

RESOURCE ALTERNATIVES

P.O. BOX 175 MOSSVILLE, ILL. 61552

309/579-2435

Technical Progress Report

Report # DOE R510213-1 4/1/81

MASTER

SOLAR LEASE GRANT PROGRAM

The following technical progress report will be presented along the same lines in which the proposal was outlined:

1. Announcement of Program;
2. Selection of Participants;
3. Contractural Agreement;
4. Installation of Equipment;
5. Monitoring;
6. Evaluation.

1. Announcement of Program

Due to the fact that Central Illinois Light Company (Cilco) was not in favor of sending out a large mailing to solicit program participants, other methods of advertizing were employed. A news release was sent out to all local media and an ad was run in the local paper. Attached are copies of the release, the stories it generated, and the ad as well as a flyer on the program and application form. Generally the local media did not respond well to the announcements.

Only after MASEC (Mid America Solar Energy Center) sent its own news release to local papers, did the only local daily paper cover the story. After the announcement was in the paper (attached), we received a flood of inquiries into the program. Ironically, over ten qualified applications had already been received by the time we received this publicity.

2. Selection of Participants

Because initial media response was minimal, only the above-mentioned eleven applications had been received by February of this year. Of these, the majority represent mid-sized families, requiring an average-sized three collector solar system. With the increased publicity there have been a flood of inquiries. Interestingly, however, the majority of these also require mid-sized systems. As a result, it is likely that eight of the ten installations will be with three collector systems, one with two collectors and one with four collectors.

3. Contractural Agreement

Attached is a copy of the Lease developed for the program. The average monthly lease fee for systems installed to date is \$21.60.

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4. Installation of Equipment

To date, five of the ten systems have been installed. Five additional applicants have been selected, with installations scheduled to be completed in the next six weeks.

Of the five installed systems, three are ground mounted as proposed. One system is mounted on a flat roof, similarly to a ground mount and one system is roof-flush mounted. Because most of the participants have expressed an interest in eventually owning the system, we have opted for the most facile and pleasing installation in each case. The systems may still be easily removed, however, and they have minimal impact on the structure or seal of the house.

5. Monitoring

Cilco has been most cooperative in providing for all necessary monitoring equipment. Each completed system has a separate electric meter and a water flow meter. In addition, the homeowner has been supplied with a water thermometer with which to measure cold and hot water temperatures. Monthly readings are being taken, beginning in April for installed systems.

6. Evaluation

The program is not at a stage where evaluation can begin.

Budget

Actual costs are falling very close to budgeted expenses. Those areas which deviate from original estimates are:

-- \$920 budgeted for "Other, direct costs" was inadvertently omitted from final proposal budget total. (\$1100 rather than the correct \$2020 was carried over to page A-8a).

-- Because of the above omission and the change in the manner of announcing the program, "Other, Direct costs" have been altered. To date there is a credit balance of \$425.00 which is slated for follow-up evaluations.

-- Actual equipment cost were less than anticipated while labor expenses have been higher. The \$2800 savings realized by obtaining wholesale prices on equipment is being offset by the average additional cost of \$270 per installation



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due to greater on-the-job time requirements. Actual installations are requiring 40 man-hours rather than the originally estimated 22 man-hours. The discrepancy is due partially to the fact that the first installations were done during mid-winter, slowing down operations. Another factor causing longer job-time is the relative inexperience of the installation team. At this point we estimate the final systems to be put in with an average 32 man-hours. The original figure of 22 hours was unquestionably overly optimistic.

Other than in areas indicated, the program and its budget are following quite close to projections.

↗ CILCO Customers! ↖

Special Department of Energy Grant

Solar Hot Water Heater Lease Program

Lease a solar hot water heater for 3 years at no extra cost to you!

This is a unique opportunity provided by Resource Alternatives
and the Department of Energy

What Do You Get ?

- Installation of a solar water heater with no installation charge
- Free maintenance and servicing of the system for the lease term
- Three years of leasing at a break-even rate. The monthly lease fee will be equivalent to the dollar savings provided by the solar system (approximately \$15 - \$30, depending on family size.)
- An option to buy the system at the end of each year in order to claim federal solar tax credits
- Free removal of the system, if requested at the end of lease term

What is Required of You ?

- That you meet the monthly financial obligations of the lease
- That you allow monitoring of the system for at least one full year by Resource Alternatives and/or Cilco representatives

Who is Eligible ?

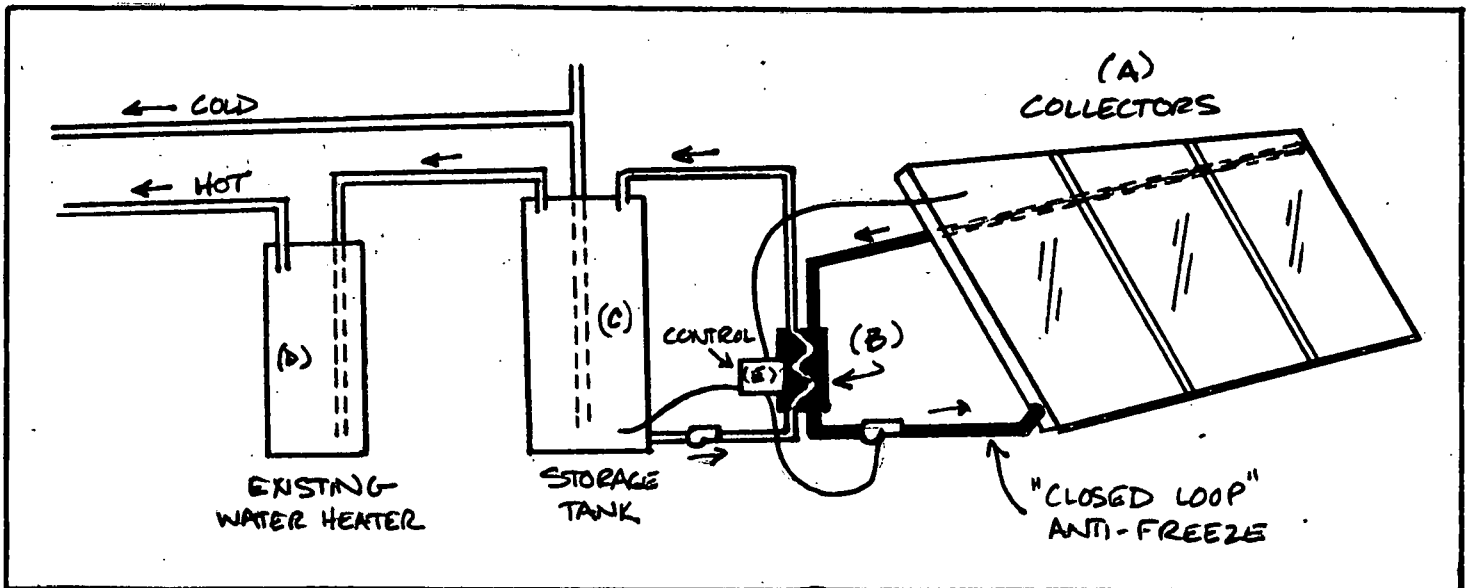
To be eligible for this program you must:

- Be a Cilco customer
- Own your home
- Have an electric hot water heater
- Have 2 - 8 persons living in your home
- Have lived there for the past year
- Have a good credit rating



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The Solar System

The SUNWORKS solar collectors, together with a REFRIGERATION RESEARCH control package combine to provide a sophisticated and durable solar system for you.

A non-toxic anti-freeze circulates between the collectors (a) and the heat exchanger (b) in a "closed loop." There is approximately one gallon of anti-freeze per collector; the average sized family requires three collectors. Cold water passing through the heat exchanger is heated and then stored in a solar storage tank (c). This tank serves to supply your existing electric hot water heater (d). The fully automatic control (e) keeps the system in action when there is more heat available at the collectors than in the storage tank.

The collectors are mounted at approximately a 40° angle. The system should meet all hot water needs in the summer and 60% - 70% annually, depending on family size.

The Installation Company

RESOURCE ALTERNATIVES has been installing solar systems in the Peoria area for the past 3 years. A member of the Illinois Solar Contractors' Association and the National Association of Solar Contractors, all installations are performed by qualified personnel and meet local code requirements. Resource Alternatives is covered by sufficient compensation and liability insurance to provide cost-free maintenance to all our lease customers.

The Program

This program is the direct result of a grant from the Department of Energy to Resource Alternatives to install 10 systems in the Cilco- served area on a lease basis. Participation in this project is a "once in a lifetime opportunity."



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SOLAR HOT WATER HEATER LEASE

Resource Alternatives, as "Lessor," and _____ as "Lessee" agree to be subject to the terms and conditions set forth below for a term of three (3) years commencing on the date of installation of a solar hot water system in lessee's home at _____

1. Resource Alternatives will supply, maintain and install a solar water heating system in lessee's home during the term of this leasing agreement. This system will consist primarily of solar collector panels, a storage tank, an electronic control/heat exchanger package, and insulated piping and fittings necessary to make the system serve as a preheat to lessee's existing hot water heater. The system will be installed in compliance with local codes and in such a manner as to have minimal effect on the structure or appearance of lessee's home.
2. The lessee agrees to pay a monthly fee of \$_____ for the first year of operation of the system, determined on sizing criteria indicated below.
3. The installed solar system will remain the property of Resource Alternatives during the term of this leasing agreement unless purchased from Resource Alternatives for the fixed amount \$_____ under one of the following options:
 - a. At the end of the first year, applying 100% of lease payments to the cost of the system
 - b. At the end of the second year, applying 100% of first year and 60% of second year lease payments to the cost of the system
 - c. At the end of the third year, applying 100% of the first year, 60% of second year and 30% of third year lease payments to the cost of the system
 - d. On the occasion of the sale of lessee's house, applying the above mentioned percentages up to the date of sale
4. Resource Alternatives agrees to remove the system at no cost to the Lessee at the expiration of the lease should the Lessee so request. In making this removal Resource Alternatives agrees to replace any piping removed and to seal and repair all nail holes and other structural changes so as to leave Lessee's home sound and weatherproof.
5. In the event Lessee sells his house during the lease, he agrees to purchase the system at the price and under the conditions listed in paragraph 3, should the new homeowner choose not to assume the lease.
6. The Lessee agrees to permit CILCO and Resource Alternatives to monitor the solar system during the period of the lease by the use of an electric kwh meter and water flow meter. This monitoring may require additional data collection which the Lessee agrees to.
7. The Lessee agrees to use reasonable care in avoiding damage to the system and to take no action which would damage or would destroy the system or any components while it is on the Lessee's property. The Lessee further agrees to allow access at reasonable time to Resource Alternatives personnel in order to monitor, service or remove the system according to the terms of this agreement. All maintenance or service work shall be made at reasonable hours and will be provided at no charge during the term of this lease.
8. In the event the Lessee's roof requires maintenance or re-roofing during the term of this lease, Lessee agrees to pay for the labor of removing and replacing the collectors and applicable piping should he so request.

9. In the event of the default in payment in any monthly installment due under paragraph 2 of this lease, which default last for a period of three months, Lessee agrees that Resource Alternatives shall be authorized to remove the system. Lessee further agrees to pay a removal fee of \$300., plus the lease rentals due for the period until the date of removal. Removal would be in accordance with conditions set forth in paragraph 4 of this lease.

10. Sizing Criteria:

Est. hot water usage in gal/day _____

Cilco rates: \$ _____ /KW
June-September

No. persons in residence _____

\$ _____ /KW
October-May

Water source _____

Water temperature at source _____

Water temperature to house hot _____

Annual hot water costs \$ _____ /yr.

Energy required in KW/day _____

Solar contribution _____ %

Solar savings ÷ 12 = \$ _____
Monthly fee.

Homeowner-Lessee

Resource Alternatives

Date

Date

Date of installation completion

First Ammendment

Based on current utility rates, as of _____ the monthly fee is \$ _____.

Homeowner-Lessee Date

Resource Alternatives Date

Date

Date

Second Ammendment

Based on current utility rates, as of _____ the monthly fee is \$ _____.

Homeowner-Lessee Date

Resource Alternatives Date



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NEWS RELEASE

The Department of Energy, through its Midwest Appropriate Technology Grants Program has awarded a grant to a Peoria area small business, Resource Alternatives.

The \$27,435 grant will enable Resource Alternatives to purchase and install 10 solar hot water heaters on local homes. These systems will be leased to the homeowners for a three year initial contract; the leasing fee will be equivalent to the dollar savings afforded by the solar system. All systems will be monitored for a full year by Cilco.

Through this program local homeowners interested in solar will have the opportunity to appraise the performance of the systems before committing themselves to its purchase.

Objectives of the program include evaluating the receptiveness of homeowners to solar leasing as well as determining the business potential of such an approach. In addition, results of the monitoring will provide actual energy/dollar savings to the consumer as well as projected energy generation savings to Cilco.

Prospective participants in the program are currently being sought. To be eligible a homeowner must have an electric hot water heater and be served by Cilco.

For more information on this program contact Susan Rutherford at Resource Alternatives, P.O. Box 175, Mossville, Il. 61552 or call her at 309/579-2435.

Advertising Exec Adams To Address Peoria Businessmen

Charles F. Adams, executive vice president and director of the American Association of Advertising Agencies, will address the Better Business Bureau and the Peoria Advertising Club at noon March 16 at the



Richwoods one of 25 schools competing, was the only downstate school to place a team in any of the three competition levels, placing at least one in each.

The Richwoods junior varsity team of Lisa McSherry and Jeff Katz placed fifth, while the novice team of Kari Broshears and Louis Stricker also finished fifth. Another novice team, Sarah Clark and Jayson Galler, tied for ninth.

Mossville Solar Energy Firm Gets \$27,000 DOE Grant

The Mid-American Solar Energy Complex, Resource Alternatives Inc. of Mossville has been awarded a \$27,000 U.S. Department of Energy grant.

The grant will be used to evaluate the user appeal of heating domestic tap water with solar energy.

The non-profit company will buy 10 solar water heaters and lease them to homeowners. It is now seeking participants. Installation will be included.

To be eligible a homeowner must have an electric hot water heater and be a customer of the Central Illinois Light Company.

For information contact Susan Rutherford, Resource Alternatives Inc., P.S. Box 175, Mossville, 61552.

ATTENTION!



Homeowners
with
**ELECTRIC
HOT WATER
HEATERS**

Announcing a unique SOLAR WATER HEATER LEASE PROGRAM

A Chance To Try It Without Buying!

- Implementation funds thru Department of Energy
- Cost for 3 yrs. is equal to Solar Savings
- Option to Buy
- Performance monitored for one full year

For More Information Contact.



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HOURS: Wed. - Sat. 9-5
Sun. 1-5

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DOE Grant Helps

Family Firm Offers Lease On Sun



THE CONTRAPTION at right is the heat exchanger and control box for a solar hot water heater offered by Resource Alternatives. Above are co-founder of the family firm Susan Rutherford, daughter Emily (left), close to 5, and son Jamie, 6.

Solar technology, despite all the money it can save a homeowner in the long run, still requires a sizeable investment at the outset. That is why a young Mossville company called Resource Alternatives is offering to install solar hot water heaters for free, and lease the \$3,000 of equipment at no extra cost.

Nothing more than their previous electric bills, that is. Whatever the homeowner saves from his electric water heating bill will be the cost of his payment to Resource Alternatives. Maintenance and servicing of the system also will be free for the three-year lease term. And all of the first year's payments can go towards buying the equipment.

How can a small family company, still working at the break-even rate, afford to offer such a deal on the expensive equipment? Resource Alternatives was recently awarded a \$27,435 grant from the Department of Energy. The grant will help the firm install the systems in 10 homes, offer the low leasing cost and monitor the energy savings for three years.

Founders of the company, Jim and Susan Rutherford, are now seeking homeowners who would like to take part.

With one of her four children in her arms, in their "showroom" which is a converted barn that doubles as a family room during business hours, Susan Rutherford explained how the system worked.

A few gallons of non-toxic anti-freeze is pumped thru two or four solar collectors where it picks up heat. In a heat exchanger, cool water draws off the warmth and is then stored until use.

On sunny days, the solar unit will heat the water to 120-degrees. But on cloudy winter days, in this area, the traditional hot water heater will automatically turn on. It will be retained for back-up.

With help from Central Illinois Light Company, the Rutherfords have figured that the average family of four could save \$286 per year switching from electric to solar water heating. (Or between \$15 and \$30 a month, which would be the payments). They are not offering the lease program to people who have gas heaters because the savings would not be as great.

Interested homeowners will be chosen on the basis of various factors—including

whether their roof or lawn could accept collectors that must face South. In some cases large buildings or trees could shade the collectors from the sun. Six families already have applied.

Solar water heaters are relatively new to this area—the Rutherfords have installed four in local homes—but the systems have caught on in Connecticut, where 600 have

been sold by one company in three years according to Susan. They are not as attractive here, she said, because energy costs a not as high as in Eastern states. But with tax credit—upon purchase of a solar system—the Rutherfords have figured the savings will make up the cost of a solar water heater in six to seven years. After that, the dollars saved are dollars earned.

Anti-Smoking Ear Plug Difficult To Assess

By Deborah Browne

Every day is a new struggle in this battle of the butts.

One day I might have five cigarettes, but the next I'll have 20. In fact, the first few days in this Acupressure program, when I was psyched up and determined, were easier than recent ones.

Over the past seven years since I got hooked on the cigarette habit, it's become part of daily life. Wake up—have a cigarette. Answer the phone—have a cigarette. And especially, start writing a story—have a cigarette. A friend who is going through the treatment with me laughed as she claimed, "My car won't start unless I light a cigarette." We're that bad.

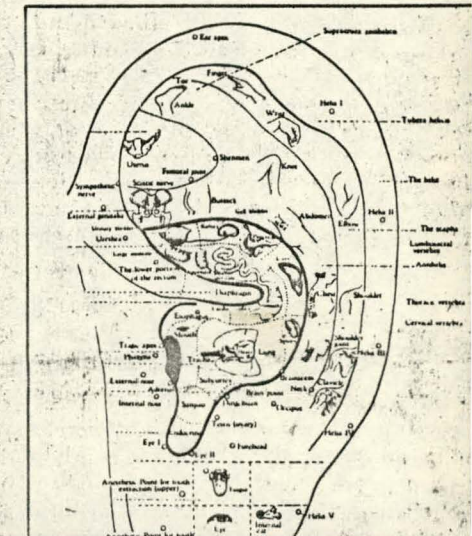
In case you've missed the first several parts of this series, the Acupressure treatment I'm talking about is being given to us by a Chiropractor in town named Dr. Robert Schelly. He also uses the Acu-Mold method to help people lose weight. The smoking treatment costs \$200.

What it consists of is a custom-made ear plug you can wear and remove as your urge demands, and a vibrator which you use to buzz your ear everytime you want a cigarette. The idea behind this is that the ear has Acupuncture points that correspond to every part of the body, according to ancient Chinese medicine. The ear plug has three small chrome balls that touch the mouth point (ostensibly to interfere with the oral fixation) the

esophagus point and the sub-cortex point. The vibrator is used to stimulate these points.

Of course the object of this story is to determine whether the treatment works.

My friend and I have wavered in our judgment of its effectiveness. At first, when we cut down substantially, we were convinced that our success was due to our own willpower. My hesitance to give the ear plug much credit is based on both philosophical and physical reasons. Philosophically, I like to think I can do it myself. Physically, I could see no difference in my urge to smoke before and after having the ear plug.



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