

PN-ABJ-569

**DIRECTORY
OFFICE OF ENERGY**

**Bureau for Science and Technology
U.S. Agency for International Development
Washington, D.C. 20523-4810**

April 1991

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
How to Contact the Science and Technology Office of Energy	1
Acronyms and Abbreviations	2
Organization Chart of Energy Assistance – U.S. Agency for International Development	3
Bureau for Science and Technology Organization Chart	4
Program Overview	5
Project Descriptions	
Energy Policy Development and Conservation (EPDAC)	6
Energy Planning and Policy Development (EPPD)	7
Energy Conservation Services Program (ECSP)	9
Biomass Energy Systems and Technology (BEST).....	11
Energy Training Program (ETP)	13
Private Sector Energy Development (PSED)	15
Conventional Energy Technical Assistance (CETA).....	17
Renewable Energy Applications and Training (REAT)	19
Project Under Development	
Energy Technology Innovation Project (ETIP)	21
Publications List	22
Ordering and Payment Information	25
Professional Staff Bio-Sketches	26
Mission and Regional Office Energy Contacts	29
Cooperating Agencies and Organizations	37

HOW TO CONTACT THE
SCIENCE AND TECHNOLOGY
OFFICE OF ENERGY

MAILING ADDRESS: Room 508 SA-18
Agency for International Development
Washington, D.C. 20523-1810

TELEPHONE NO: (703) 875-4203

TELEFAX NO: (703) 875-4053 (5th Floor)

FTS NO: 385 + last 4 digits of phone number

STAFF:

<u>Name</u>	<u>Position</u>	<u>Telephone No.</u>
Sullivan, James B.	Director	(703) 875-4203
Sabadell, Alberto J.	Deputy Director	(703) 875-4056
Jhirad, David	Senior Physical Scientist	(703) 875-4047
Schweitzer, Samuel	Senior Advisor - Trade and Investment Promotion	(703) 875-4052
Pumfrey, Ross	Energy Systems Analyst	(703) 875-4694
Toth, Shirley	Program Analyst	(703) 875-4057
Kiser, Carolyn	Program Operations Specialist	(703) 875-4091
Aguilar-Tomas, Norma	Secretary	(703) 875-4465
Bradley, Pam	Secretary	(703) 875-4418

ACRONYMS AND ABBREVIATIONS

AFR	A.I.D. Bureau for Africa
A.I.D.	Agency for International Development
APRE	A.I.D. Bureau for Asia and Private Enterprise
ASEAN	Association of South East Asian Nations
BEST	Biomass Energy Systems and Technology
CETA	Conventional Energy Technical Assistance
DOE	U.S. Department of Energy
DR	Office of Development Resources
ECSP	Energy Conservation Services Program
ENE	A.I.D. Bureau for Europe and Near East
EPA	U.S. Environmental Protection Agency
EPDAC	Energy Policy Development and Conservation
EPIC	Energy and Environmental Policy, Innovation, and Commercialization
EPPD	Energy Planning and Policy Development
ETIP	Energy Technology Innovation Project
ETP	Energy Training Program
IDEA	International Development and Energy Associates, Inc.
IIE	Institute of International Education
IQC	Indefinite Quantity Contract
LAC	A.I.D. Bureau for Latin America and the Caribbean
LDC	Less-developed country
MW	Megawatt(s)
PASA	Participating Agency Service Agreement
PSED	Private Sector Energy Development
REAT	Renewable Energy Applications and Training
S&T/EY	Bureau for Science and Technology/Office of Energy
TDP	U.S. Trade and Development Program
TR	Office of Technical Resources
USEA	United States Energy Association

Figure 1
Organization Chart of Energy Assistance
U.S. Agency for International Development

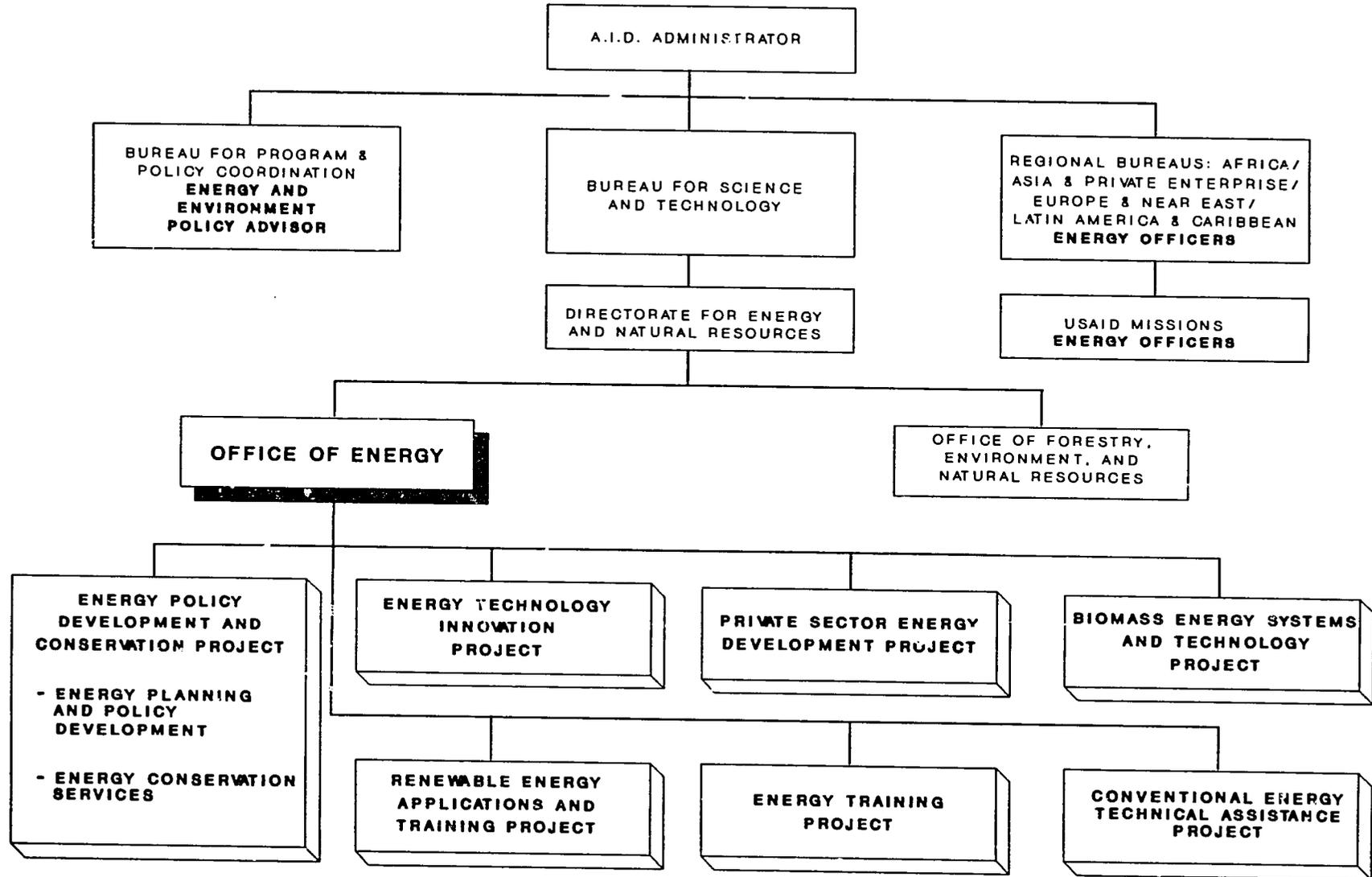
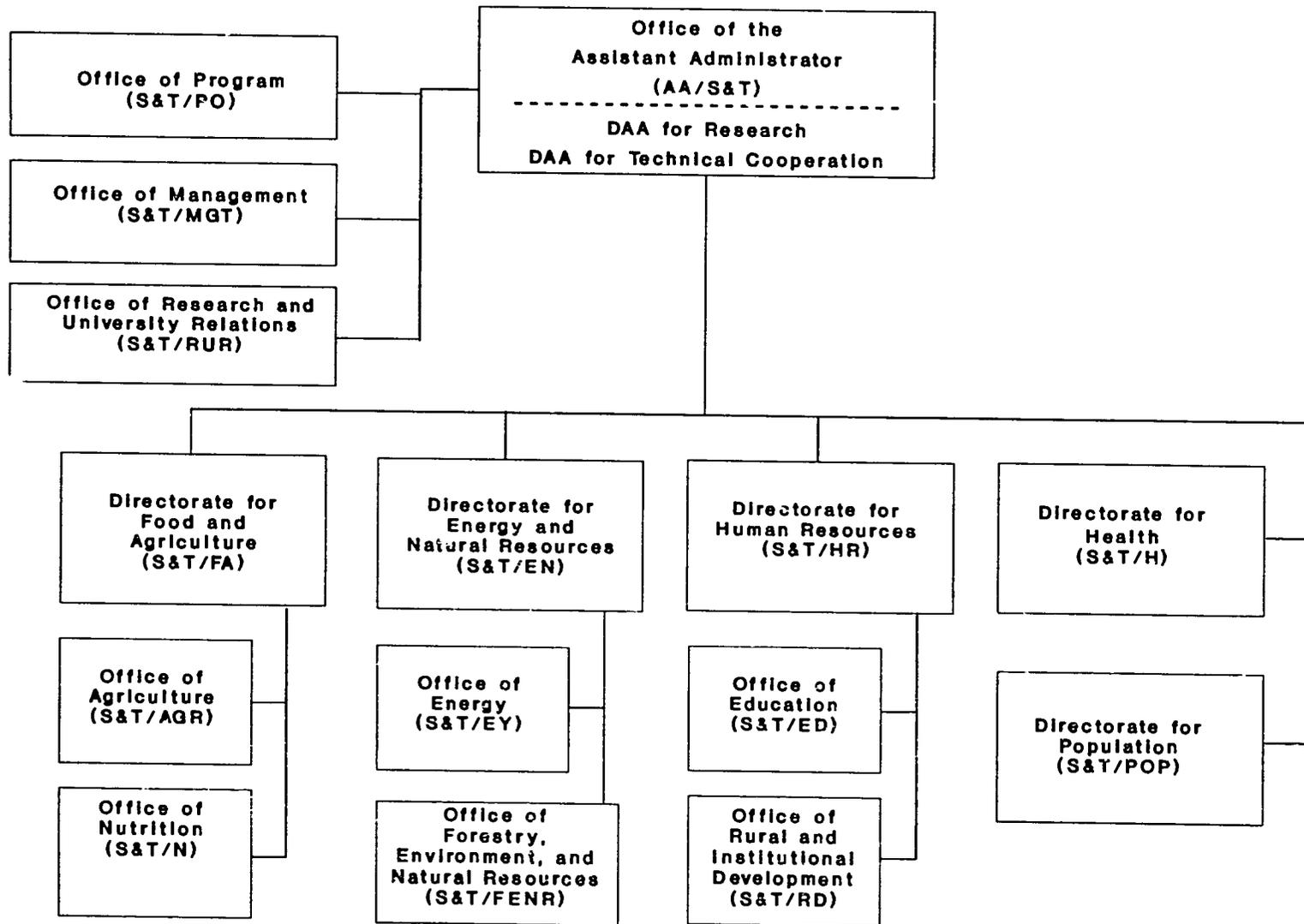


Figure 2
Bureau for Science and Technology
Organization Chart



4

For information on obtaining other S&T Office Directories, see last page.

PROGRAM OVERVIEW

The Agency for International Development's (A.I.D.) central Office of Energy plays an increasingly important role in providing innovative mechanisms and approaches for solving the growing energy and environmental crisis in A.I.D.-assisted countries. Situated in A.I.D.'s Bureau for Science and Technology, the Office helps to set energy policy direction for the Agency, while making its projects available to meet the generic and short-term needs of A.I.D.'s field offices in assisted countries.

Three problems drive the Office's programs: high rates of energy demand and economic growth accompanied by a lack of energy, especially power in rural areas; severe financial problems, including a lack of investment capital, especially in the electricity sector; and growing energy-related environmental threats, especially global climate change, acid rain, and urban air pollution.

To address these problems, the Office of Energy leverages financial resources of multilateral development banks such as the World Bank and the Inter-American Development Bank, the private sector, and bilateral donors to increase energy efficiency, expand energy supplies, and enhance the role of private power. The Office strategy involves implementing novel energy sector approaches through research, adaptation, and innovation. These approaches include improving power sector investment planning ("least-cost" planning) and encouraging the application of cleaner technologies that use both conventional fossil fuels and renewable energy sources. Promotion of greater private sector participation in the power sector and a wide-ranging training program also help to build the institutional infrastructure necessary to sustain cost-effective, reliable, and environmentally sound energy systems that are integral to broad-based economic growth.

Much of the Office strategy focuses on abatement of the increasingly severe environmental problems associated with the energy cycle, especially those involving fossil fuels, which pollute land and water during the extraction stage and cause atmospheric degradation--air pollution, acid deposition, and global CO₂ buildup--principally from power plant emissions during the conversion process. The Office's environmentally related assistance efforts have also anticipated and support recently enacted congressional legislation directing the Office and A.I.D. to undertake a "Global Warming Initiative" to mitigate the increasing contribution of key developing countries to greenhouse gas emissions. This strategy includes the following elements: expanding least-cost planning activities conducted in collaboration with the multilateral development banks to incorporate environmental concerns; increasing support for feasibility studies in renewable energy, end-use energy efficiency, and cleaner fossil energy technologies that focus on site-specific commercial applications; launching a multilateral global energy efficiency initiative; and enhancing training of host country nationals and A.I.D. staff in areas of energy that can help to reduce expected global warming and other environmental problems.

To pursue all of its activities, the Office of Energy implements the following seven projects that are described in succeeding pages: (1) The Energy Policy Development and Conservation Project (EPDAC); (2) The Biomass Energy Systems and Technology Project (BEST); (3) The Renewable Energy Applications and Training Project (REAT); (4) The Private Sector Energy Development Project (PSED); (5) The Energy Training Project (ETP); (6) The Conventional Energy Technical Assistance Project (CETA); and (7) its follow-on Energy Technology Innovation Project (ETIP).

PROJECT TITLE: Energy Policy Development and Conservation (EPDAC)

PROJECT NO: 936-5728

DURATION: 10/82 - 7/30/92

SERVICES AVAILABLE: Technical assistance, workshops, training

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$37.17 million

BUY-IN CAPACITY: \$11.94 million

BENEFICIARIES: Host-country energy planners, utility planners, private-sector suppliers of energy technologies, LDC energy users

PURPOSE: To help A.I.D.-assisted countries achieve substantial energy savings and accompanying environmental benefits now and develop a local institutional capability to continue such efforts in the future.

EPDAC is divided into two subprojects:

1. The Energy Planning and Policy Development project (EPPD).
2. The Energy Conservation Services Project (ECSP).

The two subprojects are closely interconnected. Currently, they are cooperating on a comprehensive assessment of efficiencies in the power sector in Costa Rica, within the context of least-cost investment planning.

These two subprojects are described on the following pages.

* includes buy-ins

EPDAC Subproject 1: Energy Planning and Policy Development (EPPD)

CONTRACTOR: International Development and Energy Associates (IDEA)

CONTRACT NO: DHR-5728-C-00-9074

CONTRACTOR: Oak Ridge National Laboratory

CONTRACT NO: DHR-5728-P-ER-7008

DESCRIPTION: The major strategic goal of the Energy Planning and Policy Development project is the implementation of solutions and approaches in LDCs that help mitigate environmental impacts of power development, promote least-cost power sector planning, and accelerate the adoption of related energy efficiency measures in power sector supply and end-use sectors. The predominant emphasis is on actual investment portfolio designs and policy decision-making processes, with special attention given to implementation as opposed to isolated analyses. Actual implementation of the project's themes employs a country-oriented power sector strategy.

ACCOMPLISHMENTS: Initiated improved donor coordination, through the Multi-Agency Group on Power Sector Innovation (MAGPI), to assist developing country R&D activities focusing on environmental impacts of increased coal use and innovative ways to finance more efficient and environmentally benign technologies. Active MAGPI projects include several activities in India: a long-term power sector appraisal; implementation of a \$20 million power sector efficiency program; an assessment of U.S. trade and investment opportunities in energy efficient markets; and development of an end-use energy efficiency technology menu. The project also collaborates closely with the Program for the Acceleration of Commercial Energy Research (PACER) in India.

The project is exploring ways to integrate environmental criteria into energy investment planning and is hosting an international seminar on this topic in 1991. To improve environmental management of energy conversion EPPD has supported activities that include development of an environmental manual for power development. In Poland, project activities include an assessment of coalbed methane as an alternative fuel source and establishment of energy efficiency centers. The project has financed development of microcomputer-based tools such as a manual for least-cost planning under capital constraints and completed a comprehensive least-cost investment planning project in Costa Rica. Additional accomplishments include a collaborative study with the World Bank on improving the organizational and management performance of LDC electric utilities and an integrated coal gasification combined cycle feasibility study expected to lead to a \$35 million demonstration project in India.

CONTACTS FOR SUPPORT:

CONTRACTORS/GRANTEES

Tom Wilbanks, Associate Director
Energy Division
Oak Ridge National Laboratory
P.O. Box 2008, M.S. 184, BLDG. 4500N
Oak Ridge, TN 37831-6191
Phone: (615) 574-5515
FAX: (615) 576-2912

Carl Hocevar, Program Manager
International Development and Energy
Associates, Inc. (IDEA)
Energy and Environmental Policy, Innovation,
and Commercialization (EPIC) Program
1611 N. Kent Street, Suite 206
Arlington, VA 22209
Phone: (703) 524-1171
FAX: (703) 841-0689
MCI MAIL:IDEAPOWER
Telex: 6504092254 MCI UW

A.I.D. PROJECT MANAGER

David Jhirad
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4047
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS:

U.S. Department of Energy
U.S. Environmental Protection Agency
Lawrence Berkeley Laboratory
Princeton University Center for Energy and Environmental Studies
The World Bank
The Inter-American Development Bank
IIEC (International Institute for Energy Conservation)

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)

EPDAC Subproject 2: Energy Conservation Services Program (ECSP)

CONTRACTOR: RCG/Hagler, Bailly, Inc.

CONTRACT NO: DHR-5728-C-00-7014-00

DESCRIPTION: The Energy Conservation Services Program (ECSP) works to achieve an immediate and substantial reduction in energy waste in A.I.D.-assisted countries and to improve the efficiency of energy use. By increasing the output produced with the same energy cost input, energy conservation promotes economic efficiency and improves the productivity and competitiveness of energy-consuming enterprises. This improvement encourages and accelerates sustained economic growth and development. Energy conservation is an excellent vehicle for enhancing private-sector development and can alleviate both the growing shortage of power supply and the capital constraints to building new generating capacity and other energy production and transformation units, e.g., petroleum refineries. Improving the efficiency of energy use also has the important environmental benefit of reducing combustion emissions.

The ECSP strategy is to use the private sector as a vehicle for energy conservation programs and to target initiatives in industry and electric power generation, sectors that offer the greatest potential for immediate, substantial benefits. Selected ECSP activities will also be carried out in the large buildings and transport sectors.

Under ECSP, S&T/EY provides A.I.D.-assisted countries and USAID Missions with eight types of services. These are: 1) Energy Conservation Assessment and Planning; 2) Energy Conservation Policy Analysis; 3) Energy Conservation Program and Project Design and Evaluation; 4) Research and Development; 5) On-site Technical Assistance; 6) Training; 7) Support Services for Financing and Implementation of Conservation Projects; and 8) Information Development and Dissemination.

ACCOMPLISHMENTS: As a direct result of ECSP involvement, four major national energy conservation programs are now underway in Pakistan (\$15 million), Egypt (\$50 million), the Philippines (\$5 million), and Morocco (\$5 million). Through ECSP projects, A.I.D. has been at the forefront of several efforts to encourage private participation in the power sector of A.I.D.-assisted countries and has helped countries develop legislation to facilitate private power generation. Significant energy savings have been produced by several ECSP demonstration projects, including a load management project in Costa Rica that produced peak reductions exceeding 15 percent in the pilot group.

CONTACTS FOR SUPPORT:

CONTRACTOR/GRANTEE

Alain Streicher
RCG/Hagler, Bailly, Inc
370 L'Enfant Promenade, S.W.
Suite 700
Washington, D.C. 20024-2518
Phone: (202) 488-1500
FAX: (202) 484-0702
Telex: 710-822-1150

A.I.D. PROJECT MANAGER

Alberto J. Sabadell
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4056
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS:

U.S. Department of Energy
U.S. Environmental Protection Agency
Lawrence Berkeley Laboratory
The World Bank
The Inter-American Development Bank
IIEC (International Institute for Energy Conservation)

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Africa, Office of Technical Resources (AFR/TR)
Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)
Bureau for Latin America and the Caribbean, Office of Development Resources (LAC/DR)

PROJECT TITLE: Biomass Energy Systems and Technology (BEST)

PROJECT NO: 936-5737
DURATION: 5/89 - 6/30/96

CONTRACTOR: Winrock International
CONTRACT NO: DHR-5737-A-00-9058

SERVICES AVAILABLE: Studies, field trials, technical assistance, information dissemination

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$25 million **BUY-IN CAPACITY:** \$10 million

BENEFICIARIES: Energy consumers, biomass producers, utility companies/systems

PURPOSE: To identify and reduce the technical, economic, financial, and institutional risks of using biomass for the production of electricity and liquid fuels in LDCs.

DESCRIPTION: BEST funds applied research and development, project assessments, and cooperation with private companies in developing countries in order to generate electricity from the residues of common agricultural crops--sugarcane wastes and rice residues--and woodwastes of forest product industries. The project promotes the use of commercial technology and systems developed and proven in the United States.

ACCOMPLISHMENTS: Sugarcane activities (electricity and alcohol) are ongoing in Thailand, Indonesia, Honduras, Malawi, Swaziland, Costa Rica, Jamaica, the Philippines, Brazil, and Pakistan. BEST staff have done over 10 industry diversification analyses since 1985. The project is currently studying the investment potential for power projects in Indonesia and Pakistan and the design of electricity pricing and interconnection requirements in Guatemala. Since 1988, energy diversification projects have been the fastest growing area of BEST's work in the sugar industry. As a direct result of BEST work, both the El Viejo mill in Costa Rica and the Nong Yai mill in Thailand are now exporting 4 MW of power produced from sugarcane residues to the national utilities in each country.

Electricity generation from rice residues is being pursued in India, Malaysia, and the Philippines. The project is currently examining the techniques and economics of rice straw use in India.

Wood waste-to-energy projects are being developed in Indonesia, India, Pakistan, Honduras, and Costa Rica. BEST work in the Honduras forest products industry indicates that an industry-wide use of wood waste-fired energy systems could replace about 10 million kWh/yr. of electricity for sawmill operations that is currently produced using diesel generators and could generate an additional 54 million kWh/yr. for sale to the grids.

BEST offers three types of support to private companies that wish to establish private biomass energy projects: industry assessments, prefeasibility studies, and feasibility studies. BEST has co-funded three prefeasibility studies, representing about 40 MW of potential capacity, and has 21 other proposals in 12 countries under active consideration.

* includes buy-ins

CONTACTS FOR SUPPORT:

CONTRACTOR/GRANTEE

Frank Tugwell
Winrock International
1611 North Kent Street, Suite 600
Rosslyn, VA 22209
Phone: (703) 525-9430
FAX: (703) 234-1175

A.I.D. PROJECT MANAGER

James B. Sullivan, Director
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4203
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS

U.S. Department of Energy
U.S. Trade and Development Program
Princeton University Center for Energy and Environmental Studies
Yale University Tropical Resources Institute
Hawaiian Sugar Planters Association
Biomass Users Network
Inter-American Development Bank
The World Bank
Kasetsart University Research and Development Institute (Thailand)
Solar Energy Research Institute
Rockefeller Foundation
COPERSUCAR (Brazil sugar cooperative)

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Science and Technology, Office of Agriculture (S&T/AGR)
Office of the Science Advisor
Bureau for Africa, Office of Technical Resources (AFR/TR)
Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)
Bureau for Latin America and the Caribbean, Office of Development Resources (LAC/DR)

PROJECT TITLE: Energy Training Program (ETP)

PROJECT NO: 936-5734

DURATION: 3/87 - 9/30/92

CONTRACTOR: Institute of
International Education (IIE)

CONTRACT NO: DHR-5734-Z-00-7024

COOPERATIVE AGREEMENT: United
States Energy Association (USEA)

COOPERATIVE AGREEMENT NO:
DHR-5734-A-00-0091

SERVICES AVAILABLE: Training

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$37 million

BUY-IN CAPACITY: \$22 million

BENEFICIARIES: Trainees, energy producers and consumers

PURPOSE: To improve the development and management of energy resources by training developing-country nationals in resource identification and production.

DESCRIPTION: The Energy Training Program, under contract with IIE, designs energy-related training activities to meet the specific needs of governmental, parastatal, and private employers in developing nations. Courses range from energy planning to petroleum management to utility engineering and energy efficiency improvement, and typically last from two to seven months. A small percentage of Mission-funded trainees pursue Master of Science programs at American universities. The courses emphasize the "hands on" approach in actual work settings. Participants are encouraged to bring data from their own countries to work on so that they may return home with a realistic, workable solution to some aspect of their country's energy problem. Participants are required to return home immediately after completion of their program in order to put their newly gained knowledge and skills to use in their own countries.

Under a Cooperative Agreement with the USEA, ETP also supports an Energy Study Tour Program. The primary purpose of this program is to broaden the technical and managerial abilities of senior level professionals involved in energy planning, production, and utilization in developing countries through exposure to advanced U.S. technology and management practices.

ACCOMPLISHMENTS: To date, through IIE, 312 participants from 12 countries have been trained; 27, or 8.7 percent, were women. The program trains between 150-250 participants a year in various aspects of energy, usually in the United States but at times in their own country or region, depending on the nature of the program.

The Cooperative Agreement with the USEA was signed on September 22, 1990. Since then, twelve officials from Czechoslovakia have attended a weeklong conference and visited major U.S. utilities.

* includes buy-ins

CONTACTS FOR SUPPORT:

CONTRACTORS/GRANTEES

Steven Ebbin
Institute of International Education
(IIE)
1400 K Street, N.W., Suite 700
Washington, D.C. 20005
Phone: (202) 682-6560
FAX: (202) 682-6576

Barry K. Worthington
United States Energy Association
(USEA)
1620 Eye Street, N.W., Suite 615
Washington, D.C. 20006
Phone: (202) 331-0415
FAX: (202) 331-0418

A.I.D. PROJECT MANAGER

Shirley Toth
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4057
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS

U.S. Department of Commerce
U.S. Department of Energy
U.S. Environmental Protection Agency
The World Bank
U.S. Energy Association Members

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)
Bureau for Latin America and the Caribbean, Office of Development Resources (LAC/DR)

PROJECT TITLE: Private Sector Energy Development (PSED)

PROJECT NO: 936-5738
DURATION: 3/89 - 9/30/94

CONTRACTOR: T. Head & Co., Inc.
CONTRACT NO: DHR-5738-C-00-9049

CONTRACTOR: Price Waterhouse
CONTRACT NO: DHR-5738-C-00-0097

SERVICES AVAILABLE: Technical assistance, policy dialogue, workshops and seminars, information dissemination

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$15.34 million **BUY-IN CAPACITY:** \$5.58 million

BENEFICIARIES: Private sector energy providers, developing country utilities, energy consumers

PURPOSE: (1) To remove policy and institutional barriers to private-sector energy development; and (2) to provide direct assistance in energy project development.

DESCRIPTION: Concentrating on electric power, the PSED program helps selected developing countries create an environment that encourages the private ownership, financing, and operation of energy facilities. The program offers a wide range of technical assistance and information dissemination activities for developing country government and utility officials. These include conferences and workshops, a private power database, internships and study tours, and experts to solicit and evaluate projects, draft and negotiate private power contracts, determine the price for privately produced electricity, and package private power project financing.

ACCOMPLISHMENTS: The PSED program has provided technical assistance to the governments of Indonesia, the Philippines, Guatemala, Morocco, Jordan, Costa Rica, the Dominican Republic, Jamaica, Bolivia, and Kenya in developing private power projects. The program planned and conducted workshops in the Latin America/Caribbean and Asia/Near East regions to facilitate the exchange of ideas and experiences on energy conservation and private power generation and to encourage private sector investments in these areas. PSED has also helped countries develop legislation to facilitate private power generation.

The project also assists the private sector through its Private Sector Energy Development Feasibility Study Fund. Currently, the Fund plans to share with eligible private power developers the cost of conducting feasibility studies on the following power projects: a 210 megawatt (MW) hydroelectric project in Turkey; a 62.5 MW waste-to-energy project in Pakistan; and a 290 MW coal-fired project in Poland. Additional project candidates for feasibility study funding are under consideration.

* includes buy-ins

CONTACTS FOR SUPPORT:

CONTRACTORS/GRANTEES

John Hammond
T. Head & Co., Inc.
Private Sector Energy
Development Program
1611 North Kent St., Suite 200
Rosslyn, VA 22209
Phone: (703) 524-4400
FAX: (703) 524-3164

Kami Rabani
Price Waterhouse
1801 K Street, N.W.
Washington, D.C. 20006
Phone: (202) 861-6298
FAX: (202) 467-4405

A.I.D. PROJECT MANAGER

James B. Sullivan
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4203
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS

U.S. Department of Commerce
U.S. Department of Energy
U.S. Trade and Development Program
The World Bank

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Asia and Private Enterprise, Office of Investment (APRE/I)
Bureau for Europe and Near East, Private Sector Development Staff (ENE/PSDS); Office of
Technical Resources (ENE/TR)

PROJECT TITLE: Conventional Energy Technical Assistance (CETA)

PROJECT NO: 936-5724

DURATION: 6/80 - 9/30/90

(extended to 6/30/91)

CONTRACTOR: Bechtel National, Inc.

CONTRACT NO: LAC-5724-C-00-5126

CONTRACTOR: Argonne National

Laboratory

CONTRACT NO: DHR-5724-P-ER-8043-00

SERVICES AVAILABLE: Technical assistance, feasibility studies

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$28 million

BUY-IN CAPACITY: \$7.25 million

BENEFICIARIES: Energy consumers

PURPOSE: To assist LDCs in developing their indigenous conventional fuel resources.

DESCRIPTION: The Conventional Energy Technical Assistance (CETA) project applies U.S.-generated energy technology innovations to the developing world. Through this project, the Office of Energy taps U.S. industry know-how and provides technical services to help countries: 1) identify, evaluate, and develop their conventional energy resources; 2) use these resources more efficiently; and 3) reduce dependence on imported oil. CETA provides appropriate U.S. energy and environmental expertise in many fields, and marshalls private-sector interest, experience, and financing. The project emphasizes clean coal and other technologies to improve performance efficiency and to reduce the environmental impacts of fossil fuel use.

CETA reviews the energy resource base and generating capacity expansion plans of key A.I.D.-assisted countries. Preliminary technical and economic assessments identify and evaluate the country's capacity for indigenous energy resource development and private-sector participation. Favorable initial assessments lead to more specific evaluation of project potential. Study results are then shared with likely project financing agencies such as the World Bank, the International Finance Corporation, commercial banks, private corporations, and within A.I.D., in order to attract necessary financing.

ACCOMPLISHMENTS: In Pakistan, CETA carried out prefeasibility and feasibility studies of an oil-fired power plant and fuel pipeline, and designed a program for private-sector power generation. Other accomplishments include: private-power prefeasibility studies in the Philippines and Jordan, followed by a feasibility study in the latter, technical assistance to the Philippines to identify and support private-power initiatives, and support for private-power conferences in both countries; in conjunction with the Indian government, performance of a technology assessment and prefeasibility study of integrated gasification combined cycle technology (a type of clean coal technology); design of a management information system for the Egyptian Government Petroleum Company; a feasibility study for a sugarcane energy power plant in Jamaica; a prefeasibility study for a coal-fired power plant to be located at the site of a coal mine in Costa Rica; evaluation and rehabilitation of the national utility system in Somalia; and technical assistance to Indonesia for the development of a national energy research and development center.

* includes buy-ins

CONTACTS FOR SUPPORT:

CONTRACTORS/GRANTEES

Ernest Y. Lam
Bechtel National, Inc.
1601 North Kent Street, Suite 914
Rosslyn, VA 22209
Phone: (703) 528-4488
FAX: (703) 528-2280

Carole B. Szpunar
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439-4816
Phone: (708) 972-7788
FAX: (708) 972-6073

A.I.D. PROJECT MANAGER

Alberto J. Sabadell
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4056
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS

U.S. Department of Commerce
U.S. Department of Energy
U.S. Trade and Development Program
The Export-Import Bank
The World Bank
Association of South East Asian Nations (ASEAN)

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)
Bureau for Latin America and the Caribbean, Office of Development Resources (LAC/DR)

PROJECT TITLE: Renewable Energy Applications and Training (REAT)

PROJECT NO: 936-5730
DURATION: 7/85 - 9/30/94

CONTRACTOR: Oak Ridge National
Laboratory
CONTRACT NO: BST-5730-X-ER-5097

CONTRACTOR: International Development
and Energy Associates, Inc. (IDEA)
CONTRACT NO: DHR-5728-C-00-9074

SERVICES AVAILABLE: Education and training, project development, technical assistance, information on technologies and vendors

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$10.2 million **BUY-IN CAPACITY:** \$2.0 million

BENEFICIARIES: Trainees and energy users, urban electric utilities, rural populations in non-electrified regions

PURPOSE: To promote cost-effective technologies that use renewable energy resources such as flowing water (hydro), geothermal, solar, and wind. (One subcategory, biomass-fired power, is addressed by the BEST project).

DESCRIPTION: The REAT project encourages the use of cost-effective renewable energy technologies (in addition to biomass-based power), with an emphasis on private-sector participation. Relevant technologies include hydro, geothermal, solar, and wind resources. The project identifies "bankable" commercial schemes in which public and private investors are interested, and where an A.I.D.-sponsored pre-investment study can tip the balance toward implementation. During 1990, in addition to pre-investment studies, the project is supporting the publication of a U.S. renewable energy technology vendors' catalog, a review of successful applications of U.S.-manufactured renewable energy technology in LDCs, and a guide to choosing appropriate technologies for refrigeration systems in support of rural vaccination programs. The project will also increase its support for training activities and reverse trade missions.

ACCOMPLISHMENTS: REAT extensively reviewed A.I.D.'s past renewable energy projects. The resulting report describes the lessons learned about the relative merits of different technologies, various technology transfer strategies, and the important host-country institutional factors that need to be considered, including private-sector involvement.

The Committee on Renewable Energy Commerce and Trade, formed by U.S. Government agencies and the private sector to assist the renewable energy industry to more effectively reach the international market, receives support from REAT.

* includes buy-ins

CONTACTS FOR SUPPORT:

CONTRACTORS/GRANTEES

Tom Wilbanks, Associate Director
Energy Division
Oak Ridge National Laboratory
PO Box 2008, M.S. 184, Bldg. 4500N
Oak Ridge, TN 37831-6191
Phone: (615) 574-5515
FAX: (615) 576-2912

Carl Hocevar, Program Manager
International Development and Energy
Associates, Inc. (IDEA)
Energy and Environmental Policy, Innovation,
and Commercialization (EPIC) Program
1611 N. Kent Street, Suite 206
Arlington, VA 22209
Phone: (703) 524-1171
FAX: (703) 841-0689
MCI MAIL:IDEAPOWER
Telex: 6504092254 MCI UW

A.I.D. PROJECT MANAGER

David Jhirad
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4047
FAX: (703) 875-4053/875-4394

OTHER COOPERATING AGENCIES AND ORGANIZATIONS

U.S. Department of Energy
U.S. Environmental Protection Agency
The World Bank
The Inter-American Development Bank
U.S. Export Council for Renewable Energy
(a consortium of the renewable energy trade associations)
Lawrence Berkeley Laboratory
Solar Energy Research Institute

OTHER COOPERATING A.I.D. BUREAUS AND OFFICES

Bureau for Asia and Private Enterprise, Office of Development Resources (APRE/DR)
Bureau for Europe and Near East, Office of Technical Resources (ENE/TR)
Bureau for Latin America and the Caribbean, Office of Development Resources (LAC/DR)

PROJECT UNDER DEVELOPMENT

PROJECT TITLE: Energy Technology Innovation Project (ETIP)

PROJECT NO: 936-5741

DURATION: 1990 - 2000

SERVICES AVAILABLE: Technical assistance, seminars and workshops

GEOGRAPHIC SCOPE: Global

LIFE-OF-PROJECT BUDGET: *\$20 million BUY-IN CAPACITY: \$10 million

BENEFICIARIES: Energy producers and users

PURPOSE: This new project assists developing countries implement innovative energy technologies and methodologies to help meet increased energy/power sector demand in an environmentally benign and cost-effective manner.

DESCRIPTION: Planned components of the project are:

- o Clean energy technologies;
- o Innovation in energy efficiency and in power generation, transmission, and distribution;
- o Technology transfer to rehabilitate current power systems; and
- o Improvement of power sector institutional structures.

ETIP will:

- o Support prefeasibility studies for indigenous energy applications;
- o Develop and implement innovative approaches to technology transfer;
- o Plan and conduct management/operational assistance workshops; and
- o Develop an institutional framework for sustainable socioeconomic growth in the energy/power sector.

CONTRACTOR/GRANTEE

(To be contracted before
June 30, 1991)

A.I.D. PROJECT MANAGER

Samuel Schweitzer
AID/S&T/EY
508 SA-18
Washington, D.C. 20523-1810
Phone: (703) 875-4052
FAX: (703) 875-4053/875-4394

* includes buy-ins

PUBLICATIONS LIST

- New Directions for A.I.D. Renewable Energy Activities. February 1988. S&T/EY Report No. 88-01. Document No. PN-ABB-532.
- Rice Residue Utilization Technology, International Market Prospects for U.S. Industry. January 1988. S&T/EY Report No. 88-02. Document No. PN-ABE-533.
- Cane Energy Utilization Symposium, A Report from the 2nd Pacific Basin Biofuels Workshop, Volume I: Summary. April 1987. S&T/EY Report No. 88-03. Document No. PN-AAZ-727.
- Cane Energy Utilization Symposium, A Report from the 2nd Pacific Basin Biofuels Workshop, Volume II: Presented Papers. April 1987. S&T/EY Report No. 88-04. Document No. PN-AAZ-728.
- Potential for Private Investment in Rice Residue Power Generation, Indonesia 1987, Preliminary Analysis. May 1988. S&T/EY Report No. 88-05. Document No. PN-AAZ-729.
- Assessment of Integrated Coal Gasification Combined Cycle Technology for India. May 1988. S&T/EY Report No. 88-06. Document No. PN-AAZ-893.
- Project Evaluation and Implementation. April 1988. S&T/EY Report No. 88-07. Document No. PN-AAZ-769.
- Energy Standards Directory for the Process Industry. March 1988. S&T/EY Report No. 88-08. Document No. PN-AAZ-740.
- The Hashemite Kingdom of Jordan, Recommendations for an Industrial Energy Efficiency Program. May 1988. S&T/EY Report No. 88-09. Document No. PN-ABB-534.
- Program Plan, FYs 1988 and 1989. May 1988. S&T/EY Report No. 88-10. Document No. PD-AAZ-768.
- Trial Year Program Proposal, Nong Yai Sugar Mill, Thailand. August 1987. S&T/EY Report No. 88-11. Document No. PN-ABA-332.
- Energy in West and Central Africa: Issues, Problems and Donor Activities. July 1988. S&T/EY Report No. 88-12. Document No. PN-ABA-256.
- Power Shortages in Developing Countries: Magnitude, Impacts, Solutions, and the Role of the Private Sector. March 1988. S&T/EY Report No. 88-13. Document No. PN-AAZ-552.
- The A.I.D. Experience with Independent Power Generation. August 1988. S&T/EY Report No. 88-14. Document No. PN-ABB-535.
- Options To Increase Private Participation in Electric Power Development in A.I.D.-Assisted Countries. December 1987. S&T/EY Report No. 88-15. Document No. PN-ABB-536.

A Financial Model for Evaluating Proposed Private Power Projects in Developing Countries. April 1988. S&T/EY Report No. 88-16. Document No. PN-ABB-537.

A Prefeasibility Assessment of the Potential of Wood Waste Power Systems for the Indonesian Wood Products Industry, Phase I Report. November 1988. S&T/EY Report No. 88-17. Document No. PN-ABB-341.

Electric Power from Sugarcane in Costa Rica, A Technical and Economic Analysis. July 1988. S&T/EY Report No. 88-18. Document No. PN-ABB-444.

Summary of the Central American and Caribbean Workshop on Electric Power. December 1988. S&T/EY Report No. 88-19. Document No. PN-ABB-538.

Report on Roundtable for Private Participation in the Electrical Sector of the Dominican Republic. August 1988. S&T/EY Report No. 88-20. Document No. PN-ABB-539

Electricity and Ethanol Options in Southern Africa. September 1988. S&T/EY Report No. 88-21. Document No. PN-ABB-540.

Energy Efficient Stoves In East Africa: An Assessment of the Kenya Ceramic Jiko (Stove) Program. January 1989. S&T/EY Report No. 89-01. Document No. PN-ABD-072.

Prefeasibility Study: Oil Shale Utilization for Power Production in the Hashemite Kingdom of Jordan, Volumes I - VI. May 1989. S&T/EY Report No. 89-02. Document Nos. PN-ABD-619; PN-ABD-620; Appendices 1-4, PN-ABD-621; Appendix 5, PN-ABD-622; Appendix 6, PN-ABD-623; Appendices 7-12, PN-ABD-624.

Electric Power from Cane Residues, A Technical and Economic Analysis. September 1986. S&T/EY Report No. 89-03. Document No. PN-ABA-930.

Summary Report of the Philippine Seminar and Roundtable on Private Power Generation Through Build-Operate-Transfer (BOT). May 1989. S&T/EY Report No. 89-04. Document No. PN-ABD-617.

The Sugar Industry in the Philippines: An Analysis of Crop Substitution and Market Diversification Opportunities. December 1986. S&T/EY Report No. 89-05. Document No. PN-ABA-959.

Fuel Alcohol Production in Honduras: A Technical and Economic Analysis. April 1986. S&T/EY Report No. 89-06. Document No. PN-AAW-502.

Energy Inefficiency in the Asia/Near East Region and its Environmental Implications. June 1989. S&T/EY Report No. 89-07. Document No. PN-ABF-134.

Program Plan, FYs 1989 and 1990. June 1989. S&T/EY Report No. 89-08. Document No. PD-ABA-910.

Costa Rica Load Control Demonstration Project. July 1989. S&T/EY Report No. 89-09. Document No. PN-ABD-618.

Jamaica Cane/Energy Project, Feasibility Study, Volume 1. September 1986. S&T/EY Report No. 89-10. Document No. PD-AAV-308.

- Technical, Economic, Financial and Commercial Considerations of the San Miguel Corporation Private Power Program. August 1989. S&T/EY Report No. 89-11. Document No. PN-ABE-113.
- Steam-Injected Gas-Turbine Cogeneration for the Cane Sugar Industry, Optimization Through Improvements in Sugar-Processing Efficiencies. September 1987. S&T/EY Report No. 89-12. Document No. PN-ABC-988.
- Electroplan: A New Spreadsheet Model for Comprehensive Power Systems Planning in Developing Countries. July 1989. S&T/EY Report No. 89-13. Document No. PN-ABD-616.
- Handbook for Comparative Evaluation of Technical and Economic Performance of Water Pumping Systems. November 1988. S&T/EY Report No. 89-14. Document No. PN-ABF-135.
- Screening Study to Determine the Feasibility of Small Non-Centralized Electric Generating Stations Using Indigenous Fossil Fuel to Supply Energy Needs in Rural Areas in Developing Countries. November 1989. S&T/EY Report No. 89-15. Document No. PN-ABE-114.
- Energy Conservation Investment Decision-Making in Developing Countries. December 1989. S&T/EY Report No. 89-16. Document No. PN-ABD-858.
- Vaccine Refrigeration Technologies and Power Sources. March 1990. S&T/EY Report No. 90-01. Document No. PN-ABG-917.
- Interconnection of Sugar Mills to the Thailand Electric Power Grid: Issues and Prospects. January 1990. S&T/EY Report No. 90-02.*
- Program Plan, Fiscal Years 1990 and 1991. July 1990. S&T/EY Report No. 90-03. Document No. PD-ABC-051.
- Policy Initiatives for Electric Utility Load Management in A.I.D.-Assisted Countries. August 1990. S&T/EY Report No. 90-04. Document No. PN-ABG-512.
- Analysis of Swaziland Sugar Industry Cogeneration Power Options. April 1990. S&T/EY Report No. 90-05. Document No. PN-ABG-476.
- Private Power Database, Country Profile: Dominican Republic. 90-06. S&T/EY Report No. 90-06. Document No. PN-ABG-515.
- Private Power Database, Country Profile: India. July 1990. S&T/EY Report No. 90-07. Document No. PN-ABG-516.
- Private Power Database, Country Profile: Pakistan. July 1990. S&T/EY Report No. 90-08. Document No. PN-ABG-514.
- Private Power Database, Country Profile: The Philippines. July 1990. S&T/EY Report No. 90-09. Document No. PN-ABG-513.
- The Hashemite Kingdom of Jordan Industrial Energy Efficiency Program. October 1990. S&T/EY Report No. 90-10.*

* Not yet available in final.

Screening of Combined Cycle Alternatives Including Repowering Options in the Philippines. October 1990. S&T/EY Report No. 90-11. Document No. PN-ABG-775.

Poland: An Energy and Environmental Overview. October 1990. S&T/EY Report No. 90-12. Document No. PN-ABH-045.

Ordering and Payment Information

Copies of the reports listed on the previous pages can be ordered from:

A.I.D. Development Information Services Clearinghouse
1500 Wilson Boulevard
Suite 1010
Arlington, VA 22209-2404
Telephone: (703) 351-4006
Telefax: (301) 951-9624

Please specify the 5-letter, 3-digit document number when ordering.

A.I.D. personnel can obtain copies free-of-charge from the Document Distribution Unit (formerly User Services). Other individuals can purchase paper copies from the Unit at \$0.13 per page and microfiche at \$1.25 each (about 98 pages per fiche). In some cases, shelf copies are available at \$3.00 each. Postage and handling are additional, charged according to the size and weight of the order.

If your order totals over \$30.00, you will be invoiced for prepayment in full before your order is processed. Otherwise, your bill will be enclosed with your order. Payments are accepted in U.S. dollar checks drawn on a U.S. bank only. Charge accounts are not available. Contact the Document Distribution Unit at the above telephone number about establishing a deposit account.

S&T/EY PROFESSIONAL STAFF BIO-SKETCHES

James B. Sullivan - Director

James B. Sullivan is Director of the Office of Energy, Bureau for Science and Technology, U.S. Agency for International Development. Dr. Sullivan joined A.I.D. in 1982 as an energy consultant in Pakistan and assumed his present position in 1986. Previously he was with the U.S. Environmental Protection Agency and subsequently joined the U.S. Office of Technology Assessment, continuing to work on innovative energy technologies, economic development, environmental quality, and public participation. Dr. Sullivan founded the Center for Science in the Public Interest and served as its co-director from 1970 to 1976, directing projects on a variety of energy and environmental issues. Dr. Sullivan graduated from Manhattan College with a degree in Civil Engineering. He holds a Master's degree from New York University and a doctorate from the Massachusetts Institute of Technology in Applied Mathematics and Hydrodynamics.

Alberto J. Sabadell - Deputy Director

Prior to joining the Office of Energy in 1983, Mr. Sabadell worked with The MITRE Corporation on advanced fossil fuel technologies, and with AeroChem Research Labs on combustion research and air pollution instrumentation. He was a professor of fluid mechanics at the National University of Buenos Aires, in Argentina. Mr. Sabadell has more than 30 publications to his credit, including two patents, and currently serves on a National Academy of Sciences engineering panel. He holds a Chemical Engineering degree from the National University of Buenos Aires and an Aerospace Sciences degree from Princeton University. He is fluent in Spanish, French, Italian, and Catalan.

David J. Jhirad - Senior Physical Scientist

Dr. Jhirad directs programs in energy and environmental policy and planning and in renewable energy applications and training. He holds bachelor's degrees in Physics and Applied Mathematics from Delhi and Cambridge Universities, and a doctorate in Physics from Harvard University, where he received the Bowdoin Prize for excellence in research. He has held senior scientific appointments at Brookhaven National Laboratory, the Jet Propulsion Laboratory, and the IBM Research Center, and has taught courses in energy and the environment at Boston University and the University of Massachusetts. Dr. Jhirad is chairman of the Multi-Agency Group on Power Sector Innovation (MAGPI) and serves on the Editorial Board of the Annual Review of Energy and on an Advisory Council to the U.S. Office of Technology Assessment. He has coauthored a book and over 50 technical papers on energy and environmental policy, technology innovation, and advanced power technology.

Carolyn Kiser - Program Operations Specialist

Mrs. Kiser assists the program analyst in monitoring the administrative and budgetary functions of the Office. Specifically, she maintains the Project Control System computer database, assists with preparation of budget documents, and provides support to the program analyst on the office's Energy Training Project. Prior to her present position, Mrs. Kiser was secretary to the deputy director of the Office of Energy and secretary to the director of the Office of Engineering. She is presently working toward an undergraduate degree in Business Management at Prince George's Community College in Maryland.

Ross Pumfrey - Energy Systems Analyst

Mr. Pumfrey concentrates on the office's renewable energy project and on energy efficiency activities in Central America. He earned a Bachelor of Arts degree in Political Science from Occidental College, a Master's degree in Energy and Resources from the University of California at Berkeley, and a Master's in Latin American Studies from the Johns Hopkins University. He currently is improving his fluency in Spanish. Mr. Pumfrey has done energy policy analysis or development analysis for the Oak Ridge National Laboratory, the Renewable Energy Institute, the International Institute for Environment and Development, and the Institute for Governmental Studies at the University of California at Berkeley. Prior to his involvement with energy development, he worked for several years as a political organizer, legislative aide, and administrator for non-profit advocacy groups.

Samuel Schweitzer - Senior Advisor - Trade and Investment Promotion

Dr. Schweitzer directs programs in energy technology innovation and serves as the Office's focal point for energy/environment activities in Central Europe. Prior to joining the Office of Energy in 1984, Dr. Schweitzer worked at the U.S. Department of Energy where he managed a number of bilateral programs in renewable energy. He holds a Bachelor's degree in Agricultural Engineering from the Israel Institute of Technology, a Master's degree in Mechanical Engineering from the Massachusetts Institute of Technology and a doctorate in Thermal Sciences from Stanford University. Dr. Schweitzer has been on the faculty of Stanford, the University of Pennsylvania, and Tel-Aviv University, where he established the School of Engineering. He has co-authored over 50 technical papers on Thermal Sciences and Technology. During 1987-1990, Dr. Schweitzer served as the Deputy Director of the Office of Energy Technology and R&D at the International Energy Agency in Paris where he also headed the Energy Technology Studies Division.

Shirley Toth - Program Analyst

A member of the office since its inception in 1978, Ms. Toth's current responsibilities include overall management, supervision, and coordination of the program and budgetary systems. In this regard, she works closely with the technical staff at all phases of project evolution to ensure that the needs of A.I.D.-assisted countries, as well as those of the Regional Bureaus and Missions, are met. She also advises the office director and deputy director on solutions to budgetary and program-related problems and on the implications of changes in Agency policies and procedures. In addition, she manages the Energy Training Project, the Agency's primary training program in this discipline, which annually trains approximately 150-200 developing country participants in various energy fields.

MISSION AND REGIONAL OFFICE ENERGY CONTACTS

Winfield S. Collins
Regional Economic Development
Services Office
West Africa REDSO/WA Abidjan
Washington, D.C. 20521-2010

Lynn Keays Pdo
Accra (ID)
Agency for International Development
Washington, D.C. 20521-2020

M. Farid Salahi
Amman (ID)
Agency for International Development
Washington, D.C. 20521-6050

Ronald K. Kirkpatrick
Ankara (ID)
Agency for International Development
Washington, D.C. 20521-7000

John Thomas
Antanaraibo (ID)
Agency for International Development
Washington, D.C. 20521-2040

Peter R. Orr
Asuncion (ID)
Agency for International Development
Washington, D.C. 20521-3020

George Thompson
Bamako (ID)
Agency for International Development
Washington, D.C. 20521-2050

Donald Reese
Bangkok (ID)
Agency for International Development
Washington, D.C. 20521-7200

Donald Drag
Banjul (ID)
Agency for International Development
Washington, D.C. 20521-2070

Arthur Villanueva
Belize (ID)
Agency for International Development
Washington, D.C. 20521-3050

Paul Neifert
Bissau (ID)
Agency for International Development
Washington, D.C. 20521-2080

James F. Smith
Bogota (ID)
Agency for International Development
Washington, D.C. 20521-3030

Howard B. Helman
Brasilia (ID)
Agency for International Development
Washington, D.C. 20521-7500

Brindley Sellia
Bridgetown (ID)
Agency for International Development
Washington, D.C. 20521-3120

John Ford
Bujumbura (ID)
Agency for International Development
Washington, D.C. 20521-2100

Rick Rhoda
Cairo (ID)
Agency for International Development
Washington, D.C. 20521-7700

John J. Pinney
Colombo (ID)
Agency for International Development
Washington, D.C. 20521-6100

Iqbal Qazi
Conakry (ID)
Agency for International Development
Washington, D.C. 20521-2110

Energy Officer
Cotonou (ID)
Agency for International Development
Washington, D.C. 20521-2120

Gilbert N. Haycock
Dakar (ID)
Agency for International Development
Washington, D.C. 20521-2130

Joel Strauss
Dar Es Salaam (ID)
Agency for International Development
Washington, D.C. 20521-2140

James Franckiewicz
Dhaka (ID)
Agency for International Development
Washington, D.C. 20521-2130

John Lundegren
Djibouti (ID)
Agency for International Development
Washington, D.C. 20521-2150

Energy Officer
Freetown (ID)
Agency for International Development
Washington, D.C. 20521-2160

Pushkar Brahmabatt
Gaborone (ID)
Agency for International Development
Washington, D.C. 20521-2170

Jonathan Sleeper
Grenada (ID)
Agency for International Development
Washington, D.C. 20521-3180

Roberto Figuero
Guatemala City (ID)
Agency for International Development
Washington, D.C. 20521-3190

Mario Funes
Regional Office for
Central American Programs (ROCAP)
Guatemala City
Agency for International Development
Washington, D.C. 20521-3190

Douglas Pickett
Harare (ID)
Agency for International Development
Washington, D.C. 20521-2180

Thomas Rishoi
Islamabad (ID)
Agency for International Development
Washington, D.C. 20521-8100

Edi Setianto
Jakarta (ID)
Agency for International Development
Washington, D.C. 20521-8200

Gary Bayer
Kampala (ID)
Agency for International Development
Washington, D.C. 20521-2190

Hugh Sheridan/Tobey Pierce
Kathmandu (ID)
Agency for International Development
Washington, D.C. 20521-6190

Dulal Datta
Khartoum (ID)
Agency for International Development
Washington, D.C. 20521-2200

Charles Scheibal
Kingston (ID)
Agency for International Development
Washington, D.C. 20521-3210

Richard Macken
Kinshasa (ID)
Agency for International Development
Washington, D.C. 20521-2220

Henry D. Merrill
AID Section American
Embassy/Lagos
Agency for International Development
Washington, D.C. 20521-8300

Raymond F. Victurine
La Paz (ID)
Agency for International Development
Washington, D.C. 20521-3220

Cesar Castellon
Lilongwe (ID)
Agency for International Development
Washington, D.C. 20521-2280

Edilberto Alarcon
Lima (ID)
Agency for International Development
Washington, D.C. 20521-3230

Luz Rezende
Lisbon (ID)
Agency for International Development
Washington, D.C. 20521-5320

Dennis Panther
Lome (ID)
Agency for International Development
Washington, D.C. 20521-2300

Alex Sundermann
Manila (ID)
Agency for International Development
Washington, D.C. 20521-8600

Thomas Kelly
Maputo (ID)
Agency for International Development
Washington, D.C. 20521-2330

Adrian DeGraffenreid
Maseru (ID)
Agency for International Development
Washington, D.C. 20521-2340

Richard Owens
Managua (ID)
Agency for International Development
Washington, D.C. 20521-3240

Allen Reed
Mbabane (ID)
Agency for International Development
Washington, D.C. 20521-2350

John W. Airhart
Mogadishu (ID)
Agency for International Development
Washington, D.C. 20521-2360

Robert Boncy
Monrovia (ID) 8800
Agency for International Development
Washington, D.C. 20521-8800

Peter Orr
Montevideo (ID)
Agency for International Development
Washington, D.C. 20521-3360

Roger L. Russell
Muscat (ID)
Agency for International Development
Washington, D.C. 20521-6220

Stafford Baker
Nairobi (ID)
Agency for International Development
Washington, D.C. 20521-8900

Robert Rose
REDSO/ESA
Nairobi (ID)
Agency for International Development
Washington, D.C. 20521-8900

Hugh L. Dwelley
Naples (ID)
Agency for International Development
Washington, D.C. 20521-5700

Harik Van De Pol
Njamena (ID)
Agency for International Development
Washington, D.C. 20521-2410

Robert W. Beckman
New Delhi (ID)
Agency for International Development
Washington, D.C. 20521-9000

Thomas M. Kerst
Niamey (ID)
Agency for International Development
Washington, D.C. 20521-2420

William Faulkner
Nouakchott (ID)
Agency for International Development
Washington, D.C. 20521-2430

Augustin Ouattara
Ouagadougou (ID)
Agency for International Development
Washington, D.C. 20521-2440

Arturo Garrido
Panama City (ID)
Agency for International Development
Washington, D.C. 20521-9100

Muriel Jolivet
Port Au Prince (ID)
Agency for International Development
Washington, D.C. 20521-3400

Thomas C. Luche
Praia (ID)
Agency for International Development
Washington, D.C. 20521-2460

Fausto Maldonado
Quito (ID)
Agency for International Development
Washington, D.C. 20521-3420

Dennis Chandler
Rabat (ID)
Agency for International Development
Washington, D.C. 20521-9400

Terry Barker
Rangoon (ID)
Agency for International Development
Washington, D.C. 20521-4250

Richard M. Seifman
Rome (ID)
Agency for International Development
Washington, D.C. 20521-9500

Robert E. Mitchell
Sanaa (ID)
Agency for International Development
Washington, D.C. 20521-6330

Paul Fritz
Santiago (ID)
Agency for International Development
Washington, D.C. 20521-3460

Heriberto Rodriguez
San Jose (ID)
Agency for International Development
Washington, D.C. 20521-3440

Raul Gonzalez
San Salvador (ID)
Agency for International Development
Washington, D.C. 20521-3450

Charles Moseley
San Salvador (ID)
Agency for International Development
Washington, D.C. 20521-3450

Kenneth Beasley
Santo Domingo (ID)
Agency for International Development
Washington, D.C. 20521-3470

Richard Nishihara
Suva (ID)
Agency for International Development
Washington, D.C. 20521-4290

James Osborn
Suva (ID)
Agency for International Development
Washington, D.C. 20521-4290

Hugo E. Elvir Castillo
Tegucigalpa (ID)
Agency for International Development
Washington, D.C. 20521-3480

H. Peter Delp
Tunis (ID)
Agency for International Development
Washington, D.C. 20521-6360

John Balis
Yaounde (ID)
Agency for International Development
Washington, D.C. 20521-2520

revised 3/4/91

COOPERATING AGENCIES AND ORGANIZATIONS

Association of South East Asian Nations (US ASEAN)		
Contact:	Robert Driscoll	(202) 289-1911
Bechtel National, Inc.		
Contact:	Ernest Y. Lam	(703) 528-4488
Export-Import Bank		
Contact:	Clayton Morris	(202) 566-8918
RCG/Hagler, Bailly, Inc.		
Contact:	Alain Streicher	(202) 488-1500
Hawaiian Sugar Planters Association		
Contact:	Don Heinz	(808) 487-5561
Institute of International Education (IIE)		
Contact:	Steve Ebbin	(202) 682-6560
The Inter-American Development Bank		
Contact:	Gustavo Calderon	(202) 623-1978
	Jaime Millan	(202) 623-1949
International Development and Energy Associates, Inc. (IDEA)		
Contact:	Tom King	(202) 289-4332
	Carl Hocevar	(703) 524-1171
International Institute for Energy Conservation (IIEC)		
Contact:	Deborah Blewiss	(202) 546-3388
Princeton University Center for Energy and Environmental Studies		
Contact:	Robert Williams	(609) 258-5190
Private Sector Energy Development Program		
T. Head & Co., Inc.		
Contact:	John Hammond	(703) 524-4400
Renewable Fuels Association		
Contact:	Eric Vaughn	(202) 543-3802
Solar Energy Research Institute		
Contact:	James Ohi	(303) 231-7681
U.S. Department of Commerce (DOC)		
Contact:	Jay Brandes	(202) 377-0560

U.S. Department of Energy (DOE)		
Contact:	Arlen Erdahl	(202) 586-5858
	George Rudins	(301) 353-3991
	Mike Davis	(202) 586-9220
	Peter Cover	(202) 586-7297
	Ralph Burr	(202) 586-5335
	Ron Bowes	(202) 586-2360
Argonne National Laboratory		
Contact:	Carole Szpunar	(708) 972-7788
Lawrence Berkeley Laboratory		
Contact:	Mark Levine	(415) 486-5238
	Jayant Sathaye	(415) 486-6294
Oak Ridge National Laboratory, Energy Division		
Contact:	Tom Wilbanks	(615) 624-5515
	Dan Waddle	(615) 574-3363
U.S. Environmental Protection Agency (EPA)		
Contact:	Dennis Tirpak	(202) 475-8825
	John Hoffman	(202) 382-4036
U.S. Export Council for Renewable Energy		
Contact:	Scott Sklar	(703) 524-6104
U.S. Trade and Development Program (TDP)		
Contact:	Nancy Frame	(703) 875-4357
Winrock International		
Contact:	Frank Tugwell	(703) 525-9430
The World Bank		
Contact:	Gunther Schramm	(202) 473-3266

Requests for Directories from other offices in the A.I.D. Bureau for Science and Technology should be addressed to:

S&T Office of Agriculture
Room 409, SA-18
Washington, D. C. 20523-1809

S&T Office of Education
Room 609, SA-18
Washington, D. C. 20523-1815

S&T Office of Forestry, Environment
and Natural Resources
Room 509 SA-18
Washington, D. C. 20523-1812

S&T Office of Health
Room 709, SA-18
Washington, D. C. 20523-1816

S&T Office of Nutrition
Room 411, SA-18
Washington, D. C. 20523-1808

S&T Office of Population
Room 811, SA-18
Washington, D. C. 20523-1819

S&T Office of Research and
University Relations
Room 309, SA-18
Washington, D. C. 20523-1807

S&T Office of Rural and
Institutional Development
Room 608, SA-18
Washington, D. C. 20523-1814