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**Energy Conservation Services Program  
Second Quarterly Report, FY 1987  
(1/1/87-4/30/87)**

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

HBC Reference No. 87-150(14)

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

Washington, DC 20523

Prepared by:  
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June 4, 1987

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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.

By April 15, 1987, essentially all funds for the ECSP program had been spent and all activities completed. As a result this quarterly report will be the last. This report covers 15 days more than the usual quarter to include the final events and costs of the few activities that carried over into April. Even though funding has been exhausted, some activities will continue, using other funding vehicles from USAID (both USAID/Washington and regional and local missions).

Since the inception of the program 37 projects have been initiated (see Exhibit 1 for a summary of all ECSP activities) and 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 second Quarterly Activity Report of the fourth year of ECSP covers the period of January 1, 1987 to April 15, 1987. During the quarter, progress was made on 9 projects. Most of the staff attention and funds during this quarter were directed toward performing the analysis for the Egypt Energy Conservation and Efficiency Project\*\* in Egypt (see HBC Reference 188). The project's goal was 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.

ECSP staff also performed important tasks in bringing several other tasks nearer to conclusion. The reports Accelerating Private Investment in Energy Conservation: Identification and Analysis Key Barriers and Policy Tools and Prospects for Transportation Energy Conservation in the Dominican Republic:

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

\*\* The name of this project was changed from the Energy Technology Investment Promotion Project

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Progress Report were completed, following receipt of reviews by USAID. Further discussions were held on the reports on cogeneration in the Dominican Republic and energy demand management in Morocco and they will be finalized during the next quarter, pending receipt of all comments. ECSP is still awaiting comments from India on the report Non-Utility Power Generation in India: Potential, Impediments, and Policy Issues, it will be finalized in the next quarter. Finally, ECSP staff put much effort into producing a polished set of proceedings of the Asia/Near East Workshop on Energy Conservation and Private Power Generation.

Many activities will carry on beyond the end of this first ECSP program. Many have produced spin-off activities implementing ECSP recommendations, others will continue to support analysis and identify potential projects. Along those lines the Technology Transfer Team had a meeting in January to discuss issues and options and plan future activities. Another meeting will be held in June under another AID contract vehicle to continue this work.

A total of 124 professional person-days was spent in Egypt during the quarter.

Quarterly expenditures, as shown in Exhibit 2, were \$228,723, as compared with \$378,617 in the first quarter of the fourth year of the program (see Exhibits 3 and 4).

## Exhibit 1

Summary of ECSP Activities  
(Inception to date)

A C T I V I T Y	Period of Performance	Budget	Cumulative Expenditures (4/30/87)*
1. Program management and development, including preparation of in-country missions and program planning activities; prepare white paper on private power generation; revise financing energy conservation report; energy use standards work; summarize ECSP work; (HBC reference 150/151)	9-15/83-ongoing	None	\$564,352
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 (4/30/87)*
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)

A C T I V I T Y	Period of Performance	Budget	Cumulative Expenditures (4/30/87)*
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)	4/16/85-12/31/85	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 involvement in non-utility power generation (HBC reference 179/1004)	9/1/85-4/30/87	\$240,000	\$166,412

\*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 (4/30/87)*
27. Market analysis of cogeneration opportunities in USAID-assisted countries (HBC reference 180)	9/15/85-4/30/87	\$75,000	\$16,749
28. Institutional barriers to private sector investment in energy conservation (HBC reference 181)	10/14/85-4/30/87	\$60,000	\$51,307
29. General technical assistance: Thailand, Indonesia, Dominican Republic (HBC reference 182)	10/16/85-ongoing	\$140,000	\$113,218
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	\$72,391
32. Regional Energy Conservation Workshops/Seminars: Asia/Near East Workshop (HBC reference 185)	10/15/85-12/31/86	\$120,000	\$131,572
33. Information exchange and energy conservation network development (HBC reference 186)	10/15/85-4/30/87	\$75,000	\$62,303
34. Asia/Near East Workshop Followup (HBC reference 187)	10/1/86-4/30/87	None	\$39,478
35. Egypt Energy Conservation and Efficiency Project (HBC reference 188)	10/1/85-6/30/87	\$275,000	\$271,918
36. Energy Demand Management in Morocco (HBC reference 189)	10/1/86-12/31/86	\$35,000	\$35,037
37. Non-Utility Power Generation in India (HBC reference 199)	4/29/86-ongoing	\$100,000	\$99,189

\*Based on labor costs incurred and invoices received only.

**Exhibit 2**

**Second-Quarter Expenditures, FY 1987<sup>1</sup>  
(Fourteenth Quarter of the Contract) -- Summary**

	Revised Contract Budget <sup>3</sup>	Quarterly Expenditures <sup>1</sup>	Cumulative Expenditures Through 4/30/87 <sup>2</sup>	
			\$	%
Salaries	\$803,383	\$70,507	\$807,746	100.5
Fringe benefits	241,015	21,153	231,049	95.9
Overhead	992,179	87,078	984,274	99.2
Travel/trans./per diem	320,000	31,163	341,596	106.7
Other direct costs	250,000	14,960	242,278	96.9
Subcontractor	<u>250,000</u>	<u>3,862</u>	<u>247,691</u>	<u>99.1</u>
<b>Total estimated costs</b>	<b>\$2,856,577</b>	<b>228,723</b>	<b>2,854,634</b>	<b>99.9</b>
Fixed fee	<u>123,698</u>	<u>-0-<sup>4</sup></u>	<u>105,143</u>	<u>85.0</u>
<b>Total estimated costs and fixed fee</b>	<b>\$2,980,275</b>	<b>228,723</b>	<b>2,959,777</b>	<b>99.3</b>

<sup>1</sup> Covering the period 1/1/87 to 4/30/87, to include the final activities of the contract.

<sup>2</sup> Based on labor costs incurred and invoices received as of 4/30/87 and a review conducted by Hagler, Bailly's accountants.

<sup>3</sup> \$2,980,275 was obligated, of which \$1,355,000 was directly contributed by Regional Bureaus and Missions. Another \$70,000 was contributed through another contract.

<sup>4</sup> 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.

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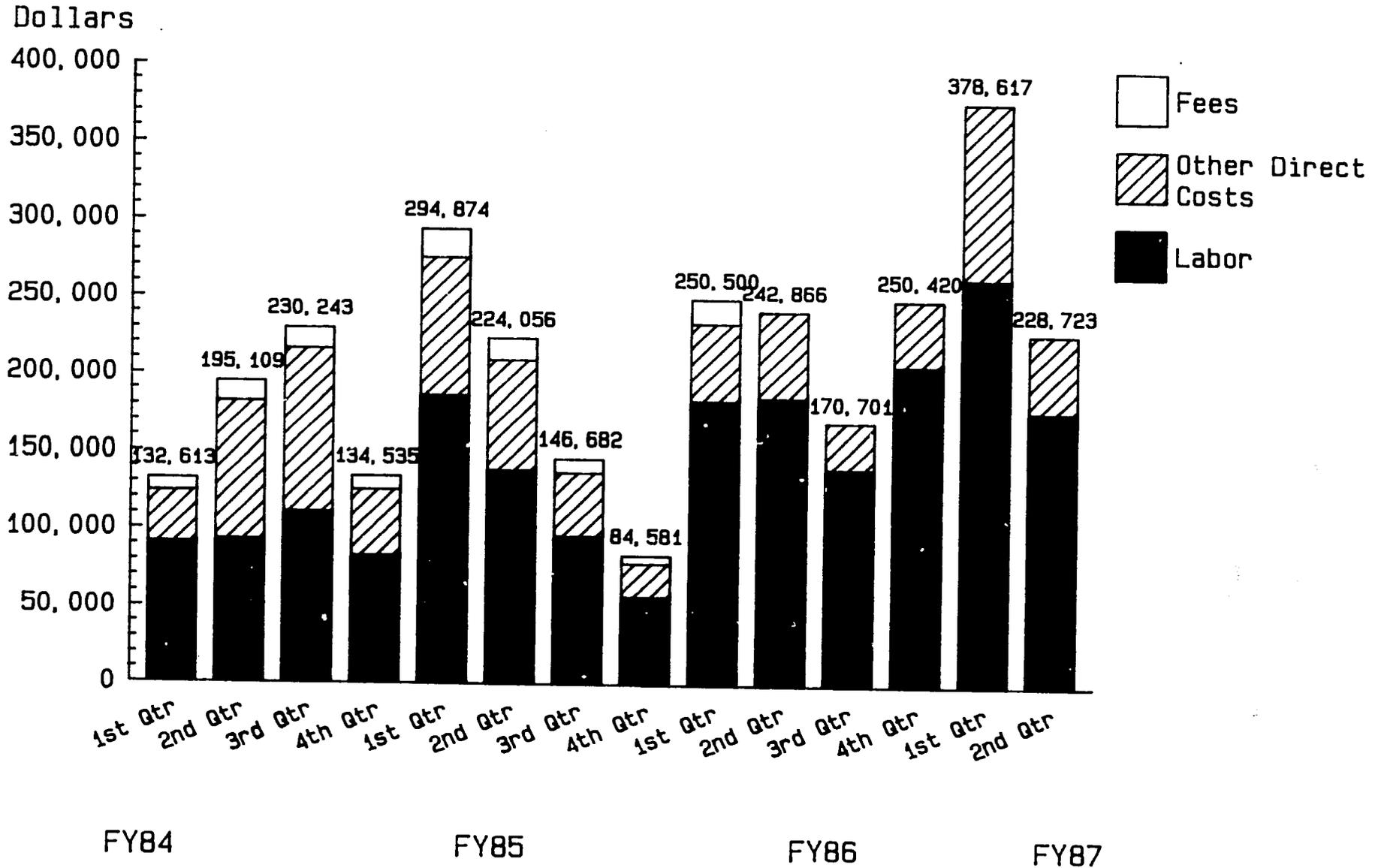
### Exhibit 3

#### ECSP Expenditures by Quarter

<hr/>		
First year		
<hr/>		
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>
<b>Yearly total</b>		<b>\$692,502</b>
<hr/>		
Second year		
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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>
<b>Yearly total</b>		<b>\$745,445</b>
<hr/>		
Third year		
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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>
<b>Yearly total</b>		<b>\$914,490</b>
<hr/>		
Fourth year		
<hr/>		
First quarter	(10/1/86-12/31/86)	\$378,617
Second quarter	(1/1/87-4/30/87)	\$228,723

**Exhibit 4**

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



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

**QUARTERLY ACTIVITY REPORT**  
(For period 1/1/87-4/30/87)

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**ACTIVITY AREA:** Research, Development, and Demonstration

**ACTIVITY:** Institutional/Policy Barriers to Energy Conservation

**COUNTRY:** Not country-specific

**START DATE:** 10/1/85

**COMPLETION DATE:** 4/30/87

**BUDGET:** \$60,000

**QUARTERLY EXPENDITURES:** \$171

**CUMULATIVE EXPENDITURES:** \$51,307

**S&T/EY MANAGER:** Alberto Sabadell

**HBC MANAGER:** Alain Streicher

**HBC REFERENCE:** 181

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**DESCRIPTION**

During this quarter, ECSP staff held discussions with USAID staff in order to incorporate their suggested changes and revised and completed the report Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools. The report was then printed and distributed. This report 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.

**ACTIVITY REPORTS**

- Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools, Final Report, February 1987.

**KEY PERSONNEL**

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

**EXPENDITURES**

(As of 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$ 43	\$17,617
Fringe benefits	13	5,285
Overhead	54	21,759
Travel/trans./per diem	6	3,961
Other direct costs	55	1,641
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
<b>Total</b>	<b>\$171</b>	<b>\$50,263</b>
Fee	---	---
	<hr/>	<hr/>
<b>GRAND TOTAL</b>	<b>\$171</b>	<b>\$51,307</b>

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

**QUARTERLY ACTIVITY REPORT**  
(For period 1/1/87-4/30/87)

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**ACTIVITY AREA:** Research, Development, and Demonstration

**ACTIVITY:** Egypt Energy Conservation and Efficiency Project

**COUNTRY:** Egypt

**START DATE:** 10/1/85

**COMPLETION DATE:** 6/30/87

**BUDGET:** \$275,000

**QUARTERLY EXPENDITURES:** \$151,715  
**CUMULATIVE EXPENDITURES:** \$271,918

**S&T/EY MANAGER:** Alberto Sabadell

**HBC MANAGER:** Henri-Claude Bailly

**HBC REFERENCE:** 188

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**DESCRIPTION**

The goal of the Egypt Energy Conservation and Efficiency Project 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.

During this quarter, the project design was completed and presentations were made to the major public and private sector organizations which may be involved in its implementation. The design team completed the technical analysis and selected 10 technologies (including process controls, waste heat recovery systems, cogeneration systems, and solid fuel-fired boilers) and 3 target sectors (cement, chemicals, and metals). Several specific sites were identified for the first phase of the project.

The cost effectiveness of the target technology applications was analyzed from both an economic and financial perspective. The economic analysis used resource costs actually incurred and factored out the transfer payments such as taxes and duties. The financial analysis looked at the project from the viewpoint of the private sector investor. The economic analysis showed that all selected technologies or applications have economic paybacks of 0.1 to 6 years with an average of less than 2 years.

A model was developed to estimate the funding flows over the project's 8-year life and the expected uses of funds under various assumptions of input costs (e.g., foreign exchange portion of each technology application), public/private sector project expenditures, reflow scenarios, and inflation rates.

During this period, the institutional assessment and administrative analysis were also completed. Approximately 130 interviews with more than 85 Egyptian private sector and public sector organizations were conducted during the project design. The team used the results of these interviews to evaluate the ability of Egyptian organizations to implement an effective energy conservation program, to determine technical assistance and training needs, to identify specific organizations to participate in the project, and to design the most efficient and effective organization and management structure for the project.

## ACTIVITY REPORTS

A number of draft reports were prepared to summarize the methodologies used, assumptions made, and results of the design activities. They include:

- Technical Analysis, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.
- Cost Effectiveness Analysis, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.
- Institutional Assessment, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.
- Administrative Analysis, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.
- Training Needs, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.
- Cost and Financial Analysis, Egypt Energy Conservation and Efficiency Project, Draft Report, April 3, 1987.

**KEY PERSONNEL**

- Hagler, Bailly & Company: Henri-Claude Bailly, President (21 work-days in country); Alain Streicher, Senior Vice President (25 work-days in country); Jack Stafurik, Senior Associate (49 work-days in country); Pirooz Sharafi, Senior Associate; Suzanne Leonard, Associate (29 work-days in country); Gerald Schwinn, Associate.
- USAID/Cairo: Lawrence Ervin, Sherif Arif.

**EXPENDITURES**

(As of 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$43,857	\$79,475
Fringe benefits	13,157	23,842
Overhead	54,164	98,152
Travel/trans./per diem	28,664	52,241
Other direct costs	8,011	14,346
Equipment	---	---
Subcontractor	<u>3,862</u>	<u>3,862</u>
<b>Total</b>	<b>\$151,715</b>	<b>\$271,918</b>
Fee	<u>---</u>	<u>---</u>
<b>GRAND TOTAL</b>	<b>\$151,715</b>	<b>\$271,918</b>

The USAID Mission in Cairo is 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 1/1/87-4/30/87)

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**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

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**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. During the previous quarter, the study team performed 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. The team analyzed the Moroccan energy situation in order to: 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.

During this quarter, the study team, working under a separate contract, performed special studies to prepare inputs for the project paper. These studies provided an opportunity to revisit key Moroccan government and private staff to discuss the prefeasibility report and gather their comments.

On the basis of these discussions, a final report will be prepared during the next quarter.

### ACTIVITY REPORTS

None.

### KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice President; Pascal Habay, 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

No additional expenditures were incurred this quarter.

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

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

**QUARTERLY ACTIVITY REPORT**  
(For period 1/1/87-4/30/87)

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**ACTIVITY AREA:** Research Development & Demonstration

**ACTIVITY:** Non-Utility Power Generation in India

**COUNTRY:** India

**START DATE:** 4/29/86

**COMPLETION DATE:** Ongoing

**BUDGET:** \$100,000

**QUARTERLY EXPENDITURES:** \$2,621

**CUMULATIVE EXPENDITURES:** \$99,189

**S&T/EY MANAGER:** Alberto Sabadell

**HBC MANAGER:** Alain Streicher

**HBC REFERENCE:** 199\*

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**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 indigenous resources. They also identified the policy, regulatory, institutional, and other impediments to non-utility private sector electrical generation from cogeneration or renewable/indigenous resources for sale to the grid. Finally, they developed

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\*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 analyzed the power situation in India, the potential for and impediments to non-utility power generation, and provided 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 upon receipt of comments from the government of India.

## 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 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$239	\$27,850
Fringe benefits	72	8,357
Overhead	296	34,396
Travel/trans./per diem	1,951	17,696
Other direct costs	64	5,760
Equipment	---	---
Subcontractor	---	<u>5,130</u>
<b>Total</b>	<b>\$2,622</b>	<b>\$99,189</b>
Fee	---	---
<b>GRAND TOTAL</b>	<b>\$2,622</b>	<b>\$99,189</b>

**U.S. AID CONSERVATION SERVICES PROGRAM**  
(Contract Number: DAN-5728-C-60-3073-00)

**QUARTERLY ACTIVITY REPORT**  
(For period 1/1/87-4/30/87)

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**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:** \$8,122  
**CUMULATIVE EXPENDITURES:** \$113,218

**S&T/EY MANAGER:** Alberto Sabadell

**HBC MANAGER:** Alain Streicher

**HBC REFERENCE:** 182

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**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**

**Transportation energy conservation:** The objective of this 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. Consultants from ECSP 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.

During the previous quarter, ECSP staff, working with COENER, designed and initiated the project. During this quarter, COENER continued implementing the project under the supervision of the ECSP staff and USAID/Santo Domingo.

Also during this quarter, S&T/EY staff provided comments on the draft progress report written in the previous quarter. These comments were incorporated in the report, which was then finalized and distributed to COENER and USAID/Santo Domingo. A followup visit to monitor the progress of the COENER team and assist in evaluating the transportation energy conservation measures will be scheduled, but COENER staff have not made sufficient progress to warrant a visit as yet.

**Industrial Cogeneration:** During the previous quarter, ECSP consultants spent two weeks 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 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. During this quarter, comments were received from USAID/Washington, USAID/Santo Domingo, and COENER. These comments were incorporated in the report, which will be finalized during the next quarter.

## ACTIVITY REPORTS

- Prospects for Transportation Energy Conservation in the Dominican Republic: Progress Report, January 20, 1987.

## KEY PERSONNEL

- Hagler, Bailly & Company: Alain Streicher, Senior Vice President; Jack Fritz, Manager; Robert Kowalski, Senior Associate; Jeff Erickson, Associate
- AID/Santo Domingo: William H. Smith, Energy Officer; Leo Perez-Minaya, Energy Project Advisor

**EXPENDITURES**

(As of 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$2,897	\$36,163
Fringe benefits	869	10,849
Overhead	3,577	44,659
Travel/trans./per diem		13,437
Other direct costs	779	7,142
Equipment	---	---
Subcontractor	---	---
	<hr/>	<hr/>
<b>Total</b>	<b>\$8,122</b>	<b>\$112,250</b>
Fee	---	968
	<hr/>	<hr/>
<b>GRAND TOTAL</b>	<b>\$8,122</b>	<b>\$113,218</b>

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

**QUARTERLY ACTIVITY REPORT**  
(For period 1/1/87-4/30/87)

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**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:** 4/30/87

**BUDGET:** \$50,000

**QUARTERLY EXPENDITURES:** \$7,647

**CUMULATIVE EXPENDITURES:** \$72,391

**S&T/EY MANAGER:** Jim Sullivan

**HBC MANAGER:** Henri-Claude Bailly

**HBC REFERENCE:** 184

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**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. The TTT held a meeting on January 28, 1987 in Washington, D.C. to review past activities and to discuss future directions for the TTT.

To begin the meeting, ECSP staff presented an overview of the TTT's principal objectives, activities, and lessons learned over the last year. Next, the most recent private power assessments, in India and the Dominican Republic were reviewed and updated information on the situation in Pakistan was presented to the team.

Each member expressed his opinion on the future direction of the TTT and identified the major needs, issues, and obstacles. In summary, the following suggestions were made:

- More market assessments and market research (e.g., Tunisia, Morocco, Costa Rica)
- Follow up on existing studies and develop a project database
- Sponsor a seminar on AID
- Look into the building/institutions market
- Obtain more information on potential joint venture partners
- Increase communication among TTT members through a newsletter
- Look at success stories
- List the capabilities of all TTT members to better understand what their interests are and where their comparative advantage lies
- Organize a "society" or trade association to promote U.S. power systems overseas or identify an existing organization to work with
- Try to organize a meeting/briefing for the AID Administrator Peter MacPherson on private power.

ECSP staff summarized the information covered in the meeting in a memo to S&T/EY. During the next quarter, ECSP staff will continue to examine the next steps for TTT and will hold another meeting of the TTT in June.

### ACTIVITY REPORTS

- Summary of Technology Transfer Team (TTT) Meeting, January 28, 1987.

### 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 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$2,725	\$20,336
Fringe benefits	818	6,182
Overhead	3,366	25,112
Travel/trans./per diem	129	6,499
Other direct costs	609	3,177
Equipment	---	---
Subcontractor	---	<u>10,835</u>
<b>Total</b>	<b>\$7,647</b>	<b>\$72,061</b>
Fee	---	<u>330</u>
<b>GRAND TOTAL</b>	<b>\$7,647</b>	<b>\$72,391</b>

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

**QUARTERLY ACTIVITY REPORT**  
**(For period 1/1/87-4/30/87)**

**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:** 4/30/87

**BUDGET:** No budget      **QUARTERLY EXPENDITURES:** \$12,048  
**CUMULATIVE EXPENDITURES:** \$39,478

**S&T/EY MANAGER:** Alberto Sabadell

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

**DESCRIPTION**

Following the Asia/Near East Energy Conservation and Private Power Generation Workshop, an extensive effort was undertaken to prepare proceedings of the papers presented and discussions held. ECSP, in consultation with USAID, decided to make an extra effort to produce a polished set of proceedings so that the 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.

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

During this quarter, the draft proceedings were finalized and distribution was begun. In order to produce a high-quality document several steps were taken: Comments from several reviewers and USAID were incorporated into the proceedings; The format and layout of all papers, exhibits, and discussions were changed to fit a uniform standard; Several summaries of discussions were improved by referring to the original transcripts and audio tapes; And finally, each paper and discussion was carefully edited and proofed.

### ACTIVITY REPORTS

- Asia/Near East Workshop on Energy Conservation and Private Power Generation Proceedings, September 29 to October 3, 1986.

### KEY PERSONNEL

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

### EXPENDITURES

(As of 4/30/87, based on labor costs incurred and invoices received):

	This'	<u>Cumulative</u>
Salaries	\$4,106	\$13,294
Fringe benefits	1,232	3,989
Overhead	5,071	16,419
Travel/trans./per diem	278	594
Other direct costs	1,361	5,182
Equipment	---	---
Subcontractor	---	---
	-----	-----
<b>Total</b>	<b>\$12,048</b>	<b>\$39,478</b>
Fee	---	---
	-----	-----
<b>GRAND TOTAL</b>	<b>\$12,048</b>	<b>\$39,478</b>

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

**QUARTERLY ACTIVITY REPORT**  
 (For period 1/1/87-4/30/87)

**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:** 4/30/87

**BUDGET:** \$75,000      **QUARTERLY EXPENDITURES:** \$8,217  
**CUMULATIVE EXPENDITURES:** \$62,303

**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. Individuals in developing countries will usually request ECSP publications through the AID mission in their country. Since the inception of the program, 91 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 on-going since the inception of the contract and were previously included under HBC Reference 150/151, General Program Management.

During this quarter, the paper, "Transportation Energy Conservation", was edited, reformatted, and sent to the journal Transportation for review for eventual publication. This paper was written by ECSP and S&T/EY staff for the Asia/Near East Workshop on Energy Conservation and Private Power Generation (see HBC Reference #187).

Also during this quarter, the sixth, and final issue of Update was written, printed, and distributed. It contained a summary of the ECSP program, indicated that the program is coming to an end, and stated that bids will be requested for a new ECSP program.

ECSP staff performed a variety of information-generating research tasks for S&T/EY during this quarter. They gathered information on USAID activities in the Caribbean to educate USAID energy officers on energy conservation opportunities. They also drafted a cable describing USAID private power generation activities in developing countries.

### **ACTIVITY REPORTS**

- ECSP Update, Number 6, March 1987.

### **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 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$2,693	\$17,853
Fringe benefits	808	5,356
Overhead	3,326	22,076
Travel/trans./per diem	17	57
Other direct costs	1,373	16,961
Equipment	---	---
Subcontractor	---	---
<b>Total</b>	<b>\$8,217</b>	<b>\$62,303</b>
Fee	---	---
<b>GRAND TOTAL</b>	<b>\$8,217</b>	<b>\$62,303</b>

## 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	24	7	8	6	8	53
Industrial Energy Audit Manual	28	11	6	8	9	62
ECPIE	16	8	6	5	2	37
Latin America & Caribbean Regional Energy Conservation Seminar - Paper	13	9	3	5	5	35
Conclusions & Recommendations of the Latin America & Caribbean Energy Seminar	14	4	1		6	25
Energy Equipment Cost Directory	24	10	6	3	7	50
Transportation Sector in Costa Rica & Opportunities for Energy Conservation	14	9	3	3	4	33
Financing Energy Conservation in Developing Countries	25	7	16	10	9	67
Cogeneration in Developing Countries: Prospects and Problems	25	6	8	13	4	56
Private Sector Power Generation in Pakistan				2		2
Private Sector Power Generation in Thailand				2		2
<b>TOTAL</b>	<b>183</b>	<b>71</b>	<b>57</b>	<b>57</b>	<b>54</b>	<b>422</b>

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

**QUARTERLY REPORT**  
 (For period 1/1/87-4/30/87)

**ACTIVITY AREA:** General Program Management

**ACTIVITY:** Program Management and Development

**COUNTRY:** Not country-specific

**START DATE:** 9/15/83

**COMPLETION DATE:** 4/15/87

**BUDGET:** None

**QUARTERLY EXPENDITURES:** \$38,173  
**CUMULATIVE EXPENDITURES:** \$564,352

**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 second-quarter activities for the fourth year of ECSP (in addition to those that are already treated as separate program activities) are described below:

- **Financing Energy Conservation in Developing Countries:**  
 Following receipt of comments from S&T/EY on the Financing Energy Conservation report, ECSP staff undertook a major revision of the report to produce a more useful executive summary and make the remainder of the report clearer and better organized. The original report was produced in June 1985, the revised version, dated February 1987, benefits from ECSP's more extensive experience in this area.

- **Energy Use Standards:** ECSP staff continued to gather information and perform analysis to produce 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.
- **Private Power:** Staff analyzed previous ECSP work in private power generation in developing countries in order to prepare a study of the major issues. The draft report, Issues in Private Power in Developing Countries: A Preliminary Appraisal, analyzes the capital implications of growing power demand, identifies various policy issues of private power, and provides case studies to illustrate the major points.
- **Research Tasks:** In response to requests from the Office of Energy, ECSP staff undertook several short research efforts: 1) ECSP staff prepared a briefing paper on ECSP for a congressional briefing given by S&T/EY; 2) Staff summarized ECSP accomplishments for two USAID meetings; 3) Staff prepared weekly reports of activities to be presented to the USAID administrator.

## ACTIVITY REPORTS

- Energy Conservation Services Program: First Quarterly Report, FY1987 10/1/86-12/31/86, February 17, 1987.
- Financing Energy Conservation in Developing Countries, February 1987.
- Issues in Private Power in Developing Countries: A Preliminary Appraisal, February 1987.

## KEY PERSONNEL

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

**EXPENDITURES**

(As of 4/30/87, based on labor costs incurred and invoices received):

	<u>This quarter</u>	<u>Cumulative</u>
Salaries	\$13,947	\$183,387
Fringe benefits	4,184	53,342
Overhead	17,224	224,738
Travel/trans./per diem	113	13,811
Other direct costs	2,705	64,294
Equipment	---	---
Subcontractor	---	<u>4,745</u>
<b>Total</b>	<b>\$38,173</b>	<b>\$544,317</b>
Fee	---	<u>20,035</u>
<b>GRAND TOTAL</b>	<b>\$38,173</b>	<b>\$564,352</b>

## APPENDIX A: PUBLICATIONS

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### 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
FY87:	First	10/1/86 - 12/31/86	February 17, 1987

### ECSP Update

- Number 1, June 1984
- Number 2, November 1984
- Number 3, July 1985
- Number 4, April 1986
- Number 5, September 1986
- Number 6, March 1987

### 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, February 1987.

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, and David Jhirad, from Alain Streicher, July 7, 1986.

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

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

Issues in Private Power in Developing Countries: A Preliminary Appraisal, February 1987.

**157 Energy Conservation Project Investment Evaluation Model (ECPIE)**

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

**161 Transportation Energy Conservation**

The Transportation Sector in Costa Rica and Opportunities for Energy Conservation, Prepared by David Greene and Frank Southworth, Oak Ridge National Laboratory, and Robert Kowalski, Hagler, Bailly & Company, May 20, 1985.

El Sector de Transporte en Costa Rica y las Oportunidades para la Conservacion de Energia, preparado por David Greene y Frank Southworth, Oak Ridge National Laboratory, y Robert Kowalski, Hagler, Bailly & Company, mayo 20, 1985. (Spanish version of the preceding report.)

**162 Seminario Sobre la Conservacion de Energia**

Seminario sobre la Conservacion de Energia/Energy Conservation Seminar, Papers, in Spanish and English, January 1985.

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

Seminario Regional Sobre la Conservacion de Energia en America Latina y el Caribe: Conclusiones y Recomendaciones, July 25, 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.

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.

Accelerating Private Investment in Energy Conservation: Identification and Analysis of Key Barriers and Policy Tools, Final Report, February 1987.

**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.

Prospects for Transportation Energy Conservation in the Dominican Republic: Progress Report, January 15, 1987.

**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.

Summary of Technology Transfer Team (TTT) Meeting, January 28, 1987.

**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

**187 Asia/Near East Workshop on Energy Conservation and Private Power Generation: Followup Tasks**

Asia/Near East Workshop on Energy Conservation and Private Power Generation Proceedings, September 29 to October 3, 1986.

**188 Egypt Energy Conservation and Efficiency Project**

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