY TIPS

The short trip is the biggest waste of all. Get into the habit of walking instead of driving whenever possible. Accelerate steadily. Coast to a stop if possible. Use your telephone. Phone ahead to find out if the items you want are available.

AMERICAN SAMOA'S

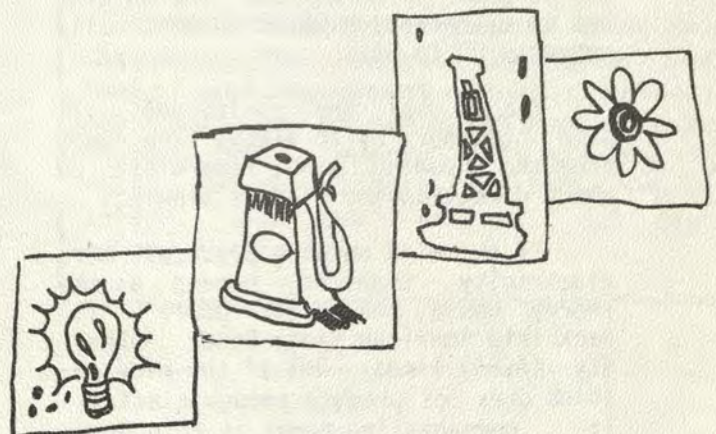
ICP PROJECTS

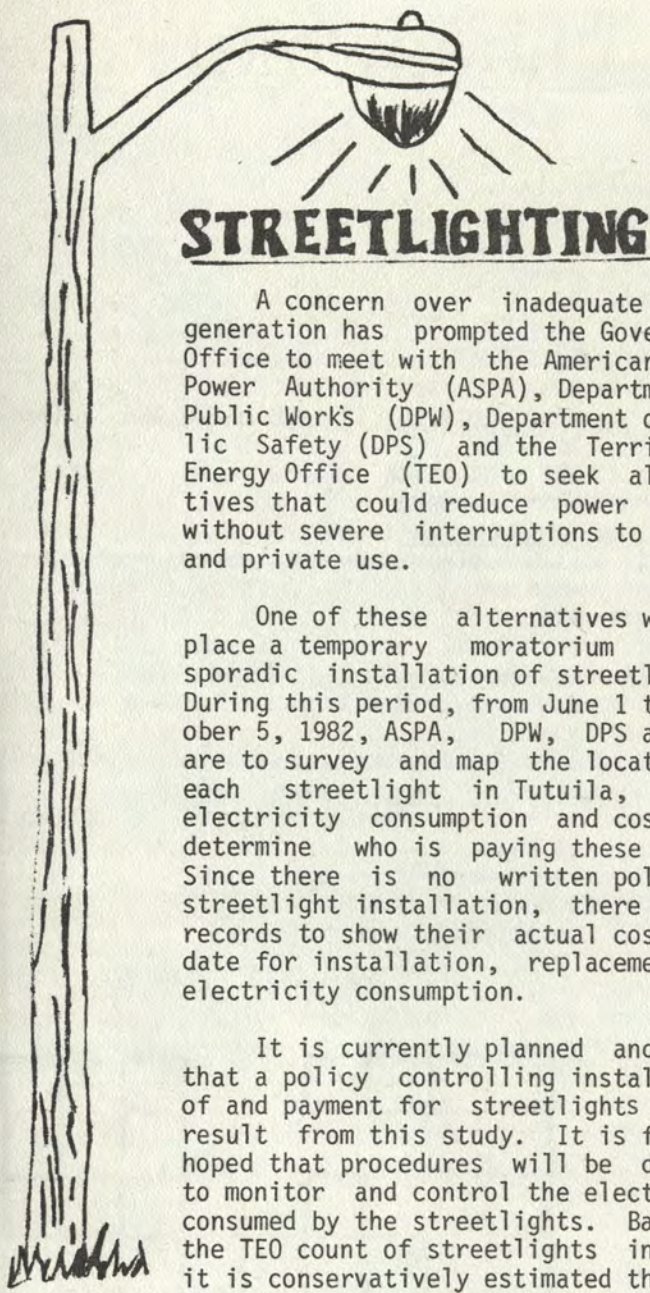
UNDER EVALUATION

Under contract from DOE, Miss Cathy Schrader of Rockwell International will visit the Territory to perform a site analysis of all the ECM projects that DOE has approved thus far under the Institutional Conservation Program (ICP).

Miss Schrader is expected to arrive on June 24 and depart on July 1, 1982. While in American Samoa she will also discuss with the TEO Staff our applications for funding under Cycle IV of the same program.

Some of the projects that she will see are air-conditioning and boiler retrofits at the LBJ Hospital and those at the school complex in Utulei.





STREETLIGHTING

A concern over inadequate power generation has prompted the Governor's Office to meet with the American Samoa Power Authority (ASPA), Department of Public Works (DPW), Department of Public Safety (DPS) and the Territorial Energy Office (TEO) to seek alternatives that could reduce power demand without severe interruptions to public and private use.

One of these alternatives was to place a temporary moratorium on the sporadic installation of streetlights. During this period, from June 1 to October 5, 1982, ASPA, DPW, DPS and TEO are to survey and map the location of each streetlight in Tutuila, record electricity consumption and cost and determine who is paying these costs. Since there is no written policy on streetlight installation, there are no records to show their actual costs to-date for installation, replacement or electricity consumption.

It is currently planned and hoped that a policy controlling installation of and payment for streetlights will result from this study. It is further hoped that procedures will be devised to monitor and control the electricity consumed by the streetlights. Based on the TEO count of streetlights in 1981, it is conservatively estimated that the government is spending over \$102,000 per year on electricity for streetlights on Tutuila. More on streetlights will appear in the next issue of ENETI. In the meantime, if you have any comments, please send them to the ENETI address.



ENERGY TIPS

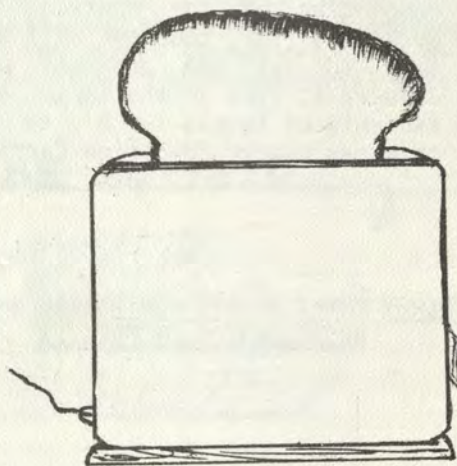
Don't leave your appliances running when they're not in use. It's a total waste of energy. Remember to turn off your radio, T.V., or record player when you leave your house.



DOE PACIFIC SITE REPRESENTATIVES TO VISIT AMERICAN SAMOA

Mrs. Eileen Yoshinaka and Mr. Tom Brennan of the Pacific Site Office, Honolulu are scheduled to arrive in American Samoa on June 27, 1982 to conduct site analyses of programs which the TEO is implementing. It is expected that Mrs. Yoshinaka will examine SECP, SSECP and EES program measures in detail while Mr. Brennan will deal directly with the review of the TEO financial records. Both are scheduled to depart American Samoa on July 1, 1982.

This will be Eileen's first visit to the Territory since she began working in Honolulu in 1979, and Tom's last visit before leaving the Pacific Site Office in July.



ENERGY CURRICULUM IN LOCAL SCHOOLS.

In cooperation with the local Department of Education, the Territorial Energy Office has awarded a contract to Dr. Albert Carr and Mr. Donald Buchholz to develop a school curriculum for grades 1 - 8 in the Territory.

The curriculum will incorporate local energy statistics such as usage, imports, resources, etc., as part of everyday living.

This Energy Curriculum will not be a local new subject area to be taught separately in school, but it will blend into similar units currently being taught in Science, Homemaking, Arts, Vocational Education, etc.

Both Dr. Carr and Mr. Buchholz have developed educational materials for local schools and other places in the Pacific. It is expected that upon completion of the contract, several workshops for teachers will be necessary to get the program underway. January 1, 1983 is the target date for students of levels 1 - 8 to receive this new energy Education Curriculum.

ENERGY CHECK POINTS FOR BUYING A NEW REFRIGERATOR OR FREEZER

If you're planning to buy a new Refrigerator or Freezer soon check these important pointers before you buy:

1. Consider buying a smaller size. Your Refrigerator or Freezer operates best when it is filled up.

2. The no-frost models require more energy to operate than the models you defrost yourself. (See page 6)

CROSSWORD

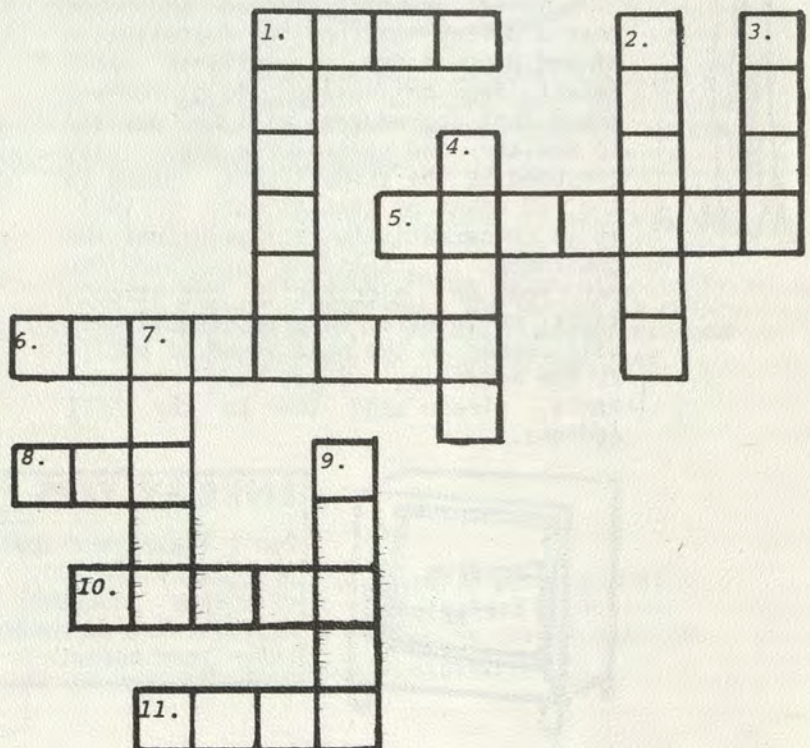
ACROSS:

1. You need _____ to give your body energy.
5. _____ gas can be pumped to your home for heating and cooking.
6. Fuel for automobiles.
8. The first successful _____ well was drilled in the United States in 1859.
10. The thick liquid that is pumped from underground pools is called _____ oil.
11. Nuclear energy is energy released when an _____ is split apart.

DOWN:

1. Coal, natural gas and oil are called _____ fuels.
2. _____ is the power to make things move.
3. The Europeans were the first to mine _____ for heating.
4. In a steam engine, coal is burned to heat _____.
7. Energy from the sun.
9. When water boils _____ is released to work for us.

SEE SOLUTION ON PAGE 7



FAGAITUA HIGH SCHOOLS LEAD ALL OTHER SCHOOLS IN THE VOCATIONAL EDUCATION FAIR

Fagaitua High School was awarded first place in the Vocational Education Fair in the category of Overall Special Project. The Fagaitua High School Industrial Arts class did a tremendous job on the prototype Solar Hot Water System, which they named Sun Stroke, which they built and displayed at the Fair.

The system consisted of a tilted rectangular wooden box which measured 2' x 4' x 6', plastic tubing and an elevated plastic container. Inside the box were the plastic tubes, laid on a piece of corrugated roofing iron. Pieces of insulating foam separated the roofing iron from the wooden base. With the exception of the foam, everything within the box was painted pitch black, including the interior walls of the box. A rectangular glass panel covered the open side of the box.

Two ends of the plastic tubing protruded on one side of the tilted box, one near the bottom and the other near the top. Both ends had leaders which were connected to the elevated container. The container was filled with water. Gravity, or the pull of the earth, pulled the water down into the box. Thermosiphon (which comes from the Greek words thermos, meaning heat, and siphon, meaning tube action) pushed the water back up into the container.

How is running water uphill possible? When water is heated, it becomes less dense and rises. The hotter the water, the faster the flow rate. The heating process takes place in the tubes in the box. The box is tilted toward the sun. Sunlight enters through the glass and heat is trapped in the box. This heat is absorbed by the tubing and transferred to the water inside the tubing, or carrier. Heated water rises in the carrier to the container, or storage, and cold water is

drawn from the storage to replace the heated water. This action creates a continuous flow in the system.

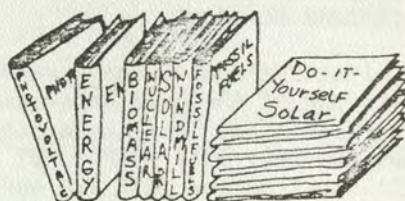
A temperature of 117 degrees has been recorded in the tank which indicates that the water, originally at 83 degrees, was heated by as much as 34 degrees through the use of solar energy.

Since the solar heater was viewed at the fair, a number of people have expressed interest in purchasing a solar hot water heater.

The project was entirely under the supervision of Mr. David Kulberg and Vitolio Paleafei, both of Fagaitua High School faculty. Building materials for the project were donated by Star Kist, and Burns Philp, Tom Sawyer and Max Haleck stores.

Planning and research materials were supplied by the Territorial Energy Office. The entire system was built by Fagaitua High School Industrial Arts class.

BE ADVISED



A section of all related energy materials has been set up at the ASCC Library for your research information.

CYCLE IV APPLICATIONS

SUBMITTED FOR FUNDING.

The Territorial Energy Office (TEO) has submitted four ECM (Energy Conservation Measures) projects and one TA (Technical Assistance) Study application to the Department of Energy (DOE) for funding under Cycle IV of the Institutional Conservation Program (ICP). Total funds available to American Samoa is \$157,650 for the Schools & Hospitals and only \$5,521 for local government buildings.

The ECM projects will consist of retrofit work at the LBJ Hospital Morgue, Public Health and Mental Health areas, and the libraries at the Community College and Manu'a High School. The TA study will cover the majority of spaces at the Central Administration Building, Utulei.

It is estimated that the current cost of electricity in the Territory, the ECM projects will have average pay-back period of 7.7 years. If the award is made by July 31 of this year, all the ECM projects should be completed before Christmas holidays.

The Institutional Conservation Program is one of the most beneficial D.O.E. programs in American Samoa since it provides the Territory with funds to do retrofit construction that are badly needed to maximize the efficient use of energy and reduce costs of operations.

ENERGY CHECK POINTS FOR BUYING A NEW REFRIGERATOR OR FREEZER (cont'd. Pg.4)

3. Check the tag to see if you are buying an energy efficient model. These may cost more, but they use less energy. The higher the rating the more efficient the Refrigerator.

COOKING ON THE RANGE

Boiling water in a large pot without a lid wastes energy. Boiling water for 10 cups of tea every day when you drink only 5 cups is another waste of energy. Either of these, and other cooking habits, can cost extra money in bigger fuel bills.

Much of the energy used by the top burners of your range is wasted by that sort of cooking. But you can cut this waste and reduce your fuel bills by better cooking habits.

Cover pots when boiling water; the lid will keep the heat in and cooking time will be shorter. Don't boil more water than necessary. Why pay for the extra energy for nothing?



Size the pot to equal the size of the burner. A small pot on a large burner allows wasted heat to escape around the sides.

Clean the bottoms of pots well so the heat transfer into the food is better. On a gas range, check the flame; a blue flame means the burner is working properly, a yellow flame means food particles may be clogging the jets.

REMEMBER: Be sure to put your Refrigerator or Freezer in a cool spot. Do not place them in direct sunlight or next to the stove.

NY ENERGY CALLS DOE DISMANTLE A MISTAKE

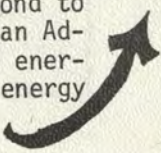
(from March 1, 1982
Energy Conservation Digest)

New York State's energy chief, in a recent congressional hearing, called the Reagan Administration's proposal to dismantle the Department of Energy a dangerous symbolic gesture and "a giant leap backward in national energy policy." James L. Larocca, commissioner of the New York State Energy Office and chairman of the New York State Energy Research and Development Authority, said the proposal would destroy the partnership that has developed between national, state and local governments.

According to Larocca, New York has taken advantage of all available energy conservation programs and has made progress, but cannot go it alone. "There is a dangerous and naive belief that the free market in energy can take care of all our energy problems," he told a House Energy Subcommittee.

Larocca gave several examples of the programs federal funding has enabled New York to establish. For instance, through DOE's institutional grants program, 2979 buildings in New York State received grants totaling \$34 million, he said.

The amount was matched by the recipients and was used for the installation of energy conservation measures or technical assistance in public buildings. He estimated that at least 33.8 million gallons of oil equivalent has been saved annually in New York public schools alone, totaling \$29 million in yearly savings at today's energy prices. "The institutional buildings targeted under this federal program are hard-pressed to respond to the free market forces which Reagan Administration contends will force energy conservation," the state energy chief said.



Another example that he gave of a program made possible by DOE grants was New York's Energy Advisory Service to Industry, which has established a network of contractors, business organizations and educational institutions to provide free energy audits to small and medium-sized business in the state. Federal funding has also enabled New York to offer a boiler efficiency improvement program and an oil heat efficiency improvement program aimed at the residential and commercial sectors.

The various programs, including a state lighting efficiency standards account for saving the equivalent of about 6.5 million barrels of oil equivalent a year, valued at over \$220 million, he said, adding, "The ability of states to continue to achieve energy savings under these and similar programs will be severely diminished, if not eliminated, by the combined action of dismantling the Department of Energy and approving the proposed Reagan budget." Instead of dismantling DOE, Larocca recommended that Congress evaluate independently the effectiveness of DOE's programs and act to improve the department's administrative performance.

CROSSWORD ANSWERS

- | | | |
|---------|-------------|------------|
| ACROSS: | 1. Food | 5. Natural |
| | 6. Gasoline | 8. Oil |
| | 10. Crude | 11. Atom |
| DOWN: | 1. Fossil | 2. Energy |
| | 3. Coal | 4. Water |
| | 7. Solar | 9. Steam |

ENERGY TIPS

Buy the most energy-efficient car of the size and style you want. Don't let the car price alone determine your choice. Make your decision on the basis of the combination of purchase price and your estimated fuel costs.

ABOUT THE NEWSLETTER

The Samoa Energy News is published quarterly by the Territorial Energy Office (TEO). The objective of the newsletter is to serve as an update on energy information as it relates specifically to the unique situation of American Samoa, and to the Pacific Islands in general.

The masthead carries an illustration of the famous Rainmaker mountain, a familiar landmark which majestically stands over Pago Pago harbor. The banner word "Eneti", was created by the TEO as a Samoan language equivalent to the word energy. The masthead concept was conceived by the TEO and originally designed by Fijian artist Kolinio Moce. The masthead has been revised to include the new TEO logo and seal of American Samoa by Program Manager I, Kay Napoleon, of the TEO.

Publication dates are planned for January, April, July and October. Any person or office wishing to contribute articles related to energy or energy conservation may write the Territorial Energy Office at the Governor's Office in Utulei. Comments and suggestions are welcome.

Circulation for "Eneti" is limited; however, if you would like to receive more copies, or if you know of anyone who would like to receive one, please use the coupon on the back page or call the TEO at 633-4137/4138.

The standard distribution list now includes: The Federal Department of Energy and Department of the Interior, the countries of the South Pacific Commission (SPC), energy offices of 56 states and Territories, the Fono (legislature), all ASG offices, and each school in American Samoa.



"ENETI" Samoa's Energy News

- Please send _____ additional copies of "Eneti" to person(s) listed below
- Please put the following person(s) on the "Eneti" mailing list

Name _____ Name _____

Address _____ Address _____

Comments: _____

Your Name _____ Address _____

Please cut out and send to the Territorial Energy Office, c/o the Governor's Office, Pago Pago, American Samoa 96799.