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PD-AMM-054
ISN = 48820

**Energy Conservation Services Program :
First Quarterly Report, FY 1987
(10/1/86-12/31/86)**

Contract No. DAN-5728-C-00-3073-00

HBC Reference No. 87-150(13)

Prepared for:
**U.S. Agency for International Development
Office of Energy**

Washington, DC 20523

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February 17, 1987

CONTENTS

TITLE	PAGE
SUMMARY	i
ACTIVITY REPORTS:	
RESEARCH, DEVELOPMENT & DEMONSTRATION	
Private Sector Involvement in Non-Utility Power Generation (179)	1
Market Analysis of Cogeneration Opportunities in USAID-Assisted Countries (180)	3
Institutional/Policy Barriers to Energy Conservation (181)	5
Innovative Private Sector Financing Mechanisms (183)	7
Road Transportation Energy Conservation Program (178)	9
Energy Efficiency Technology Investment Promotion (188)	11
Energy Demand Management in Morocco (189)	14
India PURPA Study (199)	17
TRAINING & FIELD TECHNICAL ASSISTANCE	
General Field Technical Assistance (182)	20
INFORMATION EXCHANGE	
Technology Transfer Teams for Energy Conservation (184)	24
Regional Energy Conservation Workshops/Seminars (185)	28
Asia/Near East Workshop on Energy Conservation and Private Power Generation (187)	31
Information Exchange and Energy Conservation Network Development (186)	33
General Program Management (150/151)	37
APPENDIX 1: Publications	

LIST OF EXHIBITS

- Exhibit 1 Summary of ECSP Activities
- Exhibit 2 First-Quarter Expenditures, FY1987 -- Summary
- Exhibit 3 ECSP Expenditures by Quarter
- Exhibit 4 ECSP Expenditures for Labor, Other Direct Costs, and Fees
- Exhibit 5 Requests for ECSP Publications and Computer Products
- Exhibit 6 Mailing List

SUMMARY

i

The Energy Conservation Services Program (ECSP) provides a broad range of technical advisory services, training, and information dissemination activities to AID-assisted countries.* The objective of this 4-year program is to promote energy conservation in industry, transportation, electric power generation and transmission, and commercial and institutional building design and operation. On September 15, 1983, the U.S. Agency for International Development (AID) contracted with Hagler, Bailly & Company (prime contractor) and Reliance Energy Services (subcontractor) to provide technical and management assistance to the program. In November of 1984, Hagler, Bailly & Company became a subsidiary of RCG International. As part of this acquisition, the operations of Reliance Energy Services, another RCG subsidiary, were merged with Hagler, Bailly & Company.

Since the inception of the program, 36 projects have been initiated, 24 of these projects have been completed and 12 are still ongoing (see Exhibit 1 for a summary of all ECSP activities). No new initiatives have been started since October 1986, due to funding problems. All present initiatives represent ongoing projects from previous commitments.

Since the inception of the program 78 reports, presentations, manuals, and other papers have been prepared (not including some working papers and memorandum). A comprehensive list is provided in Appendix 1.

The first Quarterly Activity Report of the fourth year of ECSP covers the period of October 1, 1986 to December 31, 1986. During the quarter, progress was made on 12 projects. Significant progress was made on several large initiatives. The Energy Technology Investment Promotion project in Egypt began, with the goal of improving Egypt's productivity and competitiveness, particularly in private industrial enterprises, and to reduce the shocks of moving to a rationalized energy price system by promoting the adoption of energy-efficient technologies. In the Dominican Republic, two assessment projects began, one in transportation and the other in private cogeneration. Each will evaluate the potential for energy conservation and identify activities for promoting private-sector energy conservation. The Asia and Near East Workshop on Energy Conservation and Private Power Generation was successfully run in the early days of the quarter. The extensive proceedings are now being prepared. Finally, ECSP staff analyzed a proposed energy demand management program in Morocco in order to identify financially and economically justified actions and investments at the energy end-use level. The team also defined technical assistance components, defined program benefits and costs, and developed recommendations and an action plan.

* This program is part of the Energy Policy Development and Conservation Project (Project No. 936-5728).

Two reports were finalized during this quarter, Private-Sector Power Generation in Thailand: Potential, Impediments and Policy Issues and Advisory Group Trip Report to Thailand and Pakistan: Cogeneration Technology Transfer, September 29 - October 9, 1986. Drafts of several reports were sent out for review, including Energy Demand Management in Morocco: A Prefeasibility Analysis; Energy Conservation in Developing Countries: Identification and Analysis of the Barriers to Private Investment; Potential and Policy Issues of Industrial Cogeneration in the Dominican Republic; Non-Utility Power Generation in India: Potential, Impediments, and Policy Issues

A total of 284 professional person-days was spent in Morocco (34), Pakistan (5), Thailand (36), Egypt (156), and the Dominican Republic (53). Quarterly expenditures, as shown in Exhibit 2, were \$378,617, as compared with \$250,420 in the fourth quarter of the third year of the program (see Exhibits 3 and 4).

Exhibit 1

Summary of ECSP Activities
(Inception to date)

ACTIVITY	Period of Performance	Budget	Cumulative Expenditures (12/31/86)*
1. Program management and development, including preparation of in-country missions and program planning activities; preparation of energy demand management programs in Egypt; prepare S&T/EY program plan; Energy Use Standards; Energy Equipment Cost Directory; Present paper on AID in Peru (HBC reference 150/151)	9-15/83-ongoing	None	\$526,179
2. Organization, preparation, and presentation of 2-week energy demand management and conservation training course in Sri Lanka for Ministry of Power and Technology -- December 7-17, 1983 (HBC reference 152)	10/10/83-12/30/83	\$124,131	\$125,561
3. Support in preparation of Technology Transfer for Energy Management Project Paper with U.S.AID/Philippines and Ministry of Energy/Bureau of Energy Utilization (HBC reference 153)	9/15/83-4/30/84	None	\$88,638
4. Development of data base on AID-funded energy conservation initiatives (HBC reference 154)	10/8/83-5/11/84	\$14,451	\$13,312
5. Preparation of energy auditing manual for use in Sri Lanka (HBC reference 155)	10/21/83-2/27/84	\$38,465	\$43,715
6. Organization, preparation, and presentation of 4-week energy auditing course in Sri Lanka for Ministry of Power and Energy -- February 27-April 10, 1984 (HBC reference 156(a))	1/3/84-4/10/84	\$80,220	\$77,788
7. Completion of full audit reports and feasibility study of energy conservation projects for Sri Lanka Tyre Corporation and Thulhiriya Textile Mills (HBC reference 156(b))	3/15/84-8/15/84	\$69,061	\$71,017
8. Development of ECPIE: Energy Conservation Project Investment Evaluation Model and user manual (HBC reference 157)	1/3/84-8/30/84	\$23,805 **	\$43,879

*Based on labor costs incurred and invoices received only.

**Scope of work was expanded subsequent to budget preparation.

Exhibit 1

Summary of ECSP Activities
(Inception to date)

ACTIVITY	Period of Performance	Budget	Cumulative Expenditures (12/31/86)*
9. Preparation of monograph on innovative approaches to financing energy conservation investments in less developed countries (HBC reference 158)	1/3/84-9/10/84	\$7,500 **	\$10,295
10. Completion of feasibility study of guide and directory of U.S. energy-efficient equipment for distribution to developing countries -- activity jointly sponsored with Office of Industrial Programs, U.S. Department of Energy (HBC reference 159)	1/3/84-7/12/84	\$25,000	\$26,059
11. Missions to ASEAN countries to assist in the project planning for regional building energy conservation activities (HBC reference 160)	5/5/84-6/4/84	None	\$31,785
12. Mission to assess current energy situation in the transportation sector of Costa Rica and identify possible AID-funded activities to improve energy use efficiency; conducted in cooperation with Oak Ridge National Laboratory (HBC reference 161)	5/14/84-3/31/85	None	\$29,138
13. Planning and preparation for the Latin America/Caribbean Regional Energy Conservation Seminar (HBC reference 162)	5/14/84-6/30/85	\$102,000	\$111,419
14. Missions to Ecuador and Peru to assist in developing industrial energy conservation outreach services and programs (HBC reference 163)	5/14/84-3/31/85	None	\$19,769
15. Ecuador industrial energy conservation training, curriculum development, and audits (HBC reference 164)	7/14/84-3/31/84	\$104,157	\$97,286
16. Revision of training manual for energy demand management and conservation training course for industry and buildings (HBC reference 165)	7/14/84-3/31/85	\$10,675	\$13,431

*Based on labor costs incurred and invoices received only.

**Scope of work was expanded subsequent to budget preparation.

Exhibit 1

Summary of ECSP Activities
(Inception to date)

ACTIVITY	Period of Performance	Budget	Cumulative Expenditures (12/31/86)*
17. Revision of industrial energy audit manual (HBC reference 166)	7/14/84-9/1/84	\$14,458	\$15,242
18. Evaluation of the IIE/TVA Conventional Energy Training Project (CETP) Course (HBC reference 167)	6/30/84-8/30/84	\$19,096	\$21,704
19. Organization and planning of the Pakistan National Energy Conservation Center (HBC reference 168)	9/8/84-6/15/85	\$275,000	\$229,182
20. Industrial Energy Conservation Program (Dominican Republic) Evaluation (HBC reference 169)	10/1/84-2/28/85	\$20,000	\$23,817
21. Regional Industrial Energy Efficiency Project (Central America and Panama) Evaluation (HBC reference 170)	10/1/84-3/15/85	\$36,000	\$38,763
22. Energy Initiatives Project (Djibouti) Evaluation (HBC reference 171)	11/30/84-2/15/85	\$16,286	\$16,823
23. Fact-finding mission to Haiti to examine the energy efficiency of the sugar and manufacturing industries (HBC reference 173)	2/20/85-12/31/85	\$11,500	\$12,291
24. Joint reconnaissance visit to Sri Lanka to identify energy bottlenecks in the agricultural sector (HBC reference 177)	6/1/85-12/31/85	None	\$15,090
25. Demonstration program and public information campaign to increase energy efficiency in the transportation sector in Costa Rica; and study of transportation energy conservation in developing countries (HBC reference 178)	6/1/85-12/31/86	\$130,000	\$143,797
26. Study of impediments to private sector development of non-utility power generation (HBC reference 179/1004)	9/1/85-ongoing	\$240,000	\$166,407

*Based on labor costs incurred and invoices received only.

Exhibit 1

Summary of ECSP Activities
(Inception to date)

A C T I V I T Y	Period of Performance	Budget	Cumulative Expenditures (12/31/86)*
27. Market analysis of Cogeneration opportunities in USAID-assisted countries (HBC reference 180)	9/15/85-ongoing	\$75,000	\$16,749
28. Institutional barriers to private sector investment in energy conservation (HBC reference 181)	10/14/85-ongoing	\$60,000	\$51,136
29. General technical assistance: Thailand, Indonesia, Dominican Republic (HBC reference 182)	10/16/85-ongoing	\$140,000	\$105,096
30. Innovative private sector financing (HBC reference 183)	10/15/85-12/31/86	\$75,000	\$22,062
31. Technology Transfer Teams for Energy Conservation (HBC reference 184)	10/16/85-ongoing	\$50,000	\$64,744
32. Asia/Near East Energy Conservation Promotion and Investment Workshop (HBC reference 185)	10/15/85-12/31/86	\$120,000	\$131,569
33. Information exchange and energy conservation network development (HBC reference 186)	10/15/85-ongoing	\$75,000	\$54,086
34. Asia/Near East Workshop Followup (HBC reference 187)	10/1/86-ongoing	None	\$27,430
35. Energy Efficiency Technology Investment Promotion (HBC reference 188)	10/1/85-ongoing	\$275,000	\$120,203
36. Energy Demand Management in Morocco (HBC reference 189)	10/1/86-12/31/86	\$35,000	\$35,037
37. India PURPA Study (HBC reference 199)	4/29/86-ongoing	\$100,000	\$96,567

*Based on labor costs incurred and invoices received only.

Exhibit 2

Fourth-Quarter Expenditures, FY 1986
(Twelfth Quarter of the Contract) -- Summary

	Revised Contract Budget ²	Quarterly Expenditures ¹	Cumulative Expenditures Through 12/31/86 ¹	
			\$	%
Salaries	\$672,907	\$104,495	\$737,239	109.6
Fringe benefits	188,109	31,349	209,896	111.6
Overhead	796,291	129,052	897,196	112.7
Travel/trans./per diem	373,222	71,314	310,433	83.2
Other direct costs	108,700	42,407	227,318	209.1
Equipment	50,000	-0-	-0-	-0-
Subcontractor	<u>667,348</u>	<u>-0-</u>	<u>243,829</u>	<u>36.5</u>
Total estimated costs	\$2,856,977	378,617	2,625,911	91.9
Fixed fee	<u>123,698</u>	<u>-0-³</u>	<u>105,143</u>	<u>85.0</u>
Total estimated costs and fixed fee	\$2,980,275	378,617	2,731,054	91.6

¹ Based on labor costs incurred and invoices received as of 12/31/86 and a review conducted by Hagler, Bailly's accountants.

² \$2,850,275 has been obligated so far, of which \$554,000 has been directly contributed by Regional Bureaus and Missions. Another \$70,000 has been contributed through another contract.

³ To maintain fixed fee charges at their 85 percent maximum prior to the conclusion of the contract, no fixed fee charges have been listed in this quarter.

VII

Exhibit 3

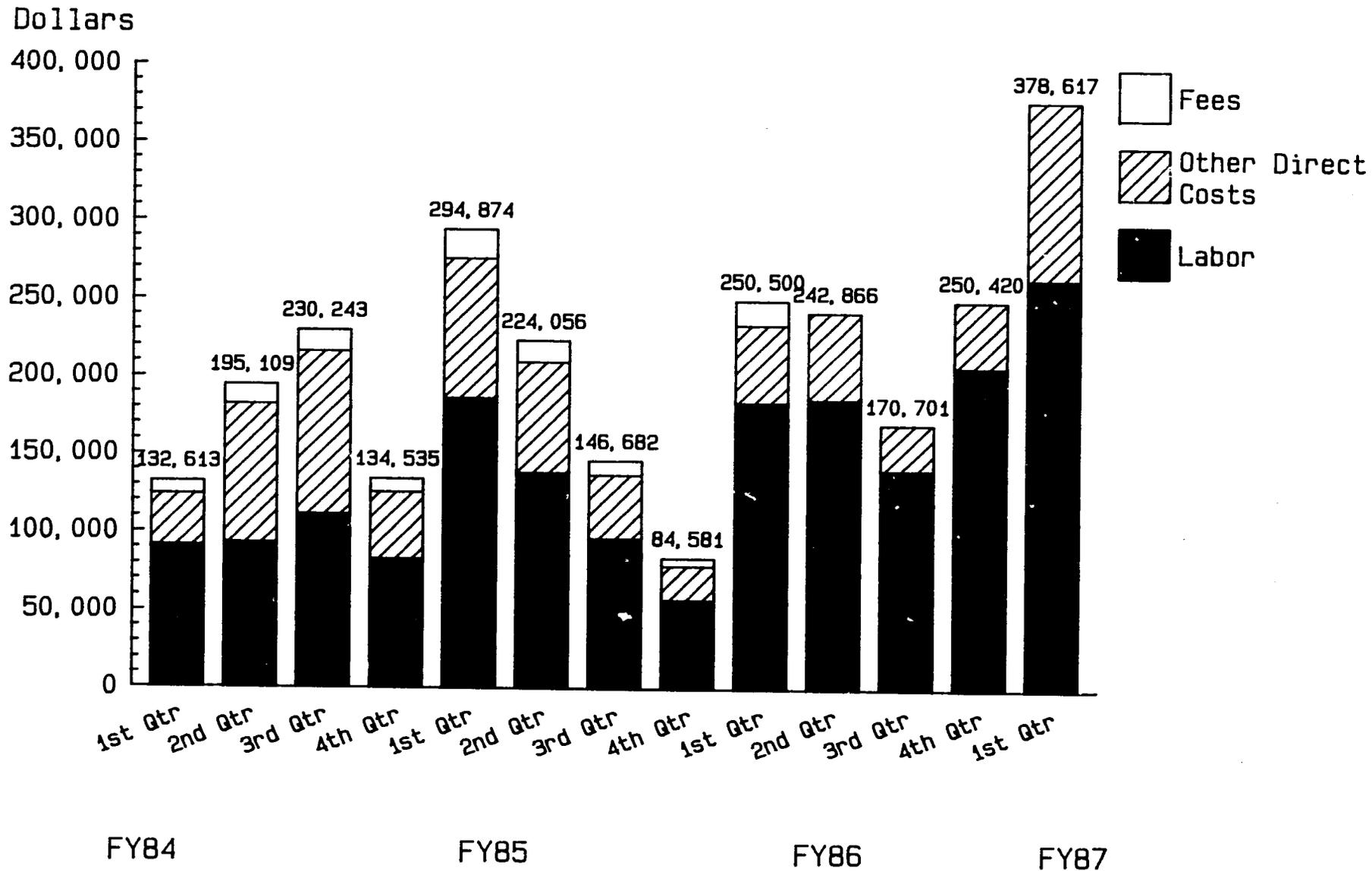
ECSP Expenditures by Quarter

<u>First year</u>		
First quarter	(9/15/83-12/15/83)	\$132,613
Second quarter	(12/15/83-4/1/84)	195,109
Third quarter	(4/2/84-6/30/84)	230,243
Fourth quarter	(7/2/84-9/28/84)	<u>134,537</u>
Yearly total		\$692,502
<u>Second year</u>		
First quarter	(10/1/84-12/31/84)	\$290,126
Second quarter	(1/2/85-3/31/85)	224,056
Third quarter	(4/1/85-6/30/85)	146,682
Fourth quarter	(7/1/85-9/30/85)	<u>84,581</u>
Yearly total		\$745,445
<u>Third year</u>		
First quarter	(10/1/85-12/31/85)	\$250,503
Second quarter	(1/1/86-3/31/86)	242,866
Third quarter	(4/1/86-6/30/86)	170,701
Fourth quarter	(7/1/86-9/30/86)	<u>250,420</u>
Yearly total		\$914,490
<u>Fourth year</u>		
First quarter	(10/1/86-12/31/86)	\$378,617

VIII

Exhibit 4

ECSP Quarterly Expenditures for Labor, Other Direct Costs, and Fees



7

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development, and Demonstration

ACTIVITY: Private Sector Involvement in Non-Utility Power Generation
(Contract Task Area 6)

COUNTRY: Thailand

START DATE: 9/9/85

COMPLETION DATE: Ongoing

BUDGET: \$240,000

QUARTERLY EXPENDITURES: \$1,833

CUMULATIVE EXPENDITURES: \$166,407

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 179/1004

DESCRIPTION

The focus of this activity is on evaluating the potential for and barriers to development of cogeneration and other nonutility power generation options by the private sector in developing countries. The successful development of such options will improve fuel efficiency, increase domestic fuel utilization, enhance the resiliency and reliability of power supplies, and provide opportunities for private sector investment in areas traditionally not available to them. During this quarter, AID staff in Washington and Bangkok and the Thai government gave their approval to the draft report delivered during the previous quarter and its designation was changed to final with no corrections.

ACTIVITY REPORTS

- Private-Sector Power Generation in Thailand: Potential, Impediments, and Policy Issues, Final Report, September 19, 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice-President; Pirooz Sharafi, Senior Associate; Jack Stafurik, Senior Associate
- USAID/Washington: Robert Archer, Asia/NE; James Sullivan, S&T/EY; David Jhirad, S&T/EY
- USAID/Bangkok: John Neave, Energy Officer.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$ 28	\$ 46,908
Fringe benefits	8	14,702
Overhead	34	57,929
Travel/trans./per diem	---	29,200
Other direct costs	1,763	14,380
Equipment	---	---
Subcontractor	---	---
Total	\$1,833	\$162,489
Fee	---	<u>3,918</u>
GRAND TOTAL	\$1,833	\$166,407

The Asia/Near East Bureau has thus far contributed approximately \$100,000 to this task.

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development, and Demonstration

ACTIVITY: Market Analysis of Cogeneration Opportunities in USAID-Assisted Countries (Contract Task Area 7)

COUNTRY: Not country-specific

START DATE: 10/15/85

COMPLETION DATE: 12/31/86

BUDGET: \$75,000

QUARTERLY EXPENDITURES: \$3,165

CUMULATIVE EXPENDITURES: \$16,749

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 180

DESCRIPTION

ECSP staff are modifying the Hagler, Bailly & Company cogeneration market assessment model, which has been used for a number of years in the United States, to estimate the economic and financial potential of cogeneration in developing countries. Based on the cost of different cogeneration technologies (e.g., fuel oil boiler with steam turbine, natural gas boiler with steam turbine, gas turbine/waste heat recovery boiler, diesel/waste heat recovery boiler), and a market divided into new, replacement, and retrofit segments, the model estimates, for a range of equipment sizes, the possible market shares. Since every country has a different industrial structure, different fuel inputs, and different regional divisions, the model has to be changed for each country. During this quarter the model was modified to allow for different scenarios in India. The model was revised to make estimations with and without supplies of natural gas in two states in India. Numerous sensitivity analyses were run and tests of the model's stability were conducted.

with and without supplies of natural gas in two states in India. Numerous sensitivity analyses were run and tests of the model's stability were conducted.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice President; Pirooz Sharafi, Senior Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$ 769	\$ 6,097
Fringe benefits	231	1,829
Overhead	950	7,528
Travel/trans./per diem	---	---
Other direct costs	1,215	1,220
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$3,165	\$16,674
Fee	---	75
	<hr/>	<hr/>
GRAND TOTAL	\$3,165	\$16,749

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development, and Demonstration

ACTIVITY: Institutional/Policy Barriers to Energy Conservation

COUNTRY: Not country-specific

START DATE: 10/1/85

COMPLETION DATE: Ongoing

BUDGET: \$60,000

QUARTERLY EXPENDITURES: \$2,295

CUMULATIVE EXPENDITURES: \$51,136

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 181

DESCRIPTION

During this quarter, ECSP staff completed the draft final report Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools, which identifies and analyzes general and sector-specific barriers to private investment in energy conservation and the policy tools that governments can use to remove the barriers and to make energy conservation investments more attractive to the private sector. This report is the first comprehensive assessment of the barriers to private investment in energy conservation and takes the first systematic look at all the potential areas for energy policy reforms.

Activities anticipated during the next quarter include:

- Preparation of the final report Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools

- Distribution of the final report to AID/Washington and Mission personnel
- Continued distribution of the survey on country-specific barriers to private investment in energy conservation and compilation of results
- Initiation of a country case study on the barriers to private investment in energy conservation and potential policy reforms. Candidate countries: Egypt, Morocco.

ACTIVITY REPORTS

- Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools, November 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President; Alain Streicher, Senior Vice President; Suzanne Leonard, Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$ 824	\$17,574
Fringe benefits	247	5,272
Overhead	1,018	21,705
Travel/trans./per diem	---	3,955
Other direct costs	206	1,586
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$2,295	\$50,092
Fee	---	<u>1,044</u>
GRAND TOTAL	\$2,295	\$51,136

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research Development & Demonstration

ACTIVITY: Innovative Private Sector Financing

COUNTRY: Sri Lanka, Costa Rica, Dominican Republic, Central America,
Pakistan

START DATE: 10/15/85

COMPLETION DATE: 12/31/86

BUDGET: \$75,000

QUARTERLY EXPENDITURES: \$21

CUMULATIVE EXPENDITURES: \$22,062

S&T/EY MANAGER: Jim Sullivan

HBC MANAGER: Henri-Claude Bailly

HBC REFERENCE: 183

DESCRIPTION

ECSP has supported exploratory work in the area of innovative financing of energy conservation projects and has prepared a number of documents outlining these concepts. The next logical step is to identify a private sector project which would lend itself to a demonstration of innovative financing. Previously funded AID work in Costa Rica, Central America, the Dominican Republic, Sri Lanka, and Pakistan could be the source of such a project. Discussions were held with S&T/EY officials to reevaluate this activity and find new directions. It appears that the need for such approaches may not be as high as previously expected. A "hard look" will therefore be given to this activity to decide if it should be pursued or discontinued. No work was performed on this activity this quarter, but bills for supplies purchased in previous quarters were paid.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President; Alain Streicher, Senior Vice-President; Robert Kowalski, Senior Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$---	7,887
Fringe benefits	---	2,368
Overhead	---	9,740
Travel/trans./per diem	---	1,096
Other direct costs	21	689
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$21	\$21,780
Fee	---	282
	<hr/>	<hr/>
GRAND TOTAL	\$21	\$22,062

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development & Demonstration

ACTIVITY: Road Transportation Energy Conservation Program
(Contract Task Area 4)

COUNTRY: Costa Rica

START DATE: 6/1/85

COMPLETION DATE: 12/31/86

BUDGET: \$130,000

QUARTERLY EXPENDITURES: \$585
CUMULATIVE EXPENDITURES: \$143,797

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 178

DESCRIPTION

No activity occurred during this quarter. The quarterly expenditures represent charges incurred in previous quarters but not billed. During the next quarter, ECSP staff will be evaluating the need for a meeting of experts to analyze the potential for future activities in transportation energy conservation in AID-assisted countries.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Vice President; Robert Kowalski, Senior Associate; Jeff Erickson, Associate

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$---	\$37,853
Fringe benefits	---	11,356
Overhead	---	46,750
Travel/trans./per diem	580	21,504
Other direct costs	5	14,971
Equipment	---	---
Subcontractor	---	<u>5,871</u>
Total	\$585	\$138,305
Fee	---	<u>5,492</u>
GRAND TOTAL	\$585	\$143,797

USAID/San Jose has contributed \$30,000 to this task.

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development, and Demonstration

ACTIVITY: Energy Efficiency Technology Investment Promotion

COUNTRY: Egypt

START DATE: 10/1/85

COMPLETION DATE: 6/30/87

BUDGET: \$275,000

QUARTERLY EXPENDITURES: \$120,203

CUMULATIVE EXPENDITURES: \$120,203

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Henri-Claude Bailly

HBC REFERENCE: 188

DESCRIPTION

The goal of the Energy Efficiency Technology Investment Promotion (EETIP) project is to improve Egypt's productivity and competitiveness, particularly in private industrial enterprises, and to reduce the shocks of moving to a rationalized energy price system by promoting the adoption of energy-efficient technologies. The project will include the transfer and demonstration of U.S. energy management technologies, such as process controls, electric load management systems, and cogeneration systems, technical assistance, and training. EETIP will help the Government of Egypt increase its foreign exchange earnings through expanded oil exports, ease the transition to higher energy prices by decreasing the energy content of goods and services, and increase industrial productivity, economic efficiency, and the competitiveness of Egyptian industries by reducing production costs, strengthening technical and managerial capabilities in industry, and promoting private sector development.

During this quarter, ECSP staff initiated the design component of the EETIP project. In October, ECSP staff conducted an extensive review of the economic, energy and industry literature on Egypt and discussed the project

with key USAID/Washington, U.S. Department of Commerce, and World Bank officials.

Between November 1 and December 19, 1986, six ECSP staff members spent a total of 156 man-days in Egypt. The team conducted 90 interviews, including 26 industrial plant visits, with key government officials, private and public industrial enterprises, energy equipment vendors, architectural/engineering firms, financial institutions, USAID personnel, and representatives of other international donor agencies. Thus far, the team has assessed Egypt's energy situation, identified candidate demonstration projects and target industries, evaluated the institutional capabilities and needs of Egyptian public and private organizations, and analyzed possible organizational arrangements for the implementation and management of the project.

During the next quarter, the design team will spend an additional 114 man-days in Egypt to conduct the technical assistance and training needs assessments; finalize the project management structure and fund disbursement procedures; carry out the detailed project analyses; prepare the final project design report; and make presentations to USAID/Cairo.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President (6 work-days in country); Alain Streicher, Senior Vice President (24 work-days in country); Jack Stafurik, Senior Associate (36 work-days in country); Pirooz Sharafi, Senior Associate (24 work-days in country); Suzanne Leonard, Associate (30 work-days in country); Gerald Schwinn, Associate (36 work-days in country)
- USAID/Cairo: Lawrence Ervin, Sherif Arif.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$35,618	\$35,618
Fringe benefits	10,685	10,685
Overhead	43,988	43,988
Travel/trans./per diem	23,577	23,577
Other direct costs	6,335	6,335
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$120,203	\$120,203
Fee	---	---
	<hr/>	<hr/>
GRAND TOTAL	\$120,203	\$120,203

The USAID Mission in Cairo will be contributing approximately \$250,000 for the project.

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Research, Development, and Demonstration

ACTIVITY: Energy Demand Management In Morocco

COUNTRY: Morocco

START DATE: 10/1/86

COMPLETION DATE: 12/31/86

BUDGET: \$35,000

QUARTERLY EXPENDITURES: \$35,037

CUMULATIVE EXPENDITURES: \$35,037

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 189

DESCRIPTION

The purpose of this activity is to provide information to USAID/Rabat to develop a project identification document (PID) for an energy demand management (EDM) project. The study consisted of a prefeasibility analysis of a proposed EDM program in order to identify financially and economically justified actions and investments at the energy end-use level.

To determine the feasibility of an EDM program, a two-man team from ECSP spent two weeks in Morocco from October 15 to October 31, 1986 to review the literature and interview Moroccan government and industry representatives to perform the prefeasibility analysis. The team analyzed the Moroccan energy situation in order to perform the following: project potential fuel savings, by sector; identify and analyze barriers to project implementation; select program targets; define technical assistance components (information and awareness, training, technical support, technology transfer, general policy guidance); define possible institutional arrangements; define program benefits and costs; and develop recommendations and an action plan.

The ECSP team prepared a draft final report presenting their findings, conclusions, and recommendations. In November, the report was sent to the USAID Mission in Rabat for review. A final report will be prepared next quarter following the receipt of comments.

Economic development in Morocco is constrained by a growing scarcity of both foreign exchange and local currency. Energy import costs and the lack of funds for new exploration and development projects are also constraining the economy. Improving the efficiency of energy use can significantly improve this situation. The analysis indicates that a national energy demand management program in Morocco targeted to selected industries, mostly private, and other subsectors such as large buildings and commercial road transport could save in excess of U.S. \$50 million annually in oil imports alone and a cumulative U.S. \$150 million at current energy market prices. The analysis indicates that an EDM program is economically and financially justified and could be successfully implemented, provided the private sector plays a key role in its definition, guidance, and implementation.

Based on the findings, the team recommended three activities in the design and development phase of the program (1) establish a steering committee; (2) develop and implement a promotion campaign; and (3) conduct special studies.

ECSP staff were also requested to prepare an extended executive summary of the report in French. This version was distributed to a large number of Moroccan institutions for review.

ACTIVITY REPORTS

- Energy Demand Management in Morocco: A Prefeasibility Analysis, Draft Final Report, November 10, 1986.
- Energy Demand Management in Morocco: A Prefeasibility Analysis, Draft Executive Summary in French, November 10, 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Alair Streicher, Senior Vice President (17 days in country); Pascal Habay, Senior Associate (17 days in country); Steven Fischer, Senior Associate; Jeff Erickson, Associate
- USAID/Rabat: Dr. Stephen Klein, Energy Officer; Robert Kahn, Program Officer
- Morocco: Mr. Ahmed Bouhaouli, Director of Energy, Ministere de L'Energie et des Mines; Mr. Abdelkrim Berrada, Financial

Manager, Office National de l'electricite; Mr. Alami Sounni,
 Director Industriel, Societe Cherifienne des Petroles.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$10,780	\$10,780
Fringe benefits	3,234	3,234
Overhead	13,314	13,314
Travel/trans./per diem	4,598	4,598
Other direct costs	3,111	3,111
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$35,037	\$35,037
Fee	---	---
	<hr/>	<hr/>
GRAND TOTAL	\$35,037	\$35,037

**U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)**

**QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)**

ACTIVITY AREA: Research Development & Demonstration

ACTIVITY: India PURPA Study

COUNTRY: India

START DATE: 4/29/86

COMPLETION DATE: Ongoing

BUDGET: \$100,000

QUARTERLY EXPENDITURES: \$18,193
CUMULATIVE EXPENDITURES: \$96,567

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 199*

DESCRIPTION

A study team visited India from July 26 to August 23, 1986 to examine the impediments to and potential for non-utility electrical generation primarily in the private sector. They concentrated their efforts in two western states, Maharashtra and Gujarat, which are highly industrialized by Indian standards. The team visited with key power sector, private sector, and government policy officials to determine their views, and collect and analyze existing data and information.

The team analyzed the economic and financial potential for cogeneration and private sector power production from renewable and indigeneous resources. They also identified the policy, regulatory, institutional, and other impediments to non-utility private sector electrical generation from cogeneration or renewable/indigeneous resources for sale to the grid. Finally, they developed

*This activity was created as a separate job code after work was begun under the Private Sector Involvement in Non-Utility Power Generation activity (HBC Reference 179) in order to keep close budgetary control on this specific job.

recommendations and an action plan for addressing the impediments to non-utility generation.

The team found that energy consumption is growing faster than utility capacity. This is occurring because population growth, agricultural expansion, industrial growth, and rising energy use throughout the economy cause demand for electricity to grow much faster than the supply. For example, electricity demand during the five years of the Seventh Plan (1985-1990) is projected to increase by about 30,000 MW, but only 22,000 MW of new capacity will be added by the largely government-owned utilities. Energy investments absorb well over 30 percent of the total national budget but capacity still cannot meet demand. However, the team also found that some significant help can be found in the private sector: the financially attractive non-utility power generation potential could exceed 2,000 MW. This indicates that the private sector could potentially finance, build, own, and operate enough capacity to significantly reduce the current and projected power shortages in Gujarat and Maharashtra.

Industrial cogeneration accounts for the vast majority of this potential, perhaps exceeding 2,000 MW by itself. The industries with the highest potential are the fertilizer, basic chemicals, refinery, and pharmaceutical industries. The potential from bagasse and cane residue is also quite large at an estimated 425 MW. It is also the least expensive option of those studied. Finally, large-scale conventional power systems fueled by domestic fossil fuels have a great potential. They not only can produce power at costs competitive with those of the electric utilities, but they also can present a valuable addition to state-owned power plants by bringing new private capital into the power sector.

These findings were included in the first draft of a report analyzing the power situation in India, the potential for and impediments to non-utility power generation, and provides conclusions and recommendations. During this quarter, this first draft report was prepared and distributed to the Bureau for Asia and Near East and the Office of Energy in the Bureau for Science and Technology. Following receipt of comments from AID a second draft was prepared and sent to India for review by the AID mission and the National Productivity Council. The report will be finalized during the next quarter.

ACTIVITY REPORTS

- Non-Utility Power Generation in India: Potential, Impediments, and Policy Issues, Second Draft, November 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice-President; Pirooz Sharafi, Senior Associate; Jack Stafurik, Senior Associate; Jeff Erickson, Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$5,968	\$27,611
Fringe benefits	1,791	8,285
Overhead	7,371	34,100
Travel/trans./per diem	46	15,745
Other direct costs	3,017	5,696
Equipment	---	---
Subcontractor	---	<u>5,130</u>
Total	\$18,193	\$96,567
Fee	---	---
GRAND TOTAL	\$18,193	\$96,567

**U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)**

**QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)**

ACTIVITY AREA: Training and Field Technical Assistance

ACTIVITY: General Field Technical Assistance
(Contract Task Area 6)

COUNTRY: Thailand, Indonesia, Dominican Republic

START DATE: 10/16/85 **COMPLETION DATE:** 9/30/87

BUDGET: \$140,000 **QUARTERLY EXPENDITURES:** \$39,087
CUMULATIVE EXPENDITURES: \$105,096

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 182

DESCRIPTION

ECSP provides technical assistance to AID Missions in a wide range of technologies and issues. This assistance is generally driven by Mission requests. During this quarter, activities occurred in one country.

Dominican Republic

In response to a request from the National Energy Policy Commission to the USAID Mission in the Dominican Republic for technical assistance followup (HBC project code #169), ECSP initiated two studies: One in transportation energy conservation and the other in industrial cogeneration.

Transportation energy conservation: The objective of the first study is to develop a comprehensive diagnosis of the current and expected energy consumption in the transportation sector and identify policy options for energy efficiency improvement. The effort is to be highly cooperative with ECSP

staff acting as consultants, focusing on overall guidance, knowledge transfer, and on-the-job training.

Consultants from ECSP spent two weeks in the Dominican Republic, from October 6 to 18, 1986, to help the Dominican National Energy Policy Commission (COENER) find ways to reduce energy consumption in transportation. The consultants are working with COENER to analyze the transportation system, set up a data base to evaluate transportation energy consumption, and evaluate possibilities for improving the energy efficiency of transportation. The primary goal of this project is to analyze the transportation system and develop energy consumption statistics in order to identify promising measures for energy conservation. The project will also set up a system whereby transportation energy data can be collected and analyzed on a regular basis.

During the two week visit, ECSP staff, working with COENER, designed and initiated the project. COENER is now implementing the project under the supervision of the ECSP staff and USAID/Santo Domingo. This study has three distinct tasks. Firstly, the team will develop profiles of the transportation system and determine the role for the private sector in providing transportation services. This information will provide background material and will indicate the potential for increasing the private sector's involvement in the transportation system. Secondly, the team will develop a database on transportation energy use. This will involve examining existing statistics to determine current energy use patterns. It will also include creating a system for collecting and developing new transportation energy data. Finally, the team will perform cost-benefit analyses of appropriate transportation energy conservation measures in order to develop a list of recommended actions.

Following the in-country work, ECSP staff drafted a progress report to provide an initial assessment of the transportation system, its problems, and its needs. This report will be finalized and distributed to USAID/Santo Domingo during the next quarter. A followup visit to monitor the progress of the COENER team and assist in evaluating the transportation energy conservation measures will be scheduled during the next quarter.

Industrial Cogeneration: ECSP consultants spent two weeks, from October 20 to 31, 1986, in the Dominican Republic to develop an estimate of the potential for industrial cogeneration, identify constraints and impediments to its development, and recommend policy initiatives to stimulate the development of private-sector cogeneration projects. The team toured plants and analyzed energy audit reports for various industries (e.g., sugar, food processing, pulp and paper, etc.) to determine the technical potential for cogeneration. They also interviewed industry executives, government officials, and representatives from the utility and financial institutions to determine the economic and

financial potential for cogeneration. In making this assessment they identified legal impediments, knowledge and technology barriers, and financial limitations to the successful implementation of cogeneration retrofit and new installation projects.

Their preliminary findings indicate that the private sector can provide as much as 15 percent additional electricity capacity from cogeneration. In the near term the financial potential for cogeneration is a modest 15 MW (total installed capacity is approximately 1010 MW). However, over the long term (1987-1997) the financial potential could increase to 56 MW. These represent projects that can produce returns competitive with other investments.

The primary impediment to cogeneration appears to be existing policies and legislation which discourage private power generation. There is a precedent for private power sales to the public utility, but the long-standing agreements which set the price and quality of service for generation from large-scale industries may not apply to the small-scale options identified by the study team.

The team recommended several steps for supporting cogeneration, most importantly that a cogeneration policy should be developed to encourage private-sector investments. Demonstration projects should also be supported as a means for establishing procedures, laws, and precedents as well as providing important evidence of the benefits of cogeneration to both the government and the private sector.

The ECSP team prepared a draft report that makes specific recommendations to the mission, the utility, and to other energy policy-making groups. This report was distributed to USAID/Washington and to the mission. Once comments are received, it will be finalized during the next quarter.

ACTIVITY REPORTS

- Potential and Policy Issues of Industrial Cogeneration in the Dominican Republic, Draft Report, December 1, 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice President (2 days in the Dominican Republic); Jack Fritz, Manager (12 days in the Dominican Republic); Robert Kowalski, Senior Associate (26 days in the Dominican Republic); Jeff Erickson, Associate (13 days in the Dominican Republic)
- AID/Santo Domingo: William H. Smith, Energy Officer; Leo

Perez-Minaya, Energy Project Advisor

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$14,969	\$33,266
Fringe benefits	4,491	9,980
Overhead	18,486	41,082
Travel/trans./per diem	125	13,437
Other direct costs	1,016	6,363
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$39,087	\$104,128
Fee	---	968
	<hr/>	<hr/>
GRAND TOTAL	\$39,087	\$105,096

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Information Exchange

ACTIVITY: Technology Transfer Teams for Energy Conservation
(Contract Task Area 6)

COUNTRY: Not country-specific

START DATE: 10/16/85

COMPLETION DATE: 9/30/87

BUDGET: \$50,000

QUARTERLY EXPENDITURES: \$26,439

CUMULATIVE EXPENDITURES: \$64,744

S&T/EY MANAGER: Jim Sullivan

HBC MANAGER: Henri-Claude Bailly

HBC REFERENCE: 184

DESCRIPTION

The Cogeneration Technology Transfer Team (TTT) is comprised of technical personnel from private U.S. firms with experience in selected technologies and interest in business promotion and technology transfer to developing countries. This team will be sent to developing countries to identify and implement projects.

Members of the Cogeneration Technology Transfer Team (TTT) attended the Asia/Near East Workshop on Energy Conservation and Private Power Generation (see HBC Reference 185), toured potential cogeneration sites, and visited with officials in Pakistan and Thailand between September 29 and October 9, 1986. From September 29 to October 3, members attended Workshop sessions and met formally and informally with public and private sector representatives of many Asian and African countries to discuss factors affecting private cogeneration systems in their respective countries. They also attended a dinner meeting with representatives of Thai private and public organizations, including the Association of Thai Industries and The Energy

Conservation Center of Thailand, and toured a cogeneration installation now under construction, the Siam Kraft Cogeneration Plant.

From October 5 to October 9, members of the group went to Pakistan where they met with private sector and government representatives to assess the potential for private investment in cogeneration in Pakistan. Members met with officials from a broad range of organizations, including: BankAmerica; Citibank; National Development Finance Corporation; Senior U.S. Commercial Attache; Pakistan Engineering Firms; Gul Ahmed Textiles; Pakland Companies; Ministry of Water and Power; U.S. Embassy, Counselor for Economic and Financial Affairs; U.S. Agency for International Development Energy Office; World Bank; Pakistan Water and Power Development Authority (WAPDA).

In all TTT members held discussions with representatives of 13 countries: Egypt, India, Indonesia, Jordan, Malaysia, Morocco, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Turkey.

Members discussed the potential for private power generation with representatives of each country. They found that Thailand may not have significant potential in the near future because the Thai public utilities appear to be well run and able to meet demand. However, the Thai government is interested in investigating the potential for such development two or three years down the road when the current overcapacity is used fully and major additional investments in power generation equipment are needed. India is opening up, although slowly, to foreign equipment and investment in the power sector, however, the wide diversity of policies make it difficult to predict whether a particular project will be approved. Discussions with utility and private sector representatives from the Philippines indicate that there appears to be potential for investment in cogeneration and other power generation technologies by foreign investors. Finally, representatives of Indonesia, Singapore, Morocco, Egypt, and Turkey indicated awakening interest for private power generation investments such as cogeneration. However, all these countries are in the process of developing policies to guide private investments in this area and thus it is difficult to identify clear projects ready for development.

Pakistan presents a particularly likely prospect for private power generation. TTT members discussed many factors affecting the development of this market, including capital market factors affecting investments and concerns of American investors. They also identified several specific potential energy project investments.

Following the Asia/Near East trip, ECSP staff prepared a trip report and distributed it to all TTT members. The trip report presents the market information and lessons learned from the many meetings and conversations.

The report also presents preliminary conclusions and recommendations. ECSP staff began preparations for the next TTT meeting, scheduled for January, 1987. The information in the trip report will be evaluated by TTT members in this next meeting. Members will also discuss ways to improve the climate for U.S. private investment and identify power projects in AID-assisted countries that can be financed and implemented by the private sector.

ACTIVITY REPORTS

- Advisory Group Trip Report to Thailand and Pakistan: Cogeneration Technology Transfer, September 29 - October 9, 1986, December 24, 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President; Alain Streicher, Senior Vice-President; Jack Fritz, Manager; Jack Stafuric, Senior Associate (5 days in Thailand, 5 days in Pakistan); Peter Bos, Consultant; Suzanne Leonard, Associate
- Technology Transfer Team:
 - Peter Lalor, Catalyst Energy Development Corp.
 - Les Casterline, Cooper Industries-Energy Services
 - Thomas W. Gardner, Cooper Industries-Energy Services
 - Robert M. Herzog, Remtech
 - John E. Kadas, Turbodyne Division-Dresser Industries
 - Lazaros J. Lazaridis, Thermo Electron Corp. International
 - Robert D. McFarren, Stone & Webster Engineering Corp.
 - Arthur C. Rolfe, The Garrett Corp.
 - Jay Ryder, Catalyst Energy Development Corporation
 - Kerry Sachs, Agro Power International
 - James M. Toohar, Cogenic Energy Systems, Inc.
- AID/Washington: Jim Sullivan, Alberto Sabadell, S&T/EY; Robert Archer, Bureau for Asia & Near East.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$7,641	\$17,611
Fringe benefits	2,293	5,284
Overhead	9,437	21,746
Travel/trans./per diem	6,096	6,370
Other direct costs	972	2,568
Equipment	---	---
Subcontractor	---	10,835
	<hr/>	<hr/>
Total	\$26,439	\$64,414
Fee	---	330
	<hr/>	<hr/>
GRAND TOTAL	\$26,439	\$64,744

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Information Exchange

ACTIVITY: Regional Energy Conservation Workshops/Seminars: Asia-Near East Workshop -- Energy Conservation and Private Power Generation (Contract Task Area 4)

COUNTRY: Asia-Near East Region

START DATE: 10/15/85 **COMPLETION DATE:** 12/31/86

BUDGET: \$120,000 **QUARTERLY EXPENDITURES:** \$53,006
CUMULATIVE EXPENDITURES: \$131,569

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 185

DESCRIPTION

The Asia/Near East Energy Conservation and Private Power Generation Workshop was held in the first few days of this quarter, from September 29 through October 3, 1986. The workshop was held in Bangkok, Thailand at the Asian Institute of Technology.

The objectives of the workshop were to expand private sector participation and investment in energy conservation and power generation, to strengthen AID energy conservation project design, and to identify key factors for successful project implementation.

The following are the main topics covered:

- Key Issues in Conservation Policy and Program Development, with papers on Thailand, Pakistan, and the Philippines
- Energy Conservation: Price Uncertainty & Policy Issues

- Conservation Opportunities in Buildings, Transportation, Agriculture, and Power Sector
- Fostering Private Sector Investment in Energy Conservation
- Private Sector Investment in Power Generation

Over 75 people attended the workshop from 13 countries: Egypt, India, Indonesia, Jordan, Malaysia, Morocco, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand, Turkey, and the United States. Ten representatives from the U.S. private sector also attended (see HBC Reference 184 for a description of some of their activities while at the workshop). Thirty papers were presented giving case studies, analyzing financing and marketing issues, and discussing country specific policy issues for encouraging energy conservation and private power generation, among other things. Discussions following the papers brought out country-specific examples and amplified and clarified points made in the papers. Eleven panel discussions were held on such issues as conservation investment and implementation issues, country responses to changing oil prices, country perspectives on financing, future directions for energy conservation, and donor and lender lessons and initiatives in conservation.

In order to maintain close budgetary control over the preparation of the proceedings of the Workshop, a new charge code, HBC Reference #187, was designated for workshop followup activities. See this reference for a description of the proceedings preparation.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President (5 days in country); Alain Streicher, Senior Vice President (5 days in country); Michael Fisher, Manager; Jack Stafurik, Senior Associate (5 days in country); Pirooz Sharafi, Senior Associate; Steven Fischer, Senior Associate; Gerald Schwinn, Associate (21 days in country); Jeff Erickson, Associate; Suzanne Leonard, Associate
- USAID/Washington: James Sullivan and David Jhirad, S&T/EY; Robert Ichord and Robert Archer, A/NE

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$3,301	\$31,395
Fringe benefits	991	9,420
Overhead	4,077	38,773
Travel/trans./per diem	32,866	35,225
Other direct costs	11,771	16,753
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
Total	\$53,006	\$131,566
Fee	---	3
	<hr/>	<hr/>
GRAND TOTAL	\$53,006	\$131,569

The Asia/Near East Bureau will contribute approximately \$60,000 to this activity.

U.S. AID CONSERVATION SERVICES PROGRAM
 (Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
 (For period 10/1/86-12/31/86)

ACTIVITY AREA: Information Exchange

ACTIVITY: Asia-Near East Workshop on Energy Conservation and Private
 Power Generation: Followup Tasks
 (Contract Task Area 5)

COUNTRY: Asia-Near East Region

START DATE: 10/1/86* **COMPLETION DATE:** Ongoing

BUDGET: No budget **QUARTERLY EXPENDITURES:** \$27,430
CUMULATIVE EXPENDITURES: \$27,430

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher **HBC REFERENCE:** 187

DESCRIPTION

The Asia/Near East Energy Conservation and Private Power Generation Workshop was held in the first few days of this quarter, from September 29 through October 3, 1986. The workshop was held in Bangkok, Thailand at the Asian Institute of Technology. In order to maintain close budgetary control over the activities of the workshop and the preparation of the proceedings, this new charge code, HBC Reference #187, was designated for workshop followup activities. See the original reference number, #185, for a description of the workshop.

Following the workshop, an extensive effort was undertaken to prepare the proceedings of the workshop. ECSP, in consultation with USAID, decided to make an extra effort to produce a polished set of proceedings so that the

* This date only represents the origination of this activity as a separate task for accounting purposes; the activities described under this task have been ongoing since the inception of the contract and were previously included under HBC Reference 185, Regional Energy Conservation Workshops/Seminars.

workshop's information and findings can have the maximum impact. This effort involved a variety of tasks, including: a paper summarizing the findings of the workshop was written; abstracts were prepared for each paper; panel and paper discussions were transcribed and then summarized; the format for each paper was made uniform; and the proceedings were organized into two volumes, one for energy conservation and one for private power generation.

Discussions were held with USAID/Washington staff on the rough draft proceedings during this quarter. The final proceedings will be finished and distributed during the next quarter.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President (5 days in country); Alain Streicher, Senior Vice-President (5 days in country); Pirooz Sharafi, Senior Associate; Michael Fisher, Manager; Steven Fischer, Senior Associate; Gerald Schwinn, Associate (21 days in country); Jeff Erickson, Associate; Suzanne Leonard, Associate; Marilyn Tedeschi, Research Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$9,188	\$9,188
Fringe benefits	2,757	2,757
Overhead	11,348	11,348
Travel/trans./per diem	316	316
Other direct costs	3,821	3,821
Equipment	---	---
Subcontractor	---	---
Total	\$27,430	\$27,430
Fee	---	---
GRAND TOTAL	\$27,430	\$27,430

U.S. AID CONSERVATION SERVICES PROGRAM
(Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
(For period 10/1/86-12/31/86)

ACTIVITY AREA: Information Exchange

ACTIVITY: Information Exchange and Energy Conservation Network
 Development (Contract Task Area 5)

COUNTRY: Not country-specific

START DATE: 10/15/85* **COMPLETION DATE:** Ongoing

BUDGET: \$75,000 **QUARTERLY EXPENDITURES:** \$14,344
CUMULATIVE EXPENDITURES: \$54,086

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Gerald Schwinn

HBC REFERENCE: 186

DESCRIPTION

In order to monitor the many information activities of ECSP, we have established this separate task. It is here that we report on the number of publications, as well as the ECPIE Model and other computer products, requested and distributed. Exhibit 5 shows the requests through this quarter for publications and the ECPIE Model. This Exhibit only indicates written requests, many more publications are given out at conferences, in meetings, and through professional contacts. During the Bangkok Workshop (see HBC Reference #187), a number of copies of ECSP publications were provided to USAID personnel and other delegates. Individuals in developing countries will usually request ECSP publications through the AID mission in their country. Since the inception of the program, 75 reports, presentations, manuals, and other papers have been prepared (not including some working papers and memorandum). A comprehensive list is provided in Appendix 1.

* This date only represents the origination of this activity as a separate task for accounting purposes; the activities described under this task have been ongoing since the inception of the contract and were previously included under HBC Reference 150/151, General Program Management.

A form was included in the fourth issue of Update requesting that all recipients confirm their interest in remaining on the mailing list and provide the names of other individuals who should be informed about ECSP activities. Exhibit 6 shows the response to date.

During this quarter ECSP staff continued to prepare draft reports for AID's weekly report to the administrator. Preparations were begun for publishing a variety of ECSP publications, including some of the papers written for the Asia and Near East Workshop on Energy Conservation and Private Power Generation (see HBC reference #187). Staff also spent time preparing a draft cable to USAID missions describing the private power generation activities that have been funded under ECSP. Finally, discussions were held to design the next issue of *Update* and a draft outline was prepared.

ACTIVITY REPORTS

None.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President; Alain Streicher, Senior Vice President; Gerald Schwinn, Associate; Jeff Erickson, Associate; Suzanne Leonard, Associate; Marilyn Tedeschi, Research Associate.

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$3,777	\$15,160
Fringe benefits	1,133	4,548
Overhead	4,665	18,750
Travel/trans./per diem	---	40
Other direct costs	4,769	15,588
Equipment	---	---
Subcontractor	---	---
Total	\$14,344	\$54,086
Fee	---	---
GRAND TOTAL	\$14,344	\$54,086

Exhibit 5

Written Requests for ECSP Publications and Computer Products

<u>TITLE</u>	<u>SOURCE OF REQUEST</u>					<u>TOTAL</u>
	<u>USAID STAFF</u>	<u>USAID PROJECT STAFF</u>	<u>PRIVATE SECTOR U.S.</u>	<u>PRIVATE SECTOR ABROAD</u>	<u>OTHER DONOR AGENCIES</u>	
Energy Demand Management & Conservation Manual	20	7	7	6	5	45
Industrial Energy Audit Manual	24	10	5	8	6	53
ECPIE	13	8	5	4	1	31
Latin America & Caribbean Regional Energy Conservation Seminar - Paper	9	8	3	5	3	28
Conclusions & Recommendations of the Latin America & Caribbean Energy Seminar	11	3	1		4	19
Energy Equipment Cost Directory	21	10	5	3	4	43
Transportation Sector in Costa Rica & Opportunities for Energy Conservation	12	8	3	3	3	29
Financing Energy Conservation in Developing Countries	15	4	11	5	5	40
Cogeneration in Developing Countries: Prospects and Problems	21	5	8	10	3	47
Private Sector Power Generation in Pakistan				1		1
Private Sector Power Generation in Thailand				1		1
TOTAL	146	63	48	46	34	337

Exhibit 6: Mailing List

Requests to Remain On or Be Added to
the ECSP Mailing List
Through December 31, 1986

Location	1. United States			2. International		
	USAID (a)	Other US Gov't (b)	US Private (c)	Int'l Org. (a)	Gov't (b)	Private Sector (c)
Austria				1		
Barbados				1		
Belgium						
Bolivia	1					2
Burma	1				2	
Cameroon	1					
Canada						1
Cape Verde	1					
Chile				1		
Costa Rica						3
Dominican Republic	1				1	1
El Salvador					2	1
France				1		
Ghana					2	
India	1				1	1
Indonesia					2	
Italy				1		
Jamaica					1	
Luxembourg				1		
Malaysia						1
Mauritania	1					
Morocco					2	
Nouakchott		1				
Pakistan				1	3	2
Philippines	1				1	2
Singapore					1	
Sri Lanka					5	2
Switzerland				2		
Thailand					1	
United Kingdom				1	1	2
United States	5	3	9	7		
Zimbabwe					1	
Subtotals	13	4	9	17	25	18
Total	86					

U.S. AID CONSERVATION SERVICES PROGRAM
 (Contract Number: DAN-5728-C-00-3073-00)

QUARTERLY ACTIVITY REPORT
 (For period 10/1/86-12/31/86)

ACTIVITY AREA: General Program Management

ACTIVITY: Program Management and Development

COUNTRY: Not country-specific

START DATE: 9/15/83

COMPLETION DATE: Ongoing

BUDGET: None

QUARTERLY EXPENDITURES: \$36,978
CUMULATIVE EXPENDITURES: \$526,179

S&T/EY MANAGER: Alberto Sabadell

HBC MANAGER: Alain Streicher

HBC REFERENCE: 150/151

DESCRIPTION

This activity consists of the various management tasks associated with the execution of the contract -- e.g., progress review meetings, preparation of quarterly reports. It also includes planning activities associated with new initiatives. These initiatives are either triggered by the field, the regional bureaus, or directly by S&T/EY. (Some of these activities eventually become separate job codes for program management purposes.) The first-quarter activities for the fourth year of ECSP (in addition to those that are already treated as separate program activities) are described below:

- **Egypt TTEM:** ECSP staff performed background research to prepare for the Technology Transfer for Energy Management project (see HBC charge code #199).
- **Peru Paper Presentation:** ECSP staff prepared and delivered a paper at the Fourth Annual Latin American and Caribbean Seminar on Electricity Tariffs held in Peru from November 10 to 15, 1986. The paper, entitled "Electricity Pricing and Power System Improvements: AID's Perspective", described S&T/EY's Energy Policy Development and Conservation Program (EPDAC), which

includes ECSP, presented some perspectives on energy pricing reform, analyzed the place of power system improvements in energy pricing reforms, and presented conclusions on links between electricity pricing and power system improvements and on the types of projects that AID could support.

- **Power Plan Rehabilitation:** ECSP staff continued to provide support to S&T/EY in the area of power plant rehabilitation by undertaking background research, interviewing knowledgeable officials, and briefing AID staff on their findings.
- **Energy Equipment Cost Directory:** ECSP staff continued work on revising the Directory to increase the number of items covered and update the information.
- **Central America** -- Impact of Changing Oil Prices and Balance of Payments: At the request of the USAID/ROCAP (Regional Office for Central America and Panama), ECSP staff drafted a workplan for followup work to their evaluation of the Regional Industrial Energy Efficiency Project (HBC Reference #170, 10/1/84 to 3/15/85). The effort will examine statistics to identify the impact of changing oil prices on the economies of Central America. The draft workplan was sent to ROCAP for review. Following incorporation of their comments, it will be sent to the various Central American governments, beginning with the Ministry of Energy and Mines in Guatemala.
- **Energy Use Standards:** ECSP staff used information from the *Thailand National Energy Saving Goals for Industry* report and information from other countries to make a first draft of a worldwide database on energy use standards for industrial products and processes. These standards will serve as reference points for industrial managers in LDCs to evaluate quickly the energy conservation potential of proposed activities. The final report will be prepared in the next quarter.
- **Research Tasks:** In response to requests from the Office of energy, ECSP staff undertook several short research efforts: 1) ECSP staff assisted S&T/EY in creating a draft FY87-88 Office of Energy Program Plan; 2) The staff prepared several case studies identifying successful energy conservation activities for internal AID use.

ACTIVITY REPORTS

- **Energy Conservation Services Program: Fourth Quarterly Report,**

FY1986 7/1/86-9/30/86, December 22, 1986.

KEY PERSONNEL

- Hagler, Bailly & Company: Henri-Claude Bailly, President; Alain Streicher, Senior Vice President; Arun Sanghvi, Senior Vice President; Pirooz Sharafi, Senior Associate; Gerald Schwinn, Associate; Jeff Erickson, Associate; Suzanne Leonard, Associate

EXPENDITURES

(As of 12/31/86, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$11,630	\$169,440
Fringe benefits	3,489	49,158
Overhead	14,364	207,514
Travel/trans./per diem	3,110	13,698
Other direct costs	4,385	61,589
Equipment	---	---
Subcontractor	---	<u>4,745</u>
Total	\$36,978	\$506,144
Fee	---	<u>20,035</u>
GRAND TOTAL	\$36,978	\$526,179

APPENDIX A: PUBLICATIONS

ECSP Annual and Quarterly Reports

FY84:	First	9/15/83 - 12/15/83	January 12, 1984
	Second	12/15/83 - 4/1/84	May 11, 1984
	Third	4/2/84 - 6/30/84	July 25, 1984
	Fourth	7/2/84 - 9/28/84	October 31, 1984
Annual Report	9/15/83 - 9/28/84	April 25, 1985	
FY85:	First	10/1/84 - 12/31/84	February 9, 1985
	Second	1/1/85 - 3/31/85	May 2, 1985
	Third	4/1/85 - 6/30/85	August 1, 1985
	Fourth	7/1/85 - 9/30/85	October 30, 1985
FY86:	First	10/1/85 - 12/31/85	February 7, 1986
	Second	1/1/86 - 3/31/86	April 30, 1986
	Third	4/1/86 - 6/30/86	July 21, 1986
	Fourth	7/1/86 - 9/30/86	December 10, 1986

ECSP Update

- Number 1, June 1984
- Number 2, November 1984
- Number 3, July 1985
- Number 4, April 1986
- Number 5, September 1986

Reports

150/151 Program Management and Development

ECPIE: An Energy Conservation Project Investment Evaluation Model
(Paper presentation on the model for the Sri Lanka Symposium on
"Microcomputers for Developing Countries," October 31, 1984.

Programme de Cooperation Pour les Economies d'Energie, French
version of the ECSP brochure, Spanish version produced as well.
November or December 1984.

Energy Equipment Cost Directory, Third Edition, June 1986.

Elements of a Strategy for the United States Agency for International Development in the Area of Energy Conservation, Draft report and appendix, March 1985.

Financing Energy Conservation in Developing Countries, June 12, 1985.

Cogeneration in Developing Countries: Prospects and Problems, May 5, 1986.

Strategy and Program Plan for Energy Conservation FY86 and FY87, October 1985.

Memorandum on energy conservation information centers in the U.S., February 24, 1986.

Survey of Electric Utilities, memo to Jim Sullivan, S&T/EY from Henri-Claude Bailly, July 1, 1986.

Costa Rica: Improving Efficiency and Capital Utilization in the Energy Sector: A series of studies, a proposal to the Ministerio de Recursos Naturales, Energia y Minas, Costa Rica, and the U.S. Agency for International Development, San Jose, Costa Rica, August 1986.

Costa Rica and Guatemala Trip Report, memo to Alberto Sabadell, James Sullivan, David Jhirad, from Alain Streicher, July 7, 1986.

Morocco Trip Report, memo to Alberto Sabadell, Robert Archer, Robert Ichord, from Alain Streicher, July 24, 1986.

Thailand, Philippines, and Sri Lanka Trip Report, memo to Alberto Sabadell, Robert Archer, from Alain Streicher, August 26, 1986.

157 Energy Conservation Project Investment Evaluation Model (ECPIE)

Energy Conservation Project Investment Evaluation Model (ECPIE), April 1985, Revised August 1986.

161 Transportation Energy Conservation

Revised Draft Report of the Transportation Energy Conservation Reconnaissance Mission to Costa Rica June 3-16, 1984, prepared by David Greene and Frank Southworth, Oak Ridge National Laboratory, and Robert Kowalski, December 31, 1984.

162 Seminario Sobre la Conservacion de Energia

Seminario sobre la Conservacion de Energia/Energy Conservation Seminar, Papers, January 1985.

Conclusions and Recommendations of the Latin America and Caribbean Regional Energy Conservation Seminar, (Seminario sobre la Conservacion de Energia), March 29, 1985.

Conclusiones y Recomendaciones del Seminario Regional de America Latina sobre la Conservacion de Energia, Draft Spanish version of the report referenced above, June 1985.

165 Training Manual for Energy Demand Management and Conservation Training Course for Industry and Buildings

Energy Demand Management and Conservation Manual for Industry and Buildings, December 1984.

166 Revision of the Industrial Energy Auditing Manual

Industrial Energy Auditing Manual, August 1984.

168 Organization and Planning of a Pakistan National Energy Conservation Center

Organization and Implementation Plan for the Energy Conservation Center, Draft Discussion Paper for Pakistan, October 8, 1984.

Energy Conservation in Pakistan: First Draft and Supporting Analysis, November 15, 1984.

Presentation on Energy Conservation to the Energy Policy Board, by Dr. Donor M. Lion, Mission Director, February 11, 1985.

Development of a Model to Estimate Pakistan's Energy Conservation Potential, Draft Discussion Paper, January 18, 1985.

National Energy Conservation Program, Vol. I, April 21, 1985.

National Energy Conservation Program, Vol. 2: Supporting Data and Analysis, April 21, 1985.

National Energy Conservation Program, Annex I: Detailed ENERCON Programme Activity Schedule for Year 1, May 1985.

National Energy Conservation Program, Annex II: Indicative Institutional Roles, May 1985.

National Energy Conservation Program, Annex III: Candidate Industries for Energy Audits and Project Implementation in the First Year (1985-1986), May 1985.

169 Industrial Energy Conservation Program Evaluation

Dominican Republic: Energy Conservation and Resource Development/Component 2: Industrial Energy Conservation Program, Final Evaluation Report, March 1985.

170 Regional Industrial Energy Efficiency Project Evaluation

Regional Industrial Energy Efficiency Project: First Evaluation (Final Report), (evaluation of ROCAP project), February 1985.

171 Energy Initiatives Project Evaluation

Djibouti Energy Initiatives: Mid-Term Evaluation/Conservation Component, Draft Report, January 1985.

173 Haiti - Industrial Energy Conservation Program

Haiti: Energy Efficiency in the Sugar and Manufacturing Industries, March 28, 1985.

177 Sri Lanka - Energy Use In Agriculture

Sri Lanka: Energy in Agriculture, Report on Study Team Visit April 1985, June 28, 1985.

178 Costa Rica - Fuel Efficiency in the Transportation Sector

Transportation Energy Conservation in Costa Rica: Report of In-Country Activities June 10-19, 1985, June 25, 1985.

Transportation Energy Conservation in Costa Rica: A Work Plan, June 25, 1985.

Costa Rica -- Transportation Fuel Conservation Project, Draft report, September 1985.

Implementation of Fuel Conservation Measures in Costa Rican Bus and Taxi Fleets, Final Report, June 11, 1986.

Road Transportation Energy Conservation: Needs and Options in Developing Countries, September 1986.

179 Private Sector Involvement in Non-Utility Power Generation

Private-Sector Power Generation in Pakistan: Potential Impediments and Policy Issues, Final Report, June 1986.

Private-Sector Power Generation in Thailand: Potential, Impediments and Policy Issues, Final Report, September 19, 1986.

181 Institutional Barriers to Private Sector Investment in Energy Conservation

Assessment of Barriers to Private Sector Investment in Energy Conservation and Cogeneration in Developing Countries, Draft work plan, November 8, 1985.

Energy Conservation in Developing Countries: Identification and Analysis of the Barriers to Private Investment, Draft Final Report, November 6, 1986.

182 General Field Technical Assistance

Kingdom of Thailand: The National Energy Saving Goals for Industry, 1986-1991, Final Report, March 25, 1986.

Kingdom of Thailand: The National Energy Conservation Center: A Mobilization Plan, Final Report, March 24, 1986.

Potential and Policy Issues of Industrial Cogeneration in the Dominican Republic, Draft Report, December 1, 1986.

184 Technology Transfer Teams for Energy Conservation

Concept and Approach to Technology Transfer Teams for Energy Conservation -- Focus: Cogeneration, Draft, October 28, 1985.

Cogeneration Technology Transfer Team Meeting, Briefing Book, June 24, 1986.

Advisory Group Trip Report to Thailand and Pakistan: Cogeneration Technology Transfer, September 29 - October 9, 1986, December 24, 1986.

185 Asia-Near East Workshop on Energy Conservation and Private Power Generation

Pakistan: National Energy Conservation Programs: Critical Planning and Implementation Considerations, Mr. John Armstrong, September 29, 1986

Energy Conservation and Changing Oil Prices, Dr. Steven C. Fischer, Mr. Alain Streicher, September 29, 1986

Government Policies to Promote Private Investment in Energy Conservation: Policy Tools & Their Effectiveness, Ms. Suzanne Leonard, September 29, 1986

Transportation Energy Conservation, Mr. Alberto J. Sabadell, Dr. David L. Greene, Mr. Jeffry J. Erickson, September 29, 1986

Innovative Approaches to Electric Power Delivery In Developing Countries, Dr. David Jhirad, Dr. Pirooz Sharafi, Dr. Edward Hillsman, September 29, 1986

Energy Conservation Investment Decision-Making: The U.S. Model -- A Textbook Approach, Mr. Michael Fisher, September 29, 1986

Cogeneration Application in Commercial Buildings: A Review of the Finance & Trade Center Cogeneration Project in Karachi, Energy Conservation Case Study 4 -- Pakistan, Dr. Pirooz Sharafi, Mr. Mukesh Kumar, September 29, 1986

Private-Sector Power Generation in Developing Countries, Dr. Pirooz Sharafi, September 29, 1986

Case Studies in Private-Sector Power Generation: Faridabad Captive Power Generation, Private Power Case Study 4 -- India, Dr. Pirooz M. Sharafi, September 29, 1986

189 Energy Demand Management In Morocco

Energy Demand Management in Morocco: A Prefeasibility Analysis, Draft Final Report, November 10, 1986

Energy Demand Management in Morocco: A Prefeasibility Analysis, Draft Executive Summary in French, November 10, 1986.

199 India PURPA Study

Non-Utility Power Generation in India: Potential, Impediments, and Policy Issues, Second Draft, November 1986.