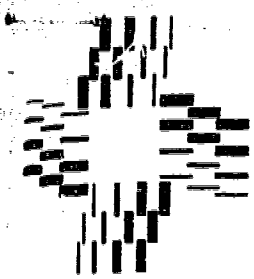
DOCUMENT RESUME

ED 196 484 JC 810 026

TITLE	Profiles in Energy.
INSTITUTION	National Council for Resource Development, Washington, D.C.
SPONS AGENCY	Department of Energy, Washington, D.C. Office of Consumer Affairs.
PUB DATE	Jun 80
GRANT	DE-FG05-79IR10296
NOTE	34p.
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Community Education; Conservation Education; *Energy; Faculty Development; *Financial Support; Fuels; Labor Market; Needs Assessment; Program Descriptions; *Program Development; Program Proposals; Solar Radiation; *Two Year Colleges
IDENTIFIERS	Coal; Coal Mining; Geothermal Energy; Windmills

ABSTRACT

In order to assist two-year college educators in increasing their participation in energy-related activities, this publication provides guidelines for planning energy projects and descriptions of model energy programs. The steps outlined for program planning include the assessment of area energy resources, the identification of local energy-related training needs and job prospects, and the determination of whether new programs are needed or whether energy-related topics should be incorporated into existing programs. The employment and training implications of the National Energy Act are outlined prior to a discussion of the process of identifying funding sources and a checklist of several important requirements for successful program planning and development. Descriptions of 21 externally funded, energy-related activities undertaken by two-year colleges conclude the report. These activities focus on alcohol fuels, the training of energy technicians in coal-fired electrical generation, coal miner training, community education and information dissemination on energy issues, faculty development, energy conservation, geothermal energy, solar energy, and windmill generators. Each program description includes the dollar amount awarded, the name of a contact person and the funding agency, and an outline of activities. (JP)



Energy Project

PROFILES IN ENERGY

Produced by:

Jacqueline E. Woods
Energy Project Coordinator

Janice E. Judkins
Energy Project Staff Assistant

Funded by the Education Division, Office of Consumer Affairs, U.S. Department of Energy

National Council for Resource Development
Suite 410 One Dupont Circle, NW. Washington, D.C. 20036
An Affiliate of the American Association of Community and Junior Colleges

PREFACE

This publication is presented as a companion document to the Energy Resource Guide, a compilation of characteristic funding sources in both the public and private sectors, prepared by the National Council for Resource Development (NCRD) in June of 1980. With the presentation of these two resources, it has been the aim of NCRD to share with educational decision makers, particularly in the community and junior colleges, energy program ideas, program planning resource information, and external funding support information to assist these educators in improving their access to and participation in energy-related activities.

The sampling of energy programs within this edition, demonstrates several innovations that are adaptable to other educational settings. Many thanks go to the colleges who shared project information for this publication.

Robert Stoddard
NCRD President

TABLE OF CONTENTS

INTRODUCTION

The primary purpose in preparing this publication is to present energy-related project ideas which are applicable to community and junior college programming.

The projects described within, are a sampling of the kinds of useful activities that can generate external funding support for educational energy programming. The success of these projects is partially dependent on a comprehensive plan of energy needs and external funding potential within the various communities served by these institutions. Therefore, the NCRD energy staff thought it most appropriate to also include a brief section reviewing planning as a basic principle that must be applied in order to produce successful energy related programs.

Community college decision makers, including Trustees, Presidents, Deans, Resource Development Officers, and faculty and staff will find this document a useful tool in identifying their own energy programming potential.

A special thanks is given to the college personnel who submitted program data and to Janice Judkins for editing the profiles described herein.

Jacqueline E. Woods
Energy Project Coordinator

ENERGY AND THE TWO-YEAR POSTSECONDARY INSTITUTION: PLANNING IS THE KEY

Analysis of two-year institutional program offerings show that efforts are being made to incorporate energy-related activities and services into our educational offerings. Comprehensive community colleges, vocational-technical institutions, along with other formal and informal adult educational programs, have a very important role to play in providing training for jobs, consumer information, and in the development of new or alternative technologies in helping this country meet its energy efficiency goals. In order to effectively meet this challenge, two-year institutions must participate in a proactive energy development process. It is important that community colleges target specific current and future education and training requirements for energy-related programs and also demonstrate the ability to successfully obtain the technical and fiscal resources to implement these program concepts. Key to this process, but most often minimized, is planning. Effective planning provides a solid framework for generating both programmatic and fiscal support for your activities.

The purpose of this section of the monograph is to provide the reader with an overview of the major steps necessary to engage in planning your energy education process. Hopefully, too, this brief presentation will assist you in generating the kinds of local needs instruments that will be viewed by the people in your communities and by the energy program decision makers, in both the public and private sectors, as being useful in affecting the direction of energy development.

Steps to Program Planning

One of the first questions usually asked by an institution or organization in discussing energy programming is, "What can we do?" In addressing this question, the most successful programs have begun by analyzing the national forecasts and comparing that information with local priorities which provides both a short and long range indication of a community's energy needs. It is not enough to say that your community is going to get involved in solar, weatherization, gasohol production, hydropower, photovoltaics, or wind, just because those technologies are in vogue, without first determining the impact or need for these technology options by your consumers.

A step by step, documented assessment of what natural energy resources are available in your area, what kinds of training are needed in your area, the anticipated jobs available after training (locally or elsewhere), and whether or not new programs have to be established or existing programming upgraded to include energy related components into the curricula, is essential to the development of quality energy programs and services. In addition, the information acquired from this assessment will be valuable for locating and forming working relationshops with other organizations in the community who are addressing the same issues. Business, labor, local governments, community-based organizations, and educators must work in concert to successfully combat our current energy limitations. After identifying the community's energy needs, the institution must analyze the importance of these needs in terms of their implications for

employment, training, and education. These priorities should be based on the resources available to the college and community in terms of experts, facilities, equipment, and jobs, and the complexities involved in developing the energy program strategies.

Many times the mistake is made where institutions identify energy options that are of national significance but where no specific local significance has been thoroughly explored. There is no question that national priorities must be vigorously supported but this should be coupled with local ability to respond with training materials, resources, and jobs. As demonstrated in the following chart, the National Energy Plan does have employment, educational and training implications which community colleges have the ability to respond to quickly and effectively but, they should only dare to if practical to their local needs.

Summary of Major Employment, Education and Training Impacts of NEA by Type of Activity

Type of Activity	Anticipated Employment Impacts	Education and Training Implications
1. Construction of Energy Facilities	Predictions range as high as 5.5 percent annual growth in employment for construction of energy-related facilities	Training of boilermakers, pipefitters, welders, and electricians is important to meet demand. Construction and chemical engineers will also be needed in large numbers. Engineer technicians are expected to be used in increasing numbers on energy projects
2. Coal Conversion	a. 100,000 additional miners may be needed by 1985, with 68 percent of the growth in the East	To accomodate growth, 40,000-50,000 new miners may have to be given skill and safety training each year
	b. 55,000 additional railroad workers may be needed to transport coal	On-the-job training will provide skills needed for most new rail transportation jobs
	c. 40,000-50,000 additional workers may be needed in related activities such as rail car production and mine construction	Impacts will be felt in mining engineering programs and appropriate apprenticeship programs

3. Energy Conservation	a. As many as 8,600 auditors and 500 inspectors may be needed for residential audits each year through 1985	As many as 25,000 home auditors may have to be trained in job-specific programs administered by colleges, technical schools, or public utilities
	b. More than 6,000 additional workers may be needed by 1985 to make energy-saving furnace modifications	On-the-job training will be required for personnel to conduct furnace modifications
	c. Weatherization workers for weatherstripping, caulking, storm window and door installation, etc.	On-the-job training by existing firms and CETA training for weatherization for weatherization of houses of low-income families
4. Solar Energy	Uncertain employment growth in design, manufacture, installation, operation and maintenance of flatplate collectors, photovoltaics, gasohol distilleries, wood boilers, etc.	Unpredictable employment growth and recent proliferation of solar-related education programs leave further developments in this area uncertain
5. Other	a. Oil and gas exploration employment may grow by 200,000 or over 50 percent, by 1985	Training of geologists, geophysicists, and extraction technicians will be needed
	b. Entry-level employment of nuclear engineers and technicians is uncertain	Training and education requirements for nuclear-related jobs are very uncertain
	c. Research and development activities are expected to grow in most energy areas. Coal and other conventional fuels production will share growth with synthetic fuels, solar, and other unconventional energy source research and development activities	Education in traditional disciplines with an emphasis on energy-related issues will provide necessary research and development personnel

8

Oak Ridge Associated Universities. Employment, Education, and Training Implications of the National Energy Act, April 1980.

The next link in your planning process is the identification of resources. Every alternative from institutional support to local, state, regional, and national public and private sector support should be explored and considered as a potential source of technical and/or fiscal support. As demonstrated in the NCRD Energy Resource Guide, many traditional (e.g. Department of Energy) and non-traditional (e.g. National Endowment for the Humanities, Department of Commerce, general purpose foundations, and local utility companies) resources do exist to support clearly defined energy programs.

The grant boom of the 1960's is over. Grant seekers, today, must be prepared to meet powerful competition. Resource assistance will go to those who demonstrate need for a program, skill in identifying how program ideas fit the resource agencies' objectives, and the ability to demonstrate how a program idea can be developed, implemented, managed, and, above all, duplicated by others.

The following is a basic checklist summarizing several important requirements for successful energy program planning and program development:

- ☐ Identification of your local community's energy needs
- ☐ Identification of the jobs available in your community
- ☐ Knowledge of current legislative political, and/or economic activities that are affecting the energy market place
- ☐ Support of your energy program ideas with statistical evidence or statements from authorities
- ☐ Knowledge of similar programs - where they exist - what makes them successful or unsuccessful
- ☐ Planned energy activities with evidence of consumer impact and/or participation
- ☐ Identification of the availability of fiscal resources - are there local monies available or have you investigated other potential public and private sector fiscal resources - do you know what they currently are supporting and how much they know about you and your potential needs
- ☐ Above all, the ability to present, in writing, a clear, concise statement of your proposed energy program.

Two-year postsecondary institutions must strengthen their ability to respond quickly and effectively to energy related training, employment, education, and small-scaled technological development needs. Although many of these needs are being presented through legislation and research and development activities nationally, the most effective needs will be met through local investigation and planning of community specific activities.

The sampling of externally funded, two-year postsecondary programs in this publication is presented to show that planning does have its rewards. The projects were designed to meet local and national instructional and consumer requirements. They clearly demonstrate that community colleges are key educational vehicles for reaching our country's energy independence goals.

ENERGY ACTIVITY: Alcohol Fuels

Project Name: (if applicable) Alcohol Fuels Program

Name of Institution: Colby Community College
Location: 1255 South Range
Colby, Kansas 67701

Region: VII

Allocation/Award: $10,000

Time Line: One-week workshop (4) July-September, 1979 (initial funding)

Source of Support: U.S. Department of Energy, Office of Consumer Affairs

Contact Person: Debbie Wolfe, Energy Information
Colby Community College

Phone Number: 913/462-3984

Project Description: In July, 1979, Colby Community College began a one-week alcohol fuels workshop which has served as a model for 40 other community colleges through the U.S. Department of Energy. Originally, only four workshops were scheduled but because of the high amount of interest, Colby still offers workshops on a regular basis. Over 800 persons from 46 states and 5 foreign countries have attended the one-week session. The purpose of the workshops is to offer a broad perspective on alcohol fuels and their production, focusing on decision making and operations. The pros and cons of making and investing in this new technology are pointed out and details on exactly how to produce alcohol are explained. The workshops are designed for hands-on experiences as well as theory by having students participate in laboratory and field situations.

Other funding sites by state can be found in the January, 1980 issue of The Energy Consumer, a publication prepared by the DOE, Office of Consumer Affairs.

DOE has awarded 28 other community/junior colleges funds to serve as "fuels education-training/information centers". Those institutions were:

Mississippi County Community College
Blytheville, Arkansas
Harry Smith
501/762-1020

Modesto Junior College
Modesto, California
Ron Alves
209/526-2000

College of Siskiyous
Weed, California
Gary Peterson
916/938-4463

Lamar Community College
Lamar, Colorado
Bill Henderson
303/336-2248

Delaware Technical & Community College
Dover, Delaware
Rich Morchese
302/678-5416

Brevard Community College
Cocoa, Florida
Maxwell King
305/632-1111

College of Southern Idaho
Twin Falls, Idaho
James Taylor
208/733-9554

Kankakee Community
Kankakee, Illinois
M.E. Marlin
815/933-0345

Lake Land Community College
Matoon, Illinois
Robert D. Webb
217/235-3131

Lincoln Land Community College
Springfield, Illinois
Robert Poorman
217/786-2200

Des Moines ATVI
Ankeny, Iowa
Richard Byer
515/964-6228

Eastern Iowa Community College
Davenport, Iowa
Robert Illingsworth
319/242-6841

Iowa Central Community College
Fort Dodge, Iowa
Edwin Barbour
515/576-3103

Paducah Community College
Paducah, Kentucky
Donald Clemons
502/442-6131

Cecil Community College
North East, Maryland
Robert Gell
301/287-6060

Springfield Tech & Community College
Springfield, Massachusetts
Robert Geidz
413/781-6470

Charles S. Mott Community College
Flint, Michigan
Charles Roche
313/762-0237

NW Mississippi Junior College
North Senatobia, Mississippi
William Oakley
601/562-5262

State Fairground Community College
Sedalia, Missouri
Marvin Fielding
816/826-7100 x60

South East Community College
Milford, Nebraska
Deal Roll
402/761-2131

Onondaga County Community College
Syracuse, New York
Andreas Paloumpis
315/469-7741

Navajo Community College
Shiprock, New Mexico
Raymond Housh
505/368-5291

North Dakota State School of Science
Wahpeton, North Dakota
Claire T. Blikre
701/671-2221

Pitt Community College
Greenville, North Carolina
William Fulford
919/756-3130

Lehigh County Community College
Schnecksville, Pennsylvania
Robert Walker
215/799-1141

Ogala Sioux Community College
Pine Ridge, South Dakota
Roberta Barbalace
606/867-5110

Navarro Junior College
Corsicana, Texas
Darrell Raines
214/874-6501

Eastern Wyoming College
Torrington, Wyoming
Charles Rogers
307/532-7111

ENERGY ACTIVITY:	Coal/Career Training
Project Name: (if applicable)	Power Plant Technology Program
Name of Institution:	Miles Community College
Location:	2715 Dickinson Miles City, Montana 59301
Region:	VIII
Allocation/Award:	$75,000 (development monies and all salaries)
Time Line:	On-going (began November, 1978)
Source of Support:	Montana Power Company
Contact Person:	John Koch Miles Community College
Phone Number:	406/232-3031

Project Description: A specific request came from the Montana Power Company asking the college to establish a two-year Associate of Applied Science program for energy technicians, focusing upon coal-fired electrical generation. As a result of this request, a Power Plant Technology Program was established to provide trained, entry-level technicians for employment in coal-fired electrical generation plants. The program, a coordinated mix of classroom and on-the-job training, provides concentrations in: (1) electricity, (2) instrumentation, (3) operator training, (4) mechanics, and (5) business administration. Within each line, a set of packaged instructional materials was developed. This curriculum has, subsequently, been approved by the Miles Community College Academic Standards and Curriculum Committee, the college's Board of Trustees, the International Brotherhood of Electrical Workers - Local #44, the Montana Board of Regents (March 11, 1980) and our own Energy Resource Technology Advisory Committee. This committee is composed of representatives: Montana-Dakota Utilities; Montana Power Company; Westmoreland Resources, Inc.; N.U.S. (a large private training corporation); Basin Electric Power Company; and Miles Community College. The present plant-site effort involves forty-eight full-time employees of Montana Power registered in courses taught at Colstrip and Billings. Montana Power Company is directly involved in the program, and provides supervised on-the-job experience for students as well as commitments of time from its personnel training staff. Miles Community College plans to add an on-campus program which parallels and complements the plant-site effort. The potential for such an addition has been greatly enhanced by the recent commitment of Montana Power Company to the opening of a training center in Billings, Montana. Besides operating a high-fidelity stimulator, the staff of this installation would be available to teach entry-level skills.

ENERGY ACTIVITY: Coal Mining/Education training

Project Name: (if applicable) Coal Miner Training Program

Name of Institution: College of Eastern Utah
Location: 451 East 4th North
Price, Utah 84501

Region: VIII

Allocation/Award: $60,000

Time Line: October, 1979 - October, 1980

Source of Support: Mine Safety and Health Administration

Contact Person: Gary Wixom, Dean of Applied Science
College of Eastern Utah

Phone Number: 801/637-2120 x252

Project Description: The College of Eastern Utah has been providing training to coal miners under the guidance of the Utah State Industrial Commission since 1974. Funded by the Mine Safety and Health Administration to offer this service, over 3,000 miners have been trained annually during the last two years in the following courses:

- Mine Pre-employment
- Mine Orientation
- First Aid
- Mine Safety
- Mine Rescue
- Dust and Noise Control
- Emergency Medical Technology
- Supervisory Training
- Mine Electrical Training
- Mine Mechanical Training

ENERGY ACTIVITY:	Community Education/Information
Project Name: (if applicable)	Community Energy Information and Education (CEIEC) (locally referred to as "Sunrise Energy Center")
Name of Institution: Location:	Yosemite Community College District College Avenue Modesto, California 95352
Region:	IX
Allocation/Award:	$88,797
Time Line:	December 31, 1979 - August 31, 1980
Source of Support:	California Energy Commission
Contact Person:	Bill Wilson, Coordinator, CEIEC/Douglas Beaman, Manager, Energy Center - Yosemite Community College District
Phone Number:	209/526-2000 x311

Project Description: The Community Energy Information and Education Center was developed as a pilot program to serve business as well as the residential sectors in and around Modesto. The contract provided for program staffing, consultant services in energy program development, and program monitoring and evaluation. Some of the center's activities have included: serving as a model for other community colleges and agencies on setting up solar heating systems, providing for outreach efforts to encourage links between commercial business and private consumers, offering performance details on local solar hardware, and acting as a regional and statewide facility supporting the development of other energy information centers.

ENERGY ACTIVITY:	Education
Project Name: (if applicable)	Energy and The Way We Live: A National Issues Forum
Name of Institution: Location:	Over 400 community and junior colleges, four-year institutions, and community organizations/ service groups
Region:	I-IX
Allocation/Award:	$500-$10,000 per institution
Time Line:	Ten-week period - February, March and April, 1980
Source of Support:	State Humanities Councils (independent bodies with program guidelines differing from state to state)
Contact Person:	Executive Director, State Humanities Council (per each state)
Phone Number:	As per State Humanities Councils for each state

Project Description: Energy and The Way We Live: A National Issues Forum was designed by the American Association of Community and Junior Colleges and primarily funded by the National Endowment for the Humanities and the Department of Energy to engage communities across the country in a thoughtful examination of past, present and future dimensions of the energy issue. Public forums, town meetings, media programs and other related events served as the vehicles for community-wide consideration of this aspect of the energy issue and provided citizens with opportunities to better understand the energy policy choices we face and the implications that these choices hold for our way of life.

A specially prepared Calendar of Issues served as the framework or agenda for the national energy dialogue. The Calendar covered three months (February through April, 1980) and presented a major topic for each month. These topics were subdivided into ten weekly issues. Program planners thus could choose to make their forum series a monthly, biweekly or weekly event.

More than four hundred community colleges and other local educational institutions provided leadership for this program in their communities. They received technical assistance and a full range of materials and resources from ten regional coordinating colleges, twelve national participating organizations and AACJC. Many received program funds in varying amounts from local contributors and grants from State Humanities Councils.

ENERGY ACTIVITY:	Education Center
Project Name: (if applicable)	Energy Conservation and Development Area (ECDA)
Name of Institution:	Appalachian State University
Location:	Boone, North Carolina 28608
Region:	IV
Allocation/Award:	$70,000 (project budget)
Time Line:	August, 1980 - July, 1981
Source of Support:	DOE Region IV, Tennessee Valley Authority, and North Carolina DOE
Contact Person:	Michael Epley, Director, ECDA Appalachian State University
Phone Number:	704/262-4084

Project Description: In 1978, the Regional Energy Institute was formed, composed of three North Carolina Community College institutions (Wilkes, Caldwell, and Mayland), a community action agency, an electric cooperative, a branch of the state department of public instruction, and a university. Since its formation, the Institute has served as a catalyst and coordinating agent for a number of energy conservation and development efforts in an eight county area of western North Carolina. Institute members have been involved in energy projects ranging from investigations of wind and alcohol fuel as viable alternate technologies to the improvement of substandard housing. Recently the Institute was instrumental in obtaining an Energy Conservation and Development Area designation for Watauga County. This national designation was a first for the U.S. Department of Energy.

The Institute serves as a mechanism to combine the resources of member institutions, agencies, and concerned groups in order to implement projects beyond the capability of a single member. The Institute approach may serve as a model for other organizations wishing to develop a cooperative effort to meet the energy needs of their region.

ENERGY ACTIVITY:	Faculty Education
Project Name: (if applicable)	Faculty Development Program
Name of Institution: Location:	See list below in "Project Description"
Region:	I-IX
Allocation/Award:	Range: $8,000-$9,000/In-service training $15,000-$30,000/Summer workshops
Time Line:	Summer 1980/School year 1980-81
Source of Support:	U.S. Department of Energy, Office of Consumer Affairs, Education Division
Contact Person:	Per institution listed below in "Project Description"
Phone Number:	Per institution listed below in "Project Description" phone numbers not available

Project Description:

The Education Division of the Office of Consumer Affairs, U.S. Department of Energy, has provided grant awards to two and four-year colleges and universities offering faculty members in energy education an opportunity to participate in energy education workshops. These workshops are conducted at each institution encompassing all aspects of energy education including the development, conservation and utilization of energy resources. "Approximately 8,000 study opportunities" will be provided during a 1-3 week period through the summer of 1980 and the 1980-81 school year.

DOE's goal is to make available as much factual data and information as possible on energy resources, alternatives to current resources, alternatives to current technologies, and the environmental and economic aspects of the energy problem in addition to incorporating pertinent information into the nation's schools.

Of the total awards given, 25 community/junior colleges received awards. The two-year postsecondary institutions involved are:

Arizona
Phoenix College
Dr. Gerard F. Judd and
Mr. Larry Sparling

California
Santa Rosa Junior College
Dr. Robert D. Rubin

Sonoma County Junior College
Ms. Jan VanSchuyver

Navajo Community College
Dr. Donald B. Peterson

Colorado
Colorado Mountain College/West Campus
Dr. Larry Puleo and
Dr. I. Louis Trapani

Connecticut
Housatonic Community College
Professor John Williamson

Florida
Brevard Community
Dr. Barton Lipofsky

Valencia Community College
Dr. Marion H. Baker

Illinois
John A. Logan College
Mr. Jesse Moore

Lake Land College
Mr. Charles Wieck

Iowa
Clinton Community College
Dr. John L. Bonte

Kansas
Johnson County Community College
Dr. Kevin A. Gratton

Maryland
Allegany Community College
Dr. George R. Plitnik

Michigan
Grand Rapids Junior College
Dr. Karl Fritz Bruder and
Ms. Kay Dodge

Missouri
St. Louis Community College at Forest Park
Professor Jack E. Miller

New Jersey
Middlesex County College
Dr. David E. Beyer and
Professor Jack Waintraub

New Mexico
Navajo Community College
Professor Lee Briggs

New York
Westchester Community College
Dr. Malcolm Goldberg

North Carolina
Martin Community College
Dr. Geoffrey E. Balkam

Pennsylvania
Beaver College
Dr. Joan S. Schmidt

Texas
North Lake College, DCCCD
Dr. Leonard Kubicek

Utah
Dixie College
Professor L. Grant Hinchcliff

Virginia
Central Virginia Community College
Mr. Ralph W. Brown, Jr.

Paul D. Camp Community College
Mr. J. Michael Forrest

Wisconsin
Wisconsin Indian Head Tech. Institute
Mr. Robert Bergstrom

Wyoming
Laramie County Community College
Mr. Dick Krahenbuhl

ENERGY ACTIVITY: Energy Management/Conservation

Project Name: (if applicable) Conservation Management Program

Name of Institution: Northwest Mississippi Junior College
Location: Senatobia, Mississippi 38668

Region: IV

Allocation/Award: $7.7 million (1st and 2nd phases)

Time Line: December 15, 1978 - September 30, 1980

Source of Support: U.S. Department of Energy, Office of Solar Progra

Contact Person: John Ryan, Vice President, Total Energy Applications/Management (TEAM, Inc.)

Phone Number: 703/642-5030

Project Description: Currently Mississippi County Community College, under the management of TEAM, Inc., is developing the largest photovoltaic demonstration system in the world. Essentially, the system is a "stand alone" operation. That is, all electrical and thermal requirements will be provided by the system, including air conditioning, heating, domestic hot water, electricity and lighting. Energy will be derived for the photovoltaic collectors from the sun, with the excess electricity generated being directed to the utility grid and later drawn out on a one-for-one exchange. During winter months, collectors will be actively cooled to produce higher solar cell efficiencies and the heat drawn off utilized to heat the building. The system will provide energy for the 50,000 foot college facility.

ENERGY ACTIVITY: Geothermal/Education Center

Project Name: (if applicable) Energy Information Education Center

Name of Institution: Alvin Community College
Location: 3110 Mustang Road
Alvin, Texas 77511

Region: VI

Allocation/Award: $60,000 (approximately)

Time Line: August, 1978 - July, 1979

Source of Support: U.S. Department of Energy

Contact Person: Bill Horine
Alvin Community College

Phone Number: 713/331-6111 x268

Project Description: This information/education center on alternative energy sources (specifically geopressured/geothermal energy), was designed to educate the students as well as the community. The objectives of the program were to (1) create an energy information dissemination system through the University of Texas at Austin and Alvin Community College; (2) design and develop programs for presentations and short courses on geothermal energy information; and (3) offer courses and presentations in the community on the impact of rapid growth, techniques to determine the dimensions of this impact, and plans for future strategies. Local government officials, industrial management, interested citizens, public schools, and community college instructors participated in the program.

ENERGY ACTIVITY: Solar/Demonstration

Project Name: (if applicable) Passive Solar Residential Demonstration Program

Name of Institution: See list below in "Project Description"
Location:

Region: IV

Allocation/Award: $5,000 (each school - supplemental funding)

Time Line: July, 1980 - June, 1981

Source of Support: Energy Institute, North Carolina Department of Commerce

Contact Person: Ben Albright, N.C. State Department of Public Instruction
Peggy Ball, N.C. State Department of Community Colleges

Phone Number: 919/733-7421 919/733-7946

Project Description: North Carolina's Department of Commerce, Energy Institute, has designed a demonstration program in which high school vocational programs and community colleges will be offering prospective members of the construction industry direct experience in the construction of 12-20 North Carolina homes with passive solar systems. With an average of only 2% - 5% additional cost to homes utilizing the system, 40% - 75% of all home energy requirements can be provided.

Schools in the North Carolina school systems were eligible to apply providing they currently offered or intended to offer "live project" residential curriculums. Funding was provided for consultant fees for planning passive solar elements of construction, advertisement and related activities. Publicity is an important factor in the program since the completed homes will serve to demonstrate to the public the importance of utilizing solar energy.

The following schools were given grants:

Pitt Community College
Cleveland Technical Institute
Guilford Technical Institute
J. H. Rose High School
Orange County High School
Allegheny County High School
Cleveland County High School
Alexander County High School

ENERGY ACTIVITY: Solar/Education

Project Name: (if applicable) Project Sunrise

Name of Institution: Modesto Junior College
Location: College Avenue
Modesto, California 95350

Region: IX

Allocation/Award: $42,000

Time Line: July, 1979 Completed

Source of Support: California Energy Commission

Contact Person: Bill Wilson
Modesto Junior College

Phone Number: 209/526-2000 x311

Project Description: Project Sunrise was designed to offer in-service training for community college instructors through workshops on developing and building solar water heating systems. Fundamental concepts of collectors, storage, and conservation of solar energy were emphasized along with providing the instructors with experience, in building the systems. Participants will become experts in the community on solar concepts and be able to provide others with information on materials and advice on setting up similar projects.

ENERGY ACTIVITY:	Solar/Heating
Project Name: (if applicable)	Demonstration Project
Name of Institution:	Cumberland County College
Location:	P.O. Box 51 Vineland, New Jersey 08332
Region:	II
Allocation/Award:	$15,000
Time Line:	August 31, 1979 - October 31, 1980
Source of Support:	Northeast Regional Appropriate Technology Small Grant Program, U.S. Department of Energy
Contact Person:	Paul Menz Cumberland County College
Phone Number:	609/691-8600

Project Description: Cumberland County College was funded to install a complete solar system for preheating hot water for showers and kitchen facilities within the institution. The project was designed to reduce the use of natural gas. It would also act as an educational resource by: 1) serving as a solar laboratory in solar energy courses; 2) integrating information into Physics and Science courses; 3) serving as a model project open to inspection; and, 4) offering a guideline of design for solar/heating systems to the community and industry.

ENERGY ACTIVITY:	Solar/Heating
Project Name: (if applicable)	Solar Demonstration Project
Name of Institution:	Central Arizona College
Location:	Woodruff at Overfield Road Collidge, Arizona 85228
Region:	IX
Allocation/Award:	$24,613
Time Line:	December, 1978 - June, 1979
Source of Support:	Arizona Solar Energy Research Commission
Contact Person:	Dr. Dale Gibson Central Arizona College
Phone Number:	602/836-8243

Project Description: The Arizona Solar Energy Research Commission provided Central Arizona College with a six-month grant to develop a demonstration program in solar heating. The activities included evaluation of solar pool heating materials for mechanical and chemical stability, investigation of solar degradation, and installation and handling of materials. Construction of the project took place during the summer of 1979 and involved setting up and installing collection banks for heating the Olympic pool at the institution.

ENERGY ACTIVITY: Solar/Heating

Project Name: (if applicable) Solar Demonstration Project

Name of Institution: Columbus Technical Institute
Location: 550 East Spring Street
P.O. Box 1609
Columbus, Ohio 43216

Region: V

Allocation/Award: $334,985

Time Line: September, 1977 - October, 1979

Source of Support: U.S. Department of Energy, Office of Solar Programs

Contact Person: Russell W. Jordan
Columbus Technical Institute

Phone Number: 614/227-2426

Project Description: The two-year Solar Demonstration Project was developed as an example of solar energy heating/cooling in cooperation with the Department of Energy. The system was designed to provide one of the institution's academic buildings with 70% of its heating requirements and 30% of its cooling requirements. The building houses administration offices, lecture halls, resource centers, laboratories and classrooms. The project will serve as a model to the community while offering information on the system's development and functions.

ENERGY ACTIVITY: Solar/Heating

Project Name: (if applicable) Vocational Solaronics Laboratory/Demonstration Project

Name of Institution: Mayland Technical Institute
Location: P.O. Box 547
Spruce Pine, North Carolina 28777

Region: IV

Allocation/Award: $733,910

Time Line: 15 months (began March, 1980)

Source of Support: Avery, Mitchell and Yancey Counties; North Carolina State Baord of Education; and Appalachian Regional Commission

Contact Person: O.M. Blake, Jr., President
Mayland Technical Institute

Phone Number: 704/765-7351

Project Description: The Vocational Solaronics Laboratory (currently under construction) will house Mayland Tech's vocational programs, including classrooms, laboratory and shop space, providing 65% of the heating requirements using a drainable evacuated tubular solar collector. This system is a mechanical one designed as a closed loop water source heat pump collecting energy until delivered. The pump provides a high degree of energy conservation and makes it possible to utilize excess heat in those areas deficient in heat.

As a demonstration project, it will provide on-going information to the public, civic organizations, hospitals, and public schools, in addition to training students at Mayland Tech in "Solar Applications and Performance" and "Solar Installation and Maintenance". Mayland Technical College contends that this project promotes the concept of conservation and the use of unconventional energy resources, while also providing a permenent model to the community, organizations and other institutions with hopes of "educating citizens to be more energy conscious and self reliant".

The expected completion date of the laboratory is March, 1981.

ENERGY ACTIVITY: Wind

Project Name: (if applicable) Alternate Energy-Cycloturbine (windmill)

Name of Institution: Delaware Technical and Community College
Location: Southern Campus, Route 18
Georgetown, Delaware 19947

Region: III

Allocation/Award: $21,020

Time Line: Began September, 1979 (no specific date to end)

Source of Support: U.S. Department of Energy, Appropriate Technology Small Grants Program

Contact Person: James L. Guenveur
Delaware Technical and Community College

Phone Number: 302/856-5266

Project Description: A grant from the Department of Energy is being used to construct a cycloturbine (windmill) to produce hot water. The cycloturbine is a wind energy converter which utilizes strong modern lightweight materials and a sophisticated aerodynamic design. The wind turbine will be mounted on a 60-foot Rohn tower in close proximity to the recreational site requiring hot water. The tower will also support a vertical drive shaft which will be coupled to a device which converts energy to hot water. The system will be fully instrumental for data collection during operation. Measurements will include wind velocity, cycloturbine shaft RPM, input and output water temperature, output water volume, and alternator output watt hours. Measurements will make possible calculations for evaluation of the system and will enable Delaware Tech to build towards developing courses in wind energy management.

ENERGY ACTIVITY: Conservation

Project Name: (if applicable) Energy-Savings Awards Program

Name of Institution: See list below in "Project Description"
Location:

Region: I-V, VII, & IX

Allocation/Award: $10,000 per institution (see list below in "Project Description")

Time Line: Not applicable

Source of Support: Atlantic Richfield Foundation

Contact Person: As per each institution (not listed)

Phone Number: As per each institution (listed)

Project Description: In May of this year, twelve institutions were awarded $10,000 each after a nationwide search for the most effective and innovative ideas being used at colleges and universities to confront problems of energy conservation. Over 15,000 announcements were made available to colleges and universities. Copies of the announcements requesting nominations of candidates for awards were sent to Congressional offices, government agencies, professional organizations, and other groups. A special panel screened the nominations and focused their attention ideas easily adaptable to other institutions.

Some award winning ideas included a small solar-heated classroom utilizing a passive solar energy design which provided energy even on cold, cloudy days. Another school pooled 19 campuses to develop a Statewide Energy Consortium (California) to provide technical assistance and energy education. Oil consumption was reduced through a new fuel burning process developed at another college which causes a chemical reaction that increases the surface area of oil.

Of the awards given, two community/junior colleges received awards. They are:

Colby Community College
Kansas
913/462-3984

Lincoln Land Community College
Illinois
217/786-2200

ENERGY ACTIVITY: Conservation

Project Name: (if applicable) The Energy Conservation Program

Name of Institution: Daytona Beach Community College (DBCC)
Location: P.O. Box 1111
Daytona Beach, Florida 32015

Region: IV

Allocation/Award: $10,000 (award)

Time Line: 1 year - 1978

Source of Support: National Association of College & University Business Officers (NACUBO)/U.S. Steel Corporation

Contact Person: Charles J. Maybeck
Daytona Beach Community College

Phone Number: 904/255-8131

Project Description: The National Association of College and University Business Officers in conjunction with U.S. Steel Corporation awarded Daytona Beach Community College $10,000 in recognition of their outstanding cost reduction program implemented during 1978. The institution was able to provide a booklet, "Energy Conservation Applications 1978 - A Success Story at Daytona Beach Community College", containing cost reduction ideas which can save money at other institutions. The program developed at Daytona Beach trains technicians through direct hands-on settings with equipment which must be retrofitted. Students identified energy conservation opportunities, planned the retrofit, calculated the retrofit cost, and estimated the return on the retrofit investment. Retrofit corrections were made by the students, while structural alterations were done by the college's plant and grounds personnel. Through the success of the program, energy costs were reduced at Daytona College by $37,500 in comparison to 1977 costs. DBCC found they were able to produce a savings in energy and dollars without sacrificing environmental conditions.

Awards from NACUBO/U.S. Steel ranged from Honorable Mention Awards to cash awards of $100 to $10,000. Of the total awards given, nine community/junior colleges received awards. The two-year postsecondary institutions involved are:

Florida
Lake City Community College

Valencia Community College

Iowa
Indian Hills Community College

North Carolina
Durham Technical Institute

Technical Institute of Alamance

New Jersey
Ocean County College

New Mexico
New Mexico Institute of Mining and Tech

Pennsylvania
Delaware County Community College

Texas
Amarillo College

ENERGY ACTIVITY: Conservation/development program

Project Name:
(if applicable)

Name of Institution: Connors State College
Location: Warner, Oklahoma 74469

Region: VI

Allocation/Award: $9,900

Time Line: October 1, 1979 - September 30, 1980

Source of Support: Department of Labor, Appropriate Technology Small Grants Program

Contact Person: Bryce B. Wilde
Connors State College

Phone Number: 918/463-2931

Project Description: This project was developed to improve energy savings characteristics in mobile homes. Utilizing waste materials to produce building materials, sawdust, as a waste by-product, was used to create "sawdust concrete". It is locally produced utilizing unskilled labor which will utimately prove to be an economic and cost effective product. The sawdust material is poured into panels and erected around mobile home parks as wall structures. Since this product is durable and adds to the beauty and R-factor (resistence of materials to heat loss), the value and appearance of mobile home parks will be upgraded.

The program was recently informed that they were being extended for another year as a demonstration project utilizing other waste materials such as fly ash (waste materials from coal) to produce other useable energy conservation materials.

ENERGY ACTIVITY:	Conservation/Gasoline
Project Name: (if applicable)	Gasoline Conservation Awareness Program/ Gas CAP
Name of Institution: Location:	West Valley Joint Community College District 44 East Latimer Avenue Campbell, California 95008
Region:	IX
Allocation/Award:	$120,000
Time Line:	January 1 - December 31, 1980
Source of Support:	California Energy Extension Services
Contact Person:	Dr. Gerald V. Sharp West Valley Joint Community College District
Phone Number:	408/867-2200

Project Description: West Valley College's gasoline conservation program was specifically developed to address California's problem of gas consumption. This training program is under the guidance of a steering committee made up of representatives from the Chamber of Commerce, high school driver training programs, police, local government, community colleges, large fleet users, small businesses, and interested citizen groups. Planning of travel, economic driving tips, and fuel saver maintenance are part of the program. The goals include training instructors for establishment of other programs; training individuals in entities where internal training programs are not offered; offering training to the general public; and, determining the feasibility of establishing statewide programs. The program anticipates a 30% reduction in gas consumption, in personal use, by the trainees completing the course.

ENERGY ACTIVITY:	Energy Conservation
Project Name: (if applicable)	Energy Conservation Measure Program
Name of Institution:	Phillips County Community College
Location:	P.O. Box 785 Helena, Arkansas 72342
Region:	VI
Allocation/Award:	$124,924
Time Line:	February, 1980 - February, 1981
Source of Support:	U.S. Department of Energy
Contact Person:	Jerald Barber, Chief Fiscal Officer Phillips County Community College
Phone Number:	501/338-6474

Project Description: Phillips County Community College was funded by the U.S. Department of Energy to procure and install insulation in six buildings at the college - the Nursing Building, Administration Library, Gymnasium, Auditorium/Fine Arts Center, Data Processing Building and the Arts and Science Building. Also with these funds the institution was able to procure and install a central energy management conservation system, that is computer assisted, to reduce energy usage within the abovementioned buildings. The use of this central management computer system would serve as a monitoring control for automatically turning off lights, and programming start/stop of heating and air conditioning. In an energy audit report prepared for the institution on their Energy Conservation Measure Program, the payback cost is expected in 3.5 years.

INDEX OF FUNDING SOURCES