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ACTIVITIES
OF THE
U.S. DEPARTMENT OF ENERGY
IN
EDUCATION

Annual Status Report
FY 1979

April 1980

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ACTIVITIES OF THE U.S. DEPARTMENT OF ENERGY IN EDUCATION

Annual Status Report
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DEPARTMENT OF ENERGY EDUCATION ACTIVITIES

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ACTIVITY	CATEGORY			AUDIENCE						SERVICES			Page
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ACTIVITY	CATEGORY			AUDIENCE						SERVICES			Page
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INTRODUCTION

The first principle of President Carter's National Energy Plan—"... the energy problem can be effectively addressed only ... by a public that understands its seriousness ..."—is served by thousands of public and private elementary and secondary schools, institutions of higher learning, and educators in nonschool settings. In addition to contributing to public awareness and understanding of the seriousness of the problem, the educational community provides the education and training, at all levels and in all fields, required for timely development of new energy resources and for improved energy conservation efforts.

The U.S. Department of Energy (DOE) works with educational institutions, educators, and others in developing public understanding of the energy problem and in energy education and training efforts. To this end, DOE provides energy education information, opportunities for skill development, and resources to teachers, students, and institutions.

Within DOE, coordination of energy education projects, programs, and studies is the responsibility of the Education Division. This report is the third in a series of annual summaries of educational activities prepared by the Education Division.

The purpose of this document is to describe energy-related education activities administered in FY 1979 by the Department of Energy; projections for FY 1980 are also given. It provides assistance to DOE program managers who wish to use the educational process in their operations, and it provides guidance and information to educators and the general public about DOE energy-related education activities.

This report, prepared with the assistance of Oak Ridge Associated Universities, is obviously not exhaustive. It is intended as a snapshot to illustrate the variety of DOE energy-related education activities. Because of time constraints, it deals primarily with activities known to those preparing the report and may exclude relevant DOE contractor and other activities. The Education Division actively seeks suggestions to improve the report.

James C. Kellett, Jr.
Director
Education Division
Office of Consumer Affairs

ACTIVITIES OF THE U.S. DEPARTMENT OF ENERGY IN EDUCATION

EDUCATION ACTIVITIES

Education activities of the U.S. Department of Energy include support for *projects*, which are usually one-time undertakings; *studies*, which may provide needed information or lead to support of other activities; and continuing *programs*, which fulfill ongoing needs. These projects, studies, and programs serve the needs of DOE program managers, students, educators, institutions, state energy offices, and the general public in the areas of energy information, energy skills development, or institutional resource enhancement.

A brief description of each activity grouped by area of service follows: energy information, energy skills development, and institutional resource enhancement. Activities that are energy-related but do not fit conveniently in one of these three areas are grouped under "other energy-related education activities."

The appendix lists each activity showing category, audience served, and service provided.

Energy Information

The Department of Energy, through its Energy Information Administration, is authorized to disseminate energy information to federal, state, and local agencies; businesses; industrial organizations; and the general public. Compiling DOE's energy-related education materials and information in particular, however, is the responsibility of the Education Division, Office of Consumer Affairs. Materials and information are distributed through DOE's Technical Information Center, P.O. Box 62, Oak Ridge, Tennessee 37830, except as otherwise noted. Energy education materials and information are herein divided into curriculum packages, studies, workshops, conferences, and other energy-related materials.

CURRICULUM PACKAGES

CURRICULUM EVALUATION PROJECT

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

In 1979, Battelle's Columbus Laboratories completed a study entitled *Review and Evaluation of DOE Energy Education Curriculum Materials*, DOE/TID/6037-1, based in part on an earlier evaluation design by the University of California Energy Extension Service. The document addresses such issues as acceptability of the materials to teachers, students, and parents; impact on students; implementation procedures used by teachers; selection of evaluation criteria; and adequacy of the materials in accomplishing stated objectives. The publication is available on request from the Education Division.

COMPREHENSIVE SOLAR ENERGY CURRICULUM FOR GRADES K THROUGH 12

DOE Contact: Office of Solar Programs
Conservation and Solar Energy
Phone: (202) 252-8107
Ms. Deborah Langford

The curriculum package on solar energy for grades 7 through 12, developed by the New York State Department of Education, is to be distributed through the regional solar energy centers. If interested in field testing the materials, write to Dr. Tom Boehm, Bureau of Science Education, State Department of Education, Albany, New York 12234.

The K through 6 curriculum package, developed by the University of Southern California, is also to be distributed through the regional solar energy centers. If interested in field testing the materials, write Dr. Seymour Lampert, University of Southern California, Department of Mechanical Engineering, Los Angeles, California 90007.

EASY ENERGY READER

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. John Ortman

This booklet, which contains articles from magazines and newspapers on the general subject of energy, is intended for use in language arts classes with reading skills of grade levels 6 through 11. Completed in 1979, it will be available from the Technical Information Center in the spring of 1980.

ENERGY CONSERVATION EDUCATION PROGRAMS FOR SCHOOLS

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

In 1978, Energy Education Programs, Inc., of Woodstock, Illinois, was awarded a contract to develop a comprehensive program of energy conservation for schools. Two energy conservation packets for elementary, secondary, and postsecondary administrators have been developed and will be available for distribution in early 1980.

ENERGY CONSERVATION IN THE HOME

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

The University of Tennessee is revising this curriculum guide for high school home economics teachers. The revised guide will be available in early 1980 from the Technical Information Center.

ELECTRICAL ENERGY: POLICY AND PROSPECTS

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

Preparation of this curriculum module on electric power generation was begun in 1979 by the Pennsylvania Department of Education. Written for secondary science classes and educators, it will be available from the Technical Information Center in the fall of 1980.

NATIONAL SCIENCE TEACHERS ASSOCIATION PROJECT FOR AN ENERGY-ENRICHED CURRICULUM

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

Begun in 1976, this five-year program is designed to produce a set of modular, interdisciplinary classroom materials for teachers and students, grades K through 12. The purpose is to infuse energy education into the existing curriculum rather than to produce supplementary materials. An example is the module, *How a Bill Becomes a Law to Conserve Energy*. Completed materials, available from the Technical Information Center, are

The Energy We Use (Grade 1)
Community Workers and the Energy They Use (Grade 2)
Energy and Transportation (Grade 3)
Networks: How Energy Links People, Goods, and Services (Grades 4 and 5)
Bringing Energy to the People: Washington, D.C., and Ghana (Grades 6 and 7)
Two Energy Gulfs (Grades 6 and 7)
Energy, Engines, and the Industrial Revolution (Grades 7-9)
Transportation and the City (Grades 8 and 9)
Energy Transitions in U.S. History (Grades 8 and 9)
Mathematics in Energy (Grades 8 and 9)
Western Coal: Boom or Bust? (Grades 9-11)
How a Bill Becomes a Law to Conserve Energy (Grades 9-12)
Energy in the Global Marketplace (Grades 9-11)

Agriculture, Energy, and Society (Grades 10-12)
U.S. Energy Policy—Which Direction? (Grades 11 and 12)

Other components of the Project for an Energy-Enriched Curriculum are *Fact Sheets on Alternative Energy Technologies* (these background readers for teachers, advanced students, and the general public are available from TIC) and the Regional Energy Education Network. The network is operated in cooperation with the National Council for the Social Studies as an information exchange for energy education developments and opportunities.

Plans for FY 1980 include publishing and testing additional classroom materials, regional workshops for supervisory education personnel to encourage in-service energy education workshops, a report on Project for an Energy-Enriched Curriculum experience, and a revision and update of the *Energy-Environment Source Book* (see also **National Science Teachers Association Energy Workshops**, below).

NATIONAL SCIENCE TEACHERS ASSOCIATION ENERGY LEARNING MATERIALS

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Mr. Donald Duggan

In addition to the Project for an Energy-Enriched Curriculum, the National Science Teachers Association has produced four sets of learning materials dealing with energy use in the United States, potential energy supply in the future, energy technology, and energy systems. These materials, written for grades 4 through 9, are expected to be published commercially in 1980.

SCIENCE ACTIVITIES IN ENERGY

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Mr. Donald Duggan

In 1979, Oak Ridge Associated Universities published the latest in its series of *Science Activities in Energy*: "Solar Energy II" for grades 9 through 12 and "Wind Energy" for grades 4 through 6. The series is available from the Technical Information Center.

The American Museum of Science & Energy at Oak Ridge Associated Universities, which prepares the materials for the series, is currently at work on two packets dealing with biomass. These will be available in early 1980.

AMERICAN ASSOCIATION OF COMMUNITY AND JUNIOR COLLEGES PROJECT

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Dr. Lawrence Akers

In 1979, DOE approved a grant to the American Association of Community and Junior Colleges to assist junior and community colleges in acquiring needed information about energy education and in incorporating the knowledge into curricula and instructional activities (see also **Meeting Energy Work Force Needs**, below).

ALCOHOL FUELS TRAINING PROGRAM: Addendum to AACJC Grant

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Dr. Lawrence Akers

Colby Community College, Colby, Kansas, is developing curriculum materials, a training manual, and videotapes for institutions that are or wish to become involved in alcohol fuels training programs (see also **Workshops on Alcohol Fuels**, below).

AMERICAN VOCATIONAL ASSOCIATION PROJECT

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Dr. Lawrence Akers

Through a grant from DOE, the American Vocational Association is developing materials to assist vocational educators in integrating energy-related material into their courses (see also **Energy: Vocational Education's Role**, below).

HERE COMES THE SUN

This two-day minicourse was first presented in March 1979 at Grand Rapids, Michigan. Participants learn all aspects of an active solar heating system. Curriculum information is available from Ms. Shirley VanderTill, Coordinator of Energy Programs, Jordan College, 360 Pine Street, Cedar Springs, Michigan 49319.

INSTRUMENTATION TECHNOLOGY PROGRAM

DOE Contact: Education Division
 Office of Consumer Affairs
 Phone: (202) 252-6484
 Dr. Lawrence Akers

In FY 1979, Colorado Northwestern Community College was given support to develop a curriculum for an instrumentation technology program related to the energy industries in the Rocky Mountain region. The project is expected to be completed during FY 1980.

SOLAR CORRESPONDENCE COURSE

DOE Contact: Office of Solar Programs
 Conservation and Solar Energy
 Phone: (202) 252-8103
 Ms. Deborah Langford

This course, entitled "Fundamentals of Solar Heating," is an in-service program aimed at contractors and installers with skills in HVAC and plumbing crafts. Qualified persons desiring credit for the course may enroll through the Northamerican Heating and Airconditioning Wholesalers Association Home Study Institute, 1661 West Henderson Road, Columbus, Ohio 43220.

Copies of the textbook (stock number 061-000-0043-7, price \$4.50) and the study guide (stock number 061-000-00168-9, price \$4) for the course are available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

SOLAR VO-TECH/COMMUNITY COLLEGE INSTRUCTOR TRAINING

**DOE Contact: Office of Solar Programs
Conservation and Solar Energy
Phone: (202) 252-8103
Ms. Deborah Langford**

In early 1978, the Training Information and Education Branch sponsored a project to develop curriculum materials and procedures for training vocational and technical school and community college instructors to teach solar installation procedures. Materials have been developed through a series of workshops. The program will expand in FY 1980 to include at least 120 vocational and technical schools and community colleges. Two instructors from each of these institutions will be trained to teach solar installation. Instructional aids will be provided to the schools and colleges.

STUDIES

DOE'S RESEARCH AND DEVELOPMENT IMPACT ON HIGHER EDUCATION

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. Lawrence Akers**

In September 1978, the Mitre Corporation was given a contract to assess the impact of DOE-funded university research activities on educational programs at designated institutions. The study was aimed at determining what training/education benefits are obtained by graduate students engaged in the research process at these DOE-funded institutions. For a copy of the report, contact the Education Division, Office of Consumer Affairs.

ENERGY-RELATED ACTIVITIES IN TWO-YEAR POSTSECONDARY VOCATIONAL-TECHNICAL INSTITUTIONS

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. James C. Kellett, Jr.**

In 1978, Oak Ridge Associated Universities conducted a peer-to-peer telephone information exchange among a representative sampling of two-year, postsecondary, vocational-technical institutions in the United States. The purpose of this project was two-fold: (1) to gather information about energy-related curricula and activities and (2) to disseminate relevant energy-related activities information and materials to those persons and institutions desiring such information. A written report (DOE/IR-0050), dated November 1978, is available.

ENERGY-RELATED EDUCATION ASSESSMENTS AND PROGRAM DESIGN

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. Lawrence Akers**

Development Sciences, Inc., was commissioned to provide

an analysis of existing energy education programs and to make recommendations for current and future activities of the Education Division. Its report will be submitted in early 1980.

MANPOWER ASSESSMENT STUDIES

**DOE Contact: Manpower Assessment Branch
Phone: (202) 252-4799
Mr. Norman Seltzer**

A Comprehensive Energy Manpower Information System is being developed to determine the adequacy of manpower required and available for conducting energy activities in the United States. In September 1979, Kramer Associates, Inc., issued a report, *A Plan for Developing a Comprehensive Energy Manpower Information System* (DOE/IR-10233), which outlines the specific information, the analytical processes, and the organizational strategies needed to develop the system.

In addition, the following studies, which provide information about manpower education and training requirements in energy-related industries have been prepared for the Manpower Assessment Branch:

- Determinants of Coal Mine Labor Productivity Change* (DOE/IR/0056)
- Employment, Education, and Training Implications of the National Energy Act* (available spring 1980)
- Energy-Related Scientists and Engineers: Statistical Profile of New Entrants into the Work Force, 1978* (available spring 1980)
- Impact of Selected Conservation Measures on Manpower Requirements: A Pilot Study* (available spring 1980)
- A Manpower Assessment of the Geothermal Industry* (available spring 1980)
- NAS Doctoral Scientists and Engineers in Energy-Related Work, 1977* (available spring 1980)
- Solar Energy Manpower Employment and Requirements* (available spring 1980)
- University Manpower in Fossil Energy* (DOE/TID/0033-1)

In April 1979, two papers were presented at the International Symposium on Manpower Requirements and Development for Nuclear Power Programmes, sponsored by the International Atomic Energy Agency, Vienna, Austria. L.M. Blair of Oak Ridge Associated Universities presented "Occupational Employment Trends within Nuclear Industrial Segments." J.S. Chewning of the Manpower Assessment Branch, DOE, presented "Scientists, Engineers, and Technicians in Nuclear Reactor Operations and Maintenance: 15 Years of Growth and Change in the United States."

THE STATUS OF STATE ENERGY EDUCATION POLICY

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan**

In May 1978, the Education Commission of the States, under a grant from DOE, conducted a study to determine the status of state policies and practices regarding energy education among state education agencies, state offices of energy, governors' offices, and state legislatures. This final report analyzes data received from the survey. It is available for \$5.25 (printed copy) or

\$3 (microfiche) from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

WORKSHOPS AND FORUMS

A NATIONAL ISSUES FORUM: ENERGY AND THE WAY WE LIVE

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. Lawrence Akers

A series of national energy forums will be conducted by the American Association of Community and Junior Colleges in February, March, and April 1980. Topics are

The Sources of Concern: Crisis or Problem?
 The Search for Solutions
 Growth through Energy: The American Past
 Energy and the Good Life
 Energy: Patterns of Living and Working
 Energy and Our Political and Economic Institutions
 Energy . . . with Justice for All
 Energy: Decisions and Trade-Offs
 Energy Self-Sufficiency and Global Interdependence
 Future Options and Hard Choices

The National Endowment for the Humanities and the U.S. Department of Energy provide federal funding support. Approximately 450 community and junior colleges are participating in the forums.

NATIONAL SCIENCE TEACHERS ASSOCIATION ENERGY WORKSHOPS

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

Four regional workshops for teacher presentations of original or adapted energy education materials and for discussion of association energy education materials were held in November and December 1978. Specific information on each workshop may be obtained from NSTA Conventions Office, National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009 (see also **National Science Teachers Association Project for an Energy-Enriched Curriculum**, above).

WORKSHOPS ON ALCOHOL FUELS

DOE Contact: Citizen Participation Division
Office of Consumer Affairs
Phone: (202) 252-5141
Mr. Richard Moorer

A series of \$10,000 minigrants was given to 34 educational institutions to conduct alcohol fuels training workshops in 1979 and 1980. This project uses materials developed in the **Alcohol Fuels Training Program**, above.

CONFERENCES

ENERGY: VOCATIONAL EDUCATION'S ROLE IN MEETING OUR NATION'S ENERGY GOALS

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. Lawrence Akers

This national conference, scheduled for January 29-31, 1980, in Arlington, Virginia, will examine how vocational education can contribute to meeting our national energy goals, specifically in the areas of conservation and domestic usage of renewable energy sources. It is a part of the **American Vocational Association Project**, above, and will be the pilot for similar workshops to be conducted in various regions of the country.

MEETING ENERGY WORK FORCE NEEDS—DETERMINING EDUCATION AND TRAINING REQUIREMENTS

DOE Contact: Department of Energy
Phone: (202) 252-4634
Dr. Lawrence G. Stewart

This energy work force conference to emphasize national training and education needs is sponsored by the U.S. Office of Education's Energy and Education Action Center in cooperation with DOE, other government agencies, and professional organizations. It will be held in Washington, D.C., February 26-28, 1980. The conference will focus on job opportunities in energy-related occupations, effective guidance and counseling needs, and improved links to ensure best use of education and training resources.

NATIONAL ENERGY EDUCATION, BUSINESS, AND LABOR CONFERENCE

DOE Contact: Department of Energy
Phone: (202) 252-4634
Dr. Lawrence G. Stewart

A national energy conference sponsored by DOE in conjunction with the American Association of Community and Junior Colleges and the American Vocational Association was held in Washington, D.C., January 15-17, 1979. Specialty sessions included solar, coal, oil and gas, nuclear, conservation, and public energy education. Conference highlights and task force reports of each of the specialty sessions are available.

OTHER ENERGY-RELATED MATERIALS: AN ANNOTATED BIBLIOGRAPHY

U.S. DEPARTMENT OF ENERGY, 27 ENERGY FILMS

This brochure lists popular energy-related films on conservation; the environment; coal, fusion, geothermal, nuclear, and solar energy; space; and transportation. All films are available from the Technical Information Center.

U.S. DEPARTMENT OF ENERGY, ACTIVITIES OF THE DEPARTMENT OF ENERGY IN EDUCATION, ANNUAL STATUS REPORT FY 1978, JANUARY 1979, DOE/IR-0038

The report describes FY 1978 DOE supported and coordinated educational programs: training, curriculum development, educational special events, facilities support, Energy Extension Service, and public education. The report is available for \$4 from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

U.S. DEPARTMENT OF ENERGY, ENERGY EDUCATION MATERIALS INVENTORY, VOLUMES I AND II

This comprehensive list of energy education materials includes audiovisuals, books, instructional materials, student activities, and reference sources on the elementary and secondary school levels. Volume I (\$5.25) and Volume II (\$8) are available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

U.S. DEPARTMENT OF ENERGY, GUIDE FOR SUBMISSION OF UNSOLICITED PROPOSALS, USGPO 061-000-00140-9

This *Guide* assists organizations and individuals who wish to submit energy research proposals related to the development and conservation of efficient and reliable energy sources. Copies are available for \$1.30 from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

ENERGY AND EDUCATION NEWSLETTER

This newsletter is published bimonthly during the academic year by the National Science Teachers Association as a part of its Project for an Energy-Enriched Curriculum and is free on request. Send subscription requests to *Energy and Education*, NSTA, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009.

MONTHLY ENERGY REVIEW

This monthly data sheet is published by the Office of Energy Data, Energy Information Administration, U.S. Department of Energy, and includes detailed, cumulative U.S. energy data. The executive summary is free to DOE staff and contractors. Yearly subscriptions, at \$23, are available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

OCTOBER 1979—INTERNATIONAL ENERGY CONSERVATION MONTH

The U.S. Department of Energy prepared a packet of conservation materials for schools, clubs, and community groups for a 20-nation observance of Conservation Month. Materials and information are available from Mr. Jeffrey S. Milstein, Conservation and Solar Energy, U.S. Department of Energy, Washington, D.C. 20582.

Energy Skills Development

Energy skills development is important not only to increase public awareness of the nation's energy problems but also to provide the trained persons needed to develop new energy resources and to ensure the wisest use and conservation of known energy resources. These activities assist both educators and students.

FACULTY DEVELOPMENT PROGRAM

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

This long-term program is designed to help teachers realize the complexity of energy issues, learn sufficient technical detail about scientific and technological aspects of energy problems, and incorporate energy topics into their courses. Principal activities of the program are summer workshops and in-service programs conducted by colleges and universities for elementary, secondary, and college teachers.

In 1979, 100 institutions received grants involving nearly 10,000 teachers. Four of these grants were jointly funded by the National Endowment for the Humanities and focused on energy education as it relates to the study of humanities. In 1980, \$1.7 million in DOE funds are allocated for the Faculty Development Program.

FOSSIL ENERGY FACULTY AND GRADUATE STUDENT RESEARCH PARTICIPATION PROGRAM

DOE Contact: Office of Advanced Research and Technology
Office of Fossil Energy
Phone: (301) 353-2784
Dr. Irving Wender
Dr. Robert M. Wellek

This program provides opportunities at DOE Energy and Mining Technology centers for college and university faculty members and graduate students to gain knowledge of up-to-date developments in fossil energy research, to become involved in research in fossil fuel technologies, and, at the same time, to contribute to the solution of the nation's energy problems.

In 1979, the program included more than 100 participants representing approximately 40 institutions. In 1980, approximately \$250,000 in DOE funds are budgeted for this program.

UNIVERSITY-LABORATORY COOPERATIVE PROGRAM

DOE Contact: Division of Institutional Programs
Office of Field Operations Management
Office of Energy Research
Phone: (202) 376-9188
Mr. Richard Stephens

This program is designed to increase the interactions and flow of information between universities, DOE laboratories, and technology centers to familiarize physical, life, and social scientists and engineers with current developments and techniques in energy research and development and to stimulate transfer of this information to the academic community for more rapid assimila-

tion into the educational process. The program provides research opportunities for undergraduate and graduate students and faculty members. It also provides several supplemental, short-term educational and training activities such as faculty institutes, faculty workshops, faculty/student experiments, conferences, visiting staff lecturers, and faculty research visits.

In 1979, over 1100 individuals participated in the program. An equivalent level of participation is anticipated for 1980.

DRIVER AWARENESS PROGRAM

DOE Contact: Conservation and Solar Energy
Phone: (202) 252-8003
Mr. M. D. Starr
Mr. Darrell Beschen

This educational and informational program emphasizes what managers of large fleets and individual operators can do to stretch their gasoline dollars through more fuel-efficient practices while maintaining transportation services. It is designed to reach a wide spectrum of the public through existing educational delivery systems to make drivers more aware of ways to save gas.

In 1979, a pamphlet for students and drivers, "How to Save Gasoline and Money," was completed. An updated pamphlet, "Low-Cost/No-Cost Transportation," is projected for 1980. An award-winning film, "Running on Empty," is available on free loan.

These and other publications of the Driver Awareness Program are available from the Technical Information Center.

PRE-FRESHMAN AND COOPERATIVE EDUCATION PROGRAM

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Ms. Ruth Ann Verell

This program has two main purposes: (1) to increase the number of minority group members and women entering engineering and (2) to increase the retention rate of these groups so that future pools of professional talent will be more equitably represented. The program provides funds to colleges and universities to seek out minority groups and women during high school years and to provide them with innovative and motivating experiences prior to their freshman year in college. Stipends for summer activities and some tuition costs during the freshman year are provided. Tutoring and enrichment during college may be included. Industry and other university sources also provide substantial financial support. These funds are often used in cooperative education efforts.

Over 1400 students have participated through 1978. In 1979, \$292,000 in DOE funds went to 20 institutions to support approximately 3000 participants. It is anticipated that similar activities will be funded by DOE in 1980.

RESEARCH APPRENTICESHIP FOR MINORITY HIGH SCHOOLERS

DOE Contact: Division of Institutional Programs
Office of Field Operations Management
Office of Energy Research
Phone: (202) 376-9188
Mr. Richard Stephens

This program, to involve minority group members in research at the high school level, is conducted in conjunction with DOE national laboratories. High school students are given meaningful research experience that, it is hoped, will encourage them to choose careers in science and engineering. This effort is financed by a number of other federal agencies, as well as DOE, and will be initiated in 1980. The goal is to involve 1000 students in 1980.

SCIENCE FAIRS, ENERGY EXHIBITS, AND COMPETITIONS

DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Mr. Donald Duggan

The U.S. Department of Energy cooperates in a number of regularly sponsored events such as International Science and Engineering Fairs, energy exhibits, and national energy contests. An example of the latter is a student contest supported through the magazine, *Educational ABC of American Industry*, which reaches 2.7 million junior high school students. Energy exhibits are also of interest to the general public and contribute to energy education.

SUMMER SCIENCE STUDENT PROGRAM

DOE Contact: Office of Industrial Relations
Directorate of Administration
Phone: (202) 252-9034
Ms. Ann Montague

This youth demonstration project is funded by the U.S. Department of Labor, administered by DOE, and conducted by DOE research and production contractor personnel.

The purpose of the program is to motivate economically disadvantaged but academically talented CETA-eligible youth to complete their high school education and pursue postsecondary educational and/or skill training opportunities leading to technical, paraprofessional, or professional energy-related careers. The Summer Science Student Program spans two academic years plus extensive educational experiences in science, mathematics, and communications during the summer months. It is designed as an integrated program of basic academic skill enrichment, career motivation, and energy awareness.

In FY 1979, Department of Labor funded three project sites involving 90 students. In FY 1980, the program is being expanded to five additional sites and 150 additional youth participants.

SOLAR ENERGY UTILIZATION, ECONOMIC DEVELOPMENT AND EMPLOYMENT IN LOW INCOME COMMUNITIES

DOE Contact: Office of Solar Programs
Conservation and Solar Energy
Phone: (202) 252-8103
Ms. Andi McCombs

This program demonstrates the feasibility of combining solar heating technology, job training, and small business development to promote energy conservation and economic growth in low income communities. It is sponsored by the U.S. Department of Energy in conjunction with the Department of Labor and the

Community Services Administration. This national demonstration project began in fiscal year 1979 and funded 15 state and local CETA prime sponsors to train 320 unskilled participants to install active and passive solar energy systems on low income homes. Efforts are being made to expand the program in fiscal year 1981.

TECHNOLOGY TRAINING PROGRAM

**DOE Contact: Office of Industrial Relations
Directorate of Administration
Phone: (202) 252-9016
Mr. James R. O'Gwin**

The DOE Technology Training Program was initiated in FY 1975. Its primary objective is the effective utilization of DOE-owned, contractor-operated laboratories and production facilities to train the economically disadvantaged for entry-level employment within energy-related technician and craft occupations.

Since 1975, over \$21 million has been transferred to DOE from outside funding sources. These monies have been used by 23 DOE contractors to train over 4000 individuals in 36 occupational areas. The ratio of minority and female participation has been 36 percent and 32 percent, respectively. A total of 3761, or 94 percent, of the graduates have been placed; 37 percent have accepted employment with DOE contractors.

COOPERATIVE GRADUATE EDUCATION PROGRAM IN FUSION ENERGY

**DOE Contact: Office of Fusion Energy
Phone: (301) 353-5378
Dr. Franklin Coffman**

In 1977, the Cooperative Graduate Education Program in Fusion Energy was initiated with the Westinghouse Electric Corporation to train graduate students in fusion energy. Students work with Westinghouse engineers on problems related to fusion.

Approximately five students participate each year; they receive certificates of achievement at the completion of the one-year program. Applicants for 1980 have been approved to begin the program in February.

METEOROLOGICAL RESEARCH AND TRAINING SITE PROGRAM

**DOE Contact: Photovoltaic Energy Systems Branch
Division of Distributive Solar
Technology
Phone: (202) 376-1952
Dr. Mort Prince**

In September 1977, eight universities throughout the United States were selected to offer courses for students and working professionals in solar energy-related meteorology. The eight universities are University of California, Davis; State University of New York, Albany; Georgia Institute of Technology, Atlanta; Trinity University, San Antonio, Texas; Oregon State University, Corvallis; University of Michigan, Ann Arbor; University of Alaska, Fairbanks; and University of Hawaii-Manoa, Honolulu.

In 1978, the centers became fully operational, offering short courses, community awareness programs, and minor/major degree programs in solar meteorology.

Each university receives \$200,000 each year for five years. The program is entering its fourth year.

INSTITUTIONAL RESOURCE ENHANCEMENT

The Department of Energy and its predecessor organizations have provided financial support to educational facilities throughout the country. In FY 1979, this support continued in five major ways: (1) by helping to maintain the operation of nuclear reactors at colleges and universities, (2) by providing funds for installing and maintaining solar systems in school buildings, (3) by sponsoring school energy conservation programs, (4) by awarding research grants to colleges and universities with large minority enrollments, and (5) by giving upon request used laboratory equipment to institutions. Assistance to junior and community colleges in discovering funding sources for energy-related activities is also being provided.

AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS TEN-SCHOOL PROJECT

The American Association of School Administrators Ten-School Project concluded in early 1979. The purpose of this 1977-funded project was to measure the impact of specific energy conservation construction techniques on ten elementary school facilities across the country. The study emphasized cost-effective capital investments for energy conservation.

Final construction and installation of monitoring systems were completed in FY 1978. Energy-monitoring data collection and analyses were conducted in FY 1979. In FY 1980, a final report will be issued. For further information, contact Dr. Shirley J. Hansen, Project Director, AASA, 1801 North Moore Street, Arlington, Virginia 22209.

MINORITY INSTITUTIONS PROGRAM

**DOE Contact: Division of Institutional Programs
Office of Field Operations Management
Office of Energy Research
Phone: (202) 376-9188
Mr. Richard Stephens**

Educational institutions with large minority enrollments are given grants for energy research projects under this program. It began in FY 1978 with DOE grants to eight minority institutions for improving energy research capabilities and graduate training programs.

In FY 1979, 11 educational institutions received \$694,000 in grants to ensure the participation of minority institutions in energy research. A total of \$210,000 has been allotted for grants to five universities in FY 1980.

NATIONAL COUNCIL FOR RESOURCE DEVELOPMENT PROJECT

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. Lawrence Akers**

This project was funded in 1979 to assist junior and community colleges in discovering funding sources for energy-related activities. The project will analyze and publish case studies of a number of successful energy-related projects to illustrate effective and appropriate activities for junior and community colleges.

SCHOOL ENERGY CONSERVATION PROGRAM

DOE Contact: Conservation and Solar Energy
Phone: (202) 252-2335
Mr. Michael Willingham

Title III of the National Energy Conservation Policy Act of 1978 contains a Grant Program for Schools and Hospitals, which provides 50 percent matching grants to assist those institutions in identifying and implementing energy conservation opportunities in their buildings. Funding is authorized at \$900 million over a three-year period.

The act divides this program into two phases: Phase I is preliminary energy audits and energy audits, and Phase II is technical assistance and energy conservation measures.

In Phase I, DOE has made grants to the states to conduct preliminary energy audits and energy audits in all eligible buildings. The preliminary energy audit gathers building data on physical characteristics, energy consumption, and energy conservation potential. The energy audit is a site visit by a state-certified auditor. This audit expands on information gathered in the preliminary audit and identifies low-cost energy conservation opportunities, such as changes in operations and maintenance procedures.

In Phase II, DOE will make grants to schools and hospitals for technical assistance and energy conservation measures in accordance with state-wide administrative plans. Technical assistance provides a detailed engineering analysis that reports specific costs, payback periods, and projected energy savings possible from the purchase and installation of energy-saving equipment, systems (including solar), or modifications to the building shell. Energy conservation measure grants provide funding for the energy-saving equipment, systems, or modifications recommended as a result of the technical assistance analysis. The first cycle of Phase II grants will be awarded to institutions by March 15, 1980.

More information on all phases of this program may be obtained from state energy offices and DOE regional offices.

UNIVERSITY REACTOR FUEL ASSISTANCE PROGRAM

DOE Contact: Division of Engineering, Mathematics, and Geosciences
Office of Energy Research
Phone: (202) 233-5822
Dr. James S. Coleman

This program provides reactor fuel and financial assistance to colleges and universities for the operation of nuclear reactors used for research and teaching. Thirty-one universities are participating in the program.

In FY 1979, the program was funded at \$2 million. Plate-type fuel elements fabricated by Atomics International of Canoga Park, California, were provided to some universities. Materials for fuel are loaned, and reactor sites and research facilities are shared. The Department of Energy is projecting \$1.7 million for this program in FY 1980.

USED ENERGY-RELATED LABORATORY EQUIPMENT GRANTS PROGRAM

DOE Contact: DOE Property Management Offices in Regional Field Offices and

Office of Energy Research
Phone: (202) 252-6641
Mr. Larry Barker

This program makes available excess energy-related laboratory equipment from DOE laboratories to institutions of higher learning. It evolved from an Atomic Energy Commission program in which financial grants were made to colleges and universities for the purchase of new nuclear laboratory equipment. No funds are budgeted for this program. A descriptive brochure is being updated and may be requested from the Office of Energy Research or DOE field offices.

VARIABLE VENTILATION SYSTEM PROJECT

DOE Contact: Division of Buildings and Community Systems
Conservation and Solar Energy
Phone: (202) 376-4596
Mr. Howard Ross

Lawrence Berkeley Laboratory developed and demonstrated an indoor air-quality sensor in 1978. In FY 1979, after receiving proposals from businesses, industries, and educational institutions, DOE contracted with Honeywell to install and monitor this variable ventilation system in a public school in Minneapolis, Minnesota. A report will be published in FY 1980.

Other Energy-Related Education Activities

Not all energy-related education activities of DOE are listed above in the categories of energy information, energy skills development, or institutional resource enhancement. Three additional, significant activities are (1) the Energy Extension Service, (2) the Projects for Energy Education for the General Public, and (3) the State Energy Conservation Programs.

ENERGY EXTENSION SERVICE

DOE Contact: Technical Assistance Branch
Energy Extension Service
Phone: (202) 252-2302
Mr. Ron Kessler

The National Energy Extension Service is a federal/state partnership that gives personalized information and technical assistance on energy conservation to small-scale energy users through state-designed and state-operated programs. A ten-state, two-year pilot program began in September 1977. Each of the states (Alabama, Connecticut, Michigan, New Mexico, Pennsylvania, Tennessee, Texas, Washington, Wisconsin, and Wyoming) received \$1.5 million in grant funds to devise plans to assist small businesses, schools, hospitals, citizens, and local government agencies in energy conservation. The Department of Energy submitted an evaluation report to Congress in March 1979. The funding level for FY 1980 is \$25 million. States will receive grants based on the following statutory formula: 50 percent equal shares and 50 percent divided among the states based on population, using the most recent decennial census. (Regulations governing the Energy Extension Service program were issued on October 2, 1978, in the *Federal Register*.)

**PROJECTS FOR ENERGY EDUCATION FOR THE
GENERAL PUBLIC**

**DOE Contact: Education Division
Office of Consumer Affairs
Phone: (202) 252-6484
Dr. James C. Kellett, Jr.**

Funds have been allocated by DOE to enhance the level of support provided to nonprofit, national-membership organizations that wish to conduct energy education efforts for the general public. In FY 1978, \$335,000 was granted to four groups: League of Women Voters Education Fund, United Steelworkers of America, Alliance to Save Energy, and the National Council of Churches. A total of \$525,000 in FY 1979 was granted to Rural America, League of Women Voters Education Fund, National Conference of State Legislators, and the National Urban League.

STATE ENERGY CONSERVATION PROGRAM

**DOE Contact: State and Local Programs Division
Conservation and Solar Energy
Phone: (202) 252-2346
Ms. Gail McKinley**

The State Energy Conservation Program is designed to assist states and territorial jurisdictions in planning and implementing energy conservation programs. The program was established by the Energy Policy and Conservation Act of 1975 and amended by the Energy Conservation and Production Act of 1976. This program began in 1976 and includes both mandatory measures and voluntary measures proposed by the respective states. The FY 1979 grants provided to states under this program totaled \$57 million. An annual report is completed each December. Liaison continues with state agencies and energy offices.

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