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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

ROCAP

PROJECT PAPER

CENTRAL AMERICAN RURAL ELECTRIFICATION SUPPORT PROGRAM

AID/LAC/P-591

Project Number: 596-0146

UNCLASSIFIED

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: —

DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Central America/ROCAP

3. PROJECT NUMBER: 596-0146

4. BUREAU/OFFICE: Latin America and the Caribbean — 05

5. PROJECT TITLE (maximum 40 characters): Central American Rural Electrification Support Program

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 03 DD 31 YY 94

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 87 B. Quarter 3 C. Final FY 91

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 87 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	5,000		5,000	5,000		5,000
(Grant)	(5,000)	( )	(5,000)	(5,000)	( )	(5,000)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country						
Other Donor(s)						
TOTALS	5,000		5,000	5,000		10,000

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) PSEE	740	190		5,000		5,000		10,000	
(2)									
(3)									
(4)									
TOTALS				5,000		5,000		10,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 240 820

11. SECONDARY PURPOSE CODE:

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	DEL						
B. Amount	60%						

13. PROJECT PURPOSE (maximum 480 characters)

To form a foundation for selecting appropriate policies and investments in the rural electric subsector of the region.

14. SCHEDULED EVALUATIONS: Interim MM 04 YY 90 — Final MM 01 YY 94

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [ ] 941 [X] Local [ ] Other (Specify) Cooperative Agreement

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment)

This project is a follow-on effort to the original U.S. Congressional Earmark to the National Rural Electric Cooperative Association (NRECA) to strengthen the institutional and technical bases for rural electrification throughout the Central American region.

17. APPROVED BY — Signature: Ronald L. Nicholson — Title: Ronald L. Nicholson, Acting Regional Director — Date Signed: MM 06 DD 01 YY 90

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (8-79)

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PROJECT AUTHORIZATION

Names of Country:	Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Belize and the Regional Office for Central America and Panama (ROCAP)
Name of Project:	Central America Rural Electrification Support Program (CARES)
Number of Project:	596-0146

1. Pursuant to Section 106 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Central America Rural Electrification Support Program (CARES) for Central America (Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica), Panama and Belize (the "Cooperating Countries"), involving planned obligations of not to exceed five million United States Dollars (US $5,000,000) in grant funds ("Grant") over a three year and nine month period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project. The planned life of the project is 45 months from the date of initial obligation.

2. The Project ("Project") consists of assistance to the Power Utilities in Central America, Panama and Belize to enhance the economic and financial attractiveness of rural electric investments by reducing investment costs, improving the organizational basis and operational efficiency of rural electric utilities while expanding economic benefits and financial revenues.

3. The Cooperative Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and delegations of authority, shall be subject to the following essential term, together with such other terms and conditions as A.I.D. may deem appropriate.

A. Source and Origin of Commodities, Nationality of Services

Commodities and Technical Services financed by A.I.D. under the Cooperative Agreement shall have their source and origin in the Cooperating Countries or in the United States, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have the Cooperating Countries or the United States as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

Ronald Nicholson
Acting Regional Director
Regional Office for Central America Programs

7 Aug 90
Date

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

AGENCY FOR INTERNATIONAL DEVELOPMENT

R O C A P

AMENDMENT No. 6

CENTRAL AMERICAN RURAL ELECTRIFICATION SUPPORT PROGRAM (CARES)

Project Number: 596-0146

CENTRAL AMERICAN RURAL ELECTRIFICATION SUPPORT PROGRAM (CARES)
TABLE OF CONTENTS

LIST OF ACRONYMS

	GENERAL:
AID	U.S. Agency for International Development
CARES	Central American Rural Electrification Support Program
CATIE	Tropical Agricultural Research and Training Center
CIDA	Canadian International Development Agency
IBRD	International Bank for Reconstruction and Development - World Bank
IDB	Interamerican Development Bank
INCAE	Central American Institute for Business Administration
NRECA	National Rural Electric Cooperative Association
ROCAP	Regional Office for Central American Programs
	BELIZE
BEB	Belize Electricity Board
BREMA	Belize Rural Electric Membership Association
GOB	Government of Belize
MEC	Ministry of Energy and Communications
	COSTA RICA
CONELECTRICAS	Consortium of Electric Cooperatives
DSE	Directorate of the Energy Sector
GOCR	Government of Costa Rica
ICE	Costa Rican Institute of Electricity
MIRENEM	Ministry of Natural Resources, Energy, and Mines
SNE	National Electric Service

EL SALVADOR

CEL	Lempa River Hydroelectric Commision

GUATEMALA

EEGSA	Guatemala Electric Company
INDE	National Electrification Institute
MEM	Ministry of Energy and Mines

HONDURAS

CONSUPLANE	Ministry of Planning
ENEE	National Electric Power Company

NICARAGUA

INE	Nicaraguan Energy Institute

PANAMA

CONADE	National Energy Commission
IRHE	National Electric Institute

I. SUMMARY RECOMMENDATIONS AND BUDGET

On May 5, 1987 the U.S. Agency for International Development entered into a five year $5.0 million Cooperative Agreement with the National Rural Electric Cooperative Association (NRECA) as a result of a congressional earmark to strengthen the institutional and technical base for rural electrification throughout the Central American region. This Amendment is a result of an additional $5 million earmark by the U.S. Congress to the Central American Rural Electrification Support Project (CARES) under the FY 1990 Foreign Assistance Appropriations Act for rural electrification development in the region. The Amendment will expand the level of effort to the original Cooperative Agreement and will provide funding until March 1994, and a one and a half year extension to its current termination date (September 1992).

The original project was designed to increase rural access to the benefits of existing and planned power sector investments in Central America (excluding Nicaragua), Belize, and Panama by making rural electrification programs technically, financially, and economically more efficient. It included four major components designed to work together to counteract the poor living conditions of the region's rural majorities due to a general isolation from basic public services, such as electricity.

Project components included in this amendment remain the same as in the original project: 1) Dialogue on Policy and Institutional Reform; 2) Enhancement of Operational Efficiency; 3) Least-cost Rural Electric Design; and 4) Productive Uses of Electricity Programs.

The incipient energy crisis being confronted by the region is currently characterized by high electricity demand growth rates; financial difficulties of utility companies; inefficient institutions; lack of adequate management and planning; uneconomic tariff structures; and inefficient electricity production, delivery, and use. This Amendment will promote the economic and financial attractiveness of rural electric investments by reducing costs; improving the organizational basis and operational efficiency of rural electric utilities and expanding economic benefits and financial revenues.

Proposed activities include technical assistance and training to create adequate organizations and technical and managerial capabilities and institutional reform to permit the decentralization and privatization of Rural Electrification (RE), which will allow for a range of cost-efficiencies. On the supply side, technical standards will be modified to permit cost savings in construction. On the consumer side, a range of consumer services will be offered to increase the rate of electrical connections and the productive use of electricity. Activities will be conducted in Nicaragua and Panama, when conditions warrant. Additionally, funds are programmed to develop new initiatives to alleviate projected energy shortfalls and achieve greater efficiency of use through improved private sector oriented energy policy and planning.

SUMMARY BUDGET (U.S. $)

1.	Dialogue on Policy and Institutional Reform		
	BELIZE	500,000	
	COSTA RICA	2,000,000	
	HONDURAS, Aguan Valley Study	74,788	
	Subtotal		$2,574,788
2.	Enhancement of Operational Efficiency		
	Operations and Administrative Technical Assistance and Training	149,580	
	Rural Electrification Management Training	200,322	
	Subtotal		349,902
3.	Least-cost Rural Electric System Design		
	Rural Electrification Distribution Standards	75,312	
	Surplus Equipment	49,686	
	Local Manufacture-Wood Poles	99,920	
	Subtotal		224,918
4.	Productive Use of Electricity		100,000
5.	Activities in NICARAGUA		453,000
6.	Activities in PANAMA		453,000
7.	ROCAP's Regional Electric Power Sector Initiative		500,000
8.	CARES Administrative Costs		250,392
9.	Audits and Financial Reviews		94,000
	TOTAL		$5,000,000

II. PROJECT BACKGROUND AND RATIONALE

A. Origins and Evolution of the Project

The need for the integrated development of rural areas has been a major concern of U.S. policy in Central America over the last two decades. In FY 1986-87 the U.S. Congress included in the Foreign Assistance Appropriations Act funds to carry out a comprehensive rural electrification program in the region in order to establish the conditions and a foundation for economic development.

Pursuant to this policy, AID funded a preliminary study of the status and priorities for rural electrification in Central America that was completed in 1986 (Central America Rural Electrification Study, AID/NRECA). This study determined the financial, technical, and institutional basis for rural electrification in the region, and contained specific policy and country-specific recommendations. Under this set of recommendations, the Central America Rural Electrification Support Project was born, with the objective of forming a foundation for selecting appropriate policies and investments in the rural electric subsector of the region.

B. The Problem

An essential problem of Central America is the poor living conditions of the rural majorities, categorized by substandard housing, low rates of literacy, high infant mortality, a greater incidence of disease, and a general isolation from basic public services available to urban populations. One important cause of this poor state of rural affairs is low income and consumption arising from the low rates of productivity of small rural, agricultural and industrial, enterprises.

Rural electrification (RE) can contribute in addressing these problems. However, it is not being used effectively as a rural development tool.

Specific problem areas are:

- Institutional issues: RE has been over-centralized by governments, and not enough use has been made of the private sector to handle operational aspects, where it would have an advantage over the central power authorities. RE planning and inter-sectorial planning are weak, resulting in the poor matching of supply options with rural energy requirements. Training is urgently needed to raise skills in planning, technical, and administrative areas.

- Financial issues: National power utilities are facing substantial problems in meeting the financial requirements of present and future power supply investment. There is a need to strengthen the financial management of the utilities carrying out RE.

- Technical issues: Least-cost solutions for rural electrification have not been used, including both the design and operational aspects of generation, transmission, and distribution systems.

- End-user issues: Low number of subscribers and consumption rates contribute to high costs, which depresses the demand for electricity, deters the utilities from pursuing rural electrification which in turn keeps electrical connection and consumption rates low. One reason for this trend is that RE is being used to treat the manifestations of rural poverty, not the causes. In other words, it needs to be re-oriented to address the energy needs of a broader spectrum of end-users, particularly productive end-users.

C. Project Amendment Strategy

The Project components included in this Amendment are designed to work together to counter the cycle mentioned above. A comprehensive approach is being planned. The most pressing need is for technical assistance and training to create adequate organizational and technical and managerial capabilities. Closely linked with this requirement is institutional reform to permit the decentralization and privatization of rural electrification. On the supply side, technical standards will be modified to permit cost savings in construction and, on the consumer side, a range of services will be provided to increase the number of subscribers and the productive use of electricity.

Finally, activities concerning RE and the basic goals and objectives of the current CARES Project will focus on securing new policy framework successes in terms of rural electric organizations and the management of its supply and distribution. The Project will concentrate on promoting promising initiatives begun under the existing CARES Project which will be complementary to AID initiatives from the supply side (electricity generating capacity) and to established policies in energy, environment and natural resources management. The proposed activities have been vetted and have the explicit support of USAID missions and host-country governments. They are designed to provide for maximum leveraging, i.e. host-country funding support, mission local currency resources, other-donor capital financing, PVOs, and voluntary resources.

D. Relationship of Project to AID Strategy

In the International Development and Cooperation Act of 1979, the U.S. Congress stated that energy development and production are vital elements in the development process. Without sufficient energy, development lags. Pursuant to this, energy development, particularly to support electrical power sectors, has been a priority for AID for a number of years.

RE in particular is an important part of the AID energy trust that includes activities in a number of other areas, such as energy analysis and planning, site testing, demonstration, the evaluation of new energy technologies, and increasing energy supplies. Two basic goals pursued by AID in the energy area are: (a) to ease the immediate energy constraints to development, and (b) to help countries make the difficult transition to a mix of energy sources that will sustain their economies in the future. This project follows these considerations, and is also based on two important cornerstones of AID's energy policy - training and institution building; and technology transfer.

- USAID and other Donor Energy Assistance

There is significant donor support related to RE in Central America. The most active donors are the Interamerican Development Bank (IDB) and the World Bank. In addition to AID bilateral programs there are other donors which include the Canadian International Development Agency (CIDA), the Japanese, Italian, and West German governments.

The IDB has provided considerable assistance for power development to the various utilities in the region. The IDB's general trust is to program rural electrification financing for proper project selection, design, and implementation. IDB together with AID (regarding ESF negotiations) have also been a positive force in pressing for tariff increases as a condition for project lending and providing grants, in order to make power utilities more efficient. IDB is also supporting important privatization efforts specially in Costa Rica with a $75 million loan for "Independent Power Production". NRECA/CARES has established and will continue a positive working relationship with the bank to support this important initiative.

The World Bank is currently the principal actor in Belize and Guatemala. Through its lending, the Bank is stressing plant rehabilitation, electrical generation studies, and training. Its loans are also tied to policy reform aimed at improving the efficiency of power utilities, in such areas as electrical distribution management, reduction of technical losses, and the increase of consumer/employee ratios. NRECA has been coordinating its training and technical assistance in these areas.

The Caribbean Development Bank is providing small levels of funding to Belize in coordination with the World Bank Loan, and has been serving as the informal conduit for IDB support.

USAID Mission projects are probably the most appropriate targets of opportunity to leverage investment capital to support new initiatives. Coordination by NRECA with AID's bilateral missions will continue under the proposed amendment in an effort to achieve greater economies of scale.

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III. PROJECT AMENDMENT DESCRIPTION

A. Goal and Purpose

The proposed Amendment will continue to focus on the achievement of the original project goal of addressing rural poverty in the region by increasing rural access to the benefits of existing and planned power sector investments in Central America, Belize, and Panama. The Project will seek to enhance the economic and financial attractiveness of rural electric investments by reducing investment costs, improving the organizational basis and operational efficiency of rural electric utilities while expanding economic benefits and financial revenues.

The underlying purpose of the CARES Project is to form a foundation for selecting appropriate policies and investments in the rural electric subsector of the region.

RE has become an important initiative in many other countries because it symbolizes modernization and brings hope and opportunity to the rural poor. It is a very tangible way of sharing a nation's wealth and its economic future with underprivileged rural populations.

B. Project Components

The Amendment is based on the original four major components included in the CARES Project[1/], 1) Dialogue on Policy and Institutional Reform; 2) Enhancement of Operational Efficiency; 3) Least-Cost Rural Electric System Design; and 4) Productive Uses of Electricity. At the same time, the new funding being provided by ROCAP will be used for activities in Panama and Nicaragua subject to concurrence by those missions and for the design of innovative activities with the Private Sector. The following describes the components together with the proposed activities under the Amendment.

Component 1. Dialogue on Policy and Institutional Reform

Component Objective:

Support, through technical assistance and training, the adoption of policies and institutional reforms to strengthen the organizational and financial basis for rural electrification in Central America.

1/ For a clearer understanding on how the original CARES Project is structured, including its major purpose and basic components, please refer to Annex "E" Logical Framework.

Amendment Activities Under This Component

Belize:

NRECA was recently requested by the Government of Belize to recommend an institutional solution to urgent needs for rural electrification. They responded with a proposal to create a separate entity outside Belize's public sector owned power utility (Belize Electricity Board - BEB) due to past problems which BEB had experienced from abnormally high transmission losses; inadequate plant facilities, limited transmission lines, and management and planning inefficiencies.

Under this proposal, a new organization, the Belize Rural Electric Membership Association (BREMA), would be formed with an organizational structure similar to that of a cooperative. The member-consumers will be the owners, and will elect a Board of Directors who, in turn, will employ a General Manager with overall responsibility for the day to day operations of BREMA. The Association will include NRECA, the Government of Belize (in a legal and regulatory role) and the Belize Electricity Board, BEB (to assure coordination in energy sector planning and implementation), the proposed rural electrification entity and CARES as an advisor to the Board. Each will provide financial support to the Association, as will international financial institutions who are operating in the country.

NRECA has proposed this option in an effort to assign the main responsibility of the rural electrification program to the rural communities that are to be electrified. In doing so, NRECA is recommending that the government take the long-term view that the program's strengths lie in its independence from government and political pressures.

Under the proposal, NRECA will provide technical and management assistance, as well as coordination with non-governmental organizations and the communities/members. Eight villages have been identified for consideration and review. USAID/Belize fully supports this initiative and will work with the GOB on addressing the Project requirements listed below.

Specific Activities

The following activities will be implemented once the proposal is accepted by the GOB.

Support Community Organization for RE: Assist communities in self-organization, fund raising, and basic community support for the RE system; assist in the coordination of community assistance in construction, maintenance and system support; assist in the identification of productive uses of electricity and promotion at the community level.

Technical Support for Productive Uses Promotion: Technical assistance and guidance will be provided to assure effective use of human resources; particularly in the selection of communities for RE and follow-on promotion of communal uses of electricity, productive use activities, and other residential energy needs.

Financial Support for Productive Use Activities: Facilitate credit mechanisms directed toward productive use entrepreneurs and other business groups, assisting also in the selection, purchase, and use of electrical equipment.

Recommended Requirements for Assistance[1/]

The GOB with the help of CARES will be working to accomplish the following requirements in Belize.

- All equipment and supplies related to the existing electric generation and distribution systems in the eight identified villages will be granted free and clear to BREMA.

- All duty free concessions granted to BEB will also be granted to the Association.

- Tariffs for electrical service will be set by the Association to reflect cost-of-service regardless of the BEB rate structure.

- BREMA must be able to legally develop, generate, transmit, distribute, purchase and sell electricity in Belize.

- BREMA must be granted a certified service territory that will include the eight identified villages as well as all areas not presently served by BEB.

In addition, the following funding contributions will be required from the GOB. A $200,000 initial support grant in 1990 to cover the establishment costs of BREMA; and a $250,000 grant to cover the immediate costs of improvements to existing infrastructure in the eight selected communities to make them operational. Declining amounts will be requested in each of the following three years.

The GOB and BEB will also assist in making available up to $750,000 of the World Bank's Power Project Loan to finance an initial phase of system improvements and expansion. Also, the GOB will arrange for an additional amount of $2 million to support various new investments.

1/ Note: Since these requirements will take time and effort to fulfill, NRECA staff will assist in assuring that these stipulations are met.

It is appropriate to note that once the program begins, the BREMA member communities will also be required to contribute toward the cost of installing electrical services through contributed labor and materials.

Costa Rica

The power sector in Costa Rica is often cited as the most efficient and well managed in Latin America. ICE, the municipal distribution company, and the rural electric cooperatives provide service to over 90 percent of the population, with low losses and high reliability. However, this record is being threaten by financial pressures on the power sector, particularly due to high debt service (internal devaluations have led to a large increase in ICE's long-term debt). Other problems confronted by the sector include a higher than expected increase in demand and the improper maintenance of the country's thermal plants. (Only about half of its installed thermal capacity can be considered operable today.) Costa Rica currently faces a critical situation in terms of load resource balance. Its own resources are insufficient, even under ideal conditions, to meet the load forecast for 1990.

To meet the growing needs of the economy, Costa Rica has established a new policy allowing private participation in power generation. Cogeneration by sugar mills and power generation from small hydroelectric resources are the two primary targets for development by private organizations. Both ICE and the Ministry of Energy (MIRENEM) have supported this initiative by establishing procedures and guidelines for expected private power generation projects. A budgetary norm was approved by the Presidency last year allowing for the production of electricity by the private sector of up to 25-30 MW. A new law permitting these limits has been introduced in the National Assembly for its respective approval.

Under this Amendment CARES is proposing a long-term technical assistance mission to support the implementation phase of a newly formed Consortium of Costa Rican Electric Utilities (CONELECTRICAS -formed by the four rural electric cooperatives Coopelesca, Coopeguanacaste, Coopealfaro-Ruiz, and Coopesantos established over 20 years ago with support from the United States Government). CONELECTRICAS was established with the expressed intent of developing small hydroelectric generating projects.

Several developmental activities in support of the formation of this consortium have been completed under assistance provided by the CARES Project, including a prefeasibility study, an Organizational Plan, and a detailed prefeasibility study of a 15.6 MW project in the San Lorenzo river basin.

Under the Amendment, NRECA will provide: (a) follow-up support to a private power investment initiative for the development of the

hydroelectric project located in the San Lorenzo river basin; and (b) management assistance, corporate services, and public education. At the same time, NRECA has identified a number of important management needs within the membership of the Consortium, particularly in the case of COOPEGUANACASTE. These include utility management, planning, forecasting, customer and public relations development, and computerization enhancement.

The general purpose of the Costa Rica initiative is to establish a permanent innovative mechanism by which rural electric utilities may address their power supply, management services, and financial needs. It would also serve as a cooperative model for private investment that offers an alternative to investor-owned schemes. In this regard, NRECA will be pursuing a debt conversion mechanism for private rural power investment in Costa Rica, which responds to the AID Administrator's special program announcement for initiatives in support of private provision of public services and to the congressional earmark. This cooperative model will provide for a broader base of ownership, a "democratization" rather than a "privatization" of the independent power concept; therefore, making it more acceptable to the public utilities in the region. This program has the full support of AID's bilateral Mission in Costa Rica.

Specific Activities

Three new activities under CONELECTRICAS intitiative are being proposed under this Amendment:

Independent Power Program: composed of organizational development; staff development, policy and regulatory interface and Project technical development; design studies, construction supervision, operations training; watershed protection; financial aspects; and capital formation assistance.

Member Services Program: including management assistance; least-cost planning; operational audits; management/board relations training; consolidated utility services; bulk purchasing; insurance and retirement programs; and public and consumer relations.

Other Investment Initiatives: preliminary assessment of future possible investments in ventures such as: wood pole manufacture, transformer reconditioning, and energy-efficient end-use equipment.

This long-term technical assistance will consist of a three-year Resident Advisor, short-term consultants, and local consultants including a contract with INCAE for management services.

Recommended Requirements for Assistance

The GOCR with the help of CARES will be working to accomplish the following requirements:

- The legal and regulatory context of the Private Power Law should be approved by the National Assembly and published in the Gazette.

- The purchase of electricity by ICE should be resolved as well as the CONELECTRICAS authorization to develop the hydroelectric site situated in the San Lorenzo River basin. The Consortium must be authorized by ICE to develop the project. Options on land and water rights to develop the hydroelectric site situated in the San Lorenzo basin (approved by SNE) must also be secured.

In addition, the Consortium must adequately make a financial contribution to the Project.

Honduras-Aguan Valley Socioeconomic Study

The USAID/Honduras Funded Aguan Valley Rural Electrification Project Paper (April 1977) identified a wide range of social and economic benefits that could result from a rural electrification project in this area. These benefits included improved quality of life, through the direct connection of electric lines to 25,000 low-income families; increased income for these families through the creation of new employment in economic activities; improved nutritional levels and health as a result of income growth; and, improved community services such as lighting, education, potable water, etc.

The AID/H Mission Director has indicated that the CARES Project could make a useful contribution by assessing the extent to which anticipated benefits identified in the above referred project are being achieved. It is proposed that a socio-economic survey, based on available baseline information collected under the project be conducted. The major purpose will be to establish guidelines for corrective measures in economic, technical, and institutional project design and inter-agency project coordination.

Component 2. Enhancement of Operational Efficiency

Component Objective:

Raise and maintain adequate levels of technical and managerial skills through training programs and technical assistance aimed at reducing technical and administrative losses and operating costs of rural electrification.

Specific Activities

Under this component, support will continue on the following CARES on-going activities.

Operations and Administration Training and Technical Assistance

This activity will be amplified to provide training and technical assistance in administrative areas of the various utilities in the region, such as billing and collecting, consumer services and relations, work order procedures, and accounting.

In response to specific requests from power utilities like INDE (Guatemala) and ENEE (Honduras), the CARES Project will undertake management audits of their commercial departments in order to ascertain their needs and design a training and technical assistance program to adequately respond to these needs. The training program will focus on the training of trainers in an effort to institutionalize the training function in each of the beneficiary countries.

This expanded activity will also explore and recommend activities for improving electrical protection mechanisms, monitoring and maintenance programs, while at the same time offering assistance in key areas such as computer modelling, and demonstration of metering installations.

Rural Electric Utility Management Training

The CARES Project will direct part of its major training efforts towards increasing rural utility efficiency. Primary emphasis will be on raising technical skill levels in areas such as lineman training and preventive maintenance. Specific emphasis will be given to the training of trainers in order to disseminate the material covered. Additional training will be given in a broad range of management skills, from planning and design to various system operations.

The Project will also develop a series of short-term seminars in the above areas as part of an established electric utility management curriculum for utility managers and professionals at INCAE's Costa Rican facility. These training courses at INCAE will be supplemented by selected training courses in the U.S. and third-country institutions.

In addition, it is anticipated that NRECA staff will participate in conferences, seminars, and workshops that are deemed beneficial to the work undertaken to improve rural electrification in the region. Selected utility personnel, host-country governmental, and private sector representatives will also participate in some of these activities. Examples include the Latin American Rural Electrification Conference (CLER), and the NRECA Annual Meeting.

Component 3. Least-Cost Rural Electric System Design

Component Objective:

Promote through technical assistance, training, and demonstration, the widespread adoption of standardized, appropriate designs and specifications for electric systems in rural areas of the region.

Specific Activities

Under this component, the following activities are being programmed.

Rural Electrification Distribution Standards

In the first two years of the CARES Project it has been found that the application of standards specifically appropriate for rural electrification distribution can result in significantly reduced construction costs without sacrificing reliability or quality of service.

Under the Amendment, NRECA will be working with the ENEE (Power Utility of Honduras) to revise their standards so as to lower the cost of rural electrification, while at the same time maintaining reliability and increasing its efficiency. Technical Assistance for infrastructure will also be provided in construction in rural areas of Guatemala and Belize.

Some of the specific lower-cost options which are being investigated and introduced for serving small rural communities include: smaller, stronger, less-costly conductors, more versatile design criteria, and reassessment of the value and applicability of overhead neutral construction versus other lightning protection methods.

Surplus Equipment

In accordance with the original proposal, the CARES Project is supporting an initiative for transferring surplus U.S. electric equipment to target countries, specifically through the NRECA International Foundation.

Currently, many U.S. utilities are upgrading their equipment and removing items that do not have the required ratings or are obsolete. U.S. private utilities also have surplus equipment and could receive tax advantages by donating it through the Foundation.

Additional funds authorized by this Amendment will be directed towards supporting the NRECA International Foundation to locate and arrange for the shipping of the surplus materials to Central America. The Foundation will hire a part-time person to undertake the stateside coordination of this activity. It is anticipated that the original target of $500,000 in surplus equipment donated to utilities in the region will be surpassed.

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Local Manufacturing-Pole Technology

The U.S. development of modern technology to treat wood utility poles and crossarms against insect and fungus decay has represented a significant breakthrough for providing electric service to dispersed rural populations. Wood poles and accessories account for 40 percent of rural utility distribution cost in the U.S. Concrete and steel poles, often appropriate in urban conditions, cost from 50 to 500 percent more than it costs to use wood in rural areas of many developing countries.

NRECA began a wood utility pole initiative in 1989 in order to encourage the use of wood utility poles through a market study and a wood technology seminar. The study was undertaken to ascertain the precise obstacles to wider use of wood utility poles in the region, examining issues related to marketing and treating poles, consumer confidence, and related silviculture. This effort culminated in the preparation of a proposal by NRECA for a program to ensure the quality of wood poles to address these problems.

Under the Amendment, NRECA proposes to continue this initiative which will include training to ensure that the treatment plant, technical staff, production procedures, materials and internal quality control staff and procedures meet standards that guarantee the quality of the wood. This program will include a wood technology seminar; development of standards for specifications of proper treatment of wood utility poles, and will cover forestation issues and timber supply.

NRECA will coordinate with the Tropical Agricultural Research and Training Center (CATIE) to assure that there is no duplication of effort in activities related to silviculture and other associated wood technology matters.

Component 4. Productive Uses of Electricity

Component Objective:

Provide technical assistance and training, as necessary, to national programs of productive-use promotion throughout the region, including the possibility of a regional productive use training/demonstration facility.

Specific Activities

The following activities are being programmed under this component.

NRECA will continue its region-wide productive use planning activity under this Amendment. Activities include general exposure to productive use activities and related equipment; micro-enterprise management

including economic analysis and market surveys for various productive activities; information on cost and availability of electrical equipment; small-loan programs selection; and inclusion of private industry for the provision and maintenance of equipment.

Component 5. Nicaragua:

The economic aid to Nicaragua was authorized by the U.S. Congress and approved by the President in late May. Nicaragua has been going through a very depressed economic situation directly reflected in the energy sector.

The quality of electric services in terms of reliability and bulk power supply is unsatisfactory. Bad voltage regulation and frequent blackouts are common problems. Generating plants are old and obsolete. The thermal systems are poorly maintained, inefficient, and unreliable. They will require a complete rehabilitation of these main components to continue operating. Furthermore, the transmission and distribution systems suffer from very high technical losses. Transmission lines have confronted acts of sabotage and some were partially destroyed by Hurricane Joane. Distribution lines in general are in a very poor state. The Nicaraguan Energy Institute (INE) is experiencing extreme difficulties in financing its recurrent costs and short and long-term investments.

The CARES Project is positioned to assist Nicaragua in alleviating the above problems. While CARES concentrates on rural electrification, many aspects of the Project have relevance for improvements in broader utility operation.

ROCAP is exploring with USAID/Nicaragua the possibilitites of providing such assistance. When conditions warrant, CARES will dedicate part of its efforts under this Amendment to carry out a rural electrification support program in this country.

NRECA Staff will assist ROCAP and USAID/Nicaragua to undertake an assessment and evaluation beginning in June, to identify priority areas for NRECA, U.S. and other donor aid involvement. The specification of activities will be included in a separate work plan.

Component 6. Panama:

The Panamanian Government, under its new priorities, has declared that energy sector rehabilitation would be the Government's top infrastructure consideration. This urgent need has been established under the assumption that without urgently needed power generation, transmission, and distribution, the government will be unable to rebuild Panama's economy. As in the case of Nicaragua, CARES could make an important contribution in the

energy sector, therefore, funds are being allocated to support rural electric activities and related assistance to this country. Once the Amendment is approved, NRECA will assist ROCAP and USAID/Panama, to identify the main energy assistance priorities in that country.

Component 7. Regional Electric Power Sector Initiatives:

The entire Central American region is confronting an incipient energy crisis which will likely grow into a problem of major proportions. The ways in which this crisis is addressed will significantly influence the economic and, perhaps, political future of the region. Energy has always been a crucial factor in development and its availability and price in Central America will directly impact on every program and goal AID has for the region. The countries in the region require more electrical power for sustainable social and economic development than they are able to produce. Due to inadequate economic growth during the last decade and growing debt service burdens, the different countries lack the financial resources needed to fund the required investments for the subsector. Moreover, due to their financial difficulties, most of the electric utilities do not qualify for loans from international development organizations or commercial banks, a fact that has made the prospects for improved power supply more uncertain. Problems inherent in this power crisis are: high demand growth rates; financial difficulties of utility systems; inefficient institutions, management, and planning; uneconomic tariff structures; inefficient production, delivery, and use of electricity; and, indigenous fuel limitations.

AID's Regional Energy Strategy

Over the next year, ROCAP/AID will initiate (per our recent discussions with NRECA) a program of support for rational energy policy through training, involvement of the private sector in decision-making and technical support; all aimed at improving efficiency, increasing generating capacity, facilitating energy trading and other forms of regional cooperation. Starting in FY 91, a new policy and efficiency project will complement this activity ensuring a comprehensive approach not solely restricted to rural needs.

The new project will, through training, seminars, and other fora, assist the private sector in educating itself on energy issues and facilitate public/private sector dialogues on energy. The Project will provide technical training to officials with policy responsibility and help carry out a fuller exploration of the technical and policy responsibilities for greater intra-regional cooperation. It will also seek to better orient public utilities to market realities; stimulate the development of private power supplies in the region by identifying the potential for, and the impediments to, private power development; and provide technical assistance in demand management.

Resulting improvements in policy and end-use efficiency, along with new private sector power supplies, are anticipated to reduce significantly public funding requirements for new electric plants and rationalize electric usage. Fast adoption of end-use efficiency programs and improved technologies will significantly reduce requirements for new generating capacity.

Under this Amendment, funds will be allocated to finance specific assistance deemed necessary by ROCAP management in the support of the electric subsector of the region.

IV. PROJECT OUTPUTS BY COMPONENTS

Component No. 1: Dialogue on Policy and Institutional Reform

End of project status:

- Firmly established rural electrification division in a minimum of three of the seven countries.
- Decentralization of rural electric management in four countries.
- At least two additional locally managed systems in two countries.
- Laws enacted or clarified to permit private generation, transmission and/or distribution in three additional countries besides Costa Rica.
- Increased private sector investments in rural electrification.

Component No. 2: Enhancement of Operational Efficiency

End of Project Status:

- Effective training programs in management and operations and for the linemen result in improved management and operations.
- Increased employee productivity.
- Trainees are able to upgrade their employment status because of increased skills acquired.
- Staff turnover reduced by 1% in power utilities of the region.
- Increased reliability of electric service.
- Rates of technical and administrative losses reduced by 2% in power utilities of the region.

- Trained trainers are in place to continue training when CARES Program is completed.

- Higher financial rates of return.

- A minimum of two operational audits in power utilities.

- Decrease of 5% in operation cost per KWH sold by power utilities to rural consumers.

Component No.3: Least-cost Rural Electric Design

End of Project Status:

- Rural electric standards adopted in a minimum of four of the seven countries.

- Reduced construction costs of targeted rural electric systems by at least 5%.

- A minimum of two regional workshops which will present least cost design systems to the utilities with a minimum of four countries participating in each workshop. Efforts will be made to include the Engineering Departments of major universities in the region.

- Involvement of a minimum of one engineering school or a research institution in design studies for standards and/or electric equipment.

Component No. 4: Productive Uses of Electricity Programs

End of Project Status:

- Average monthly electricity consumption in rural areas increased by 40% by 1994.

- Consumption for productive and economic uses increased by 20%.

- Higher financial return for the utilities.

- Increased awareness of the importance of productive uses promotion on the part of the electric utilities, government ministries, and other public and private agencies involved in rural devleopment.

- Credit programs are established and being used.

V. SUMMARY PROJECT ANALYSES

The original proposal submitted by NRECA for AID support included detailed analyses in support of project activities. These analyses are still relevant since most of the proposed activities are an expansion of current activities. Therefore, it has been determined by ROCAP that no additional analyses are required for this Amendment.

A. Economic Analysis

A held tenet of economic development theory is that economic growth is dependent on the growth of productivity in the agricultural and agro-processing sectors. However, the means of accelerating agricultural productivity, and rural development in general, are less clear. Constraints may involve technological backwardness, lack of off-farm employment opportunities, poorly functioning markets, and a range of environmental, social, and political obstacles.

In this respect, Central America exhibits an interesting spectrum of rural progress. The region includes one of the wealthiest rural economies in the Latin American region, such as Costa Rica, and one of the poorest, Nicaragua. The region is comprised of a rich and contrasting mixture of indigenous and western cultures. The quality and distribution of infrastructure and means of production are quite uneven, as is the functioning of rural marketing systems. The welfare levels and potential of the region's rural populations are not uniform, but vary from country to country and among different areas within individual countries.

There are also significant commonalities among these countries. Together they form an important geographic link between the Americas and are bound by mutual interests of trade, communications, and natural resource development and conservation. Each has a significant balance-of-payments problem, and all have suffered from serious economic decline in recent years. Most are also deeply in debt.

The lack of RE is one of the most striking symbols of disparity in the region, primarily in Guatemala, El Salvador, and Honduras. The vast majority of rural populations of Central America are without electricity; for the six countries as a whole, only 16% of rural residents have electricity.

In this regard, electricity discovery and usage was an integral part of the industrialization process that took place in Europe and North America and is viewed as an essential need in modern society. RE has been a cornerstone of rural development in several developing countries, as has been documented in AID evaluation of projects in the Philippines, Bangladesh, and Costa Rica.

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The benefits associated with RE, for instance the increase in crop yields and value-added through improved irrigation, processing, and storage, the expansion of off-farm employment opportunities, etc. are sufficient to justify investments in electricity for Central America. Properly planned and executed, rural electrification can achieve significant results and help resolve many of the social, economic, and even political constraints to development in the region.

B. Institutional Analysis

AID efforts in rural electrification have been linked with its primary contractor in this field, NRECA. Since 1962 a Basic Ordering Agreement between these two institutions provided a long-term mechanism through which AID could recruit NRECA specialists without going through a lengthy open-bidding process. This ease of recruitment in addition to NRECA's substantial experience has made NRECA the contractor of choice in almost all AID-funded rural electrification projects.

NRECA expertise lies in rural electrification management. Engineering firms, if needed, are hired separately to design the physical systems under consideration. Due to its accumulated experience in the specialized field of rural electrification, NRECA has easier access to rural electrification specialists (through its U.S. cooperative system).

NRECA, through its International Program Division (IPD), has devoted time and efforts to the development of the activities mentioned before. A short summary of these efforts follows: NRECA has expended a great deal of energy to promote rural electrification throughout the world. Its efforts take the form of direct and indirect contact with developing country officials, multinational conferences, and discussions with potential lending institutions. As part of these efforts, NRECA helps countries identify possible funding sources such as AID, the World Bank, the Interamerican Development Bank, and the Asian Development Bank. The organization has also been highly qualified and effective in technical and consulting services for establishing and strengthening rural electric systems. Furthermore, one of the most valued services performed by NRECA is its training program on RE.

In short, NRECA is a highly qualified organization, perhaps without equal, in the fields of encouraging governments to undertake rural electrification and in offering technical planning and technical consulting services and training to developing countries.

C. Major Counterparts

NRECA/CARES has established counterpart relationships with the most appropriate national and regional counterparts for specific project activities. These major counterpart organizations are:

COUNTRY	NATIONAL ORGANIZATION	REGIONAL ORGANIZATIONS
Belize	Ministry of Energy and Communications Ministry of Public Works Belize Electricity Board (BEB)	
Costa Rica	Ministry of Natural Resources Energy and Mines (MIRENEM) Directorate of the Energy Sector (DSE) National Electric Service (SNE) Costa Rican Institute of Electricity (ICE) The Rural Electric Cooperatives The Municipal Electric Co.	Central American Institute for Business Administration (INCAE) University of CR Engineering Department
El Salvador	Lempa River Hydroelectric Commission (CEL) The Electric Companies The Distribution Companies	
Guatemala	Ministry of Energy and Mines (MEM) Guatemala Electric Company (EEGSA) National Electrification Institute (INDE)	
Honduras	National Electric Power Co. (ENEE) Ministry of Planning (CONSUPLANE)	Zamorano Pan-American Agric. School C.A. Bank for Economic Integration (CABEI)
Panama	National Energy Commission (CONADE) National Electric Institute (IRHE)	

VI. IMPLEMENTATION PROCEDURES

This Project will be implemented over a period of approximately six years. The planned project assistance completion date is March 1994, being extended by one year and a half with this Amendment. This date may be extended in the future based on unavoidable delays or other factors.

The primary implementation document will be the Amendment No. 6 to the existing Cooperative Agreement signed between NRECA and USAID. However, control of the implementation process will be derived from the exchange of detailed annual work plans from the CARES program, and corresponding written approval of these work plans by ROCAP.

ROCAP Management and Monitoring

Project management responsibility will be with the ROCAP General Development Office, and will be assisted by the Project Development and Controller's Offices. The Regional Energy Advisor, under the supervision of the Deputy General Development Officer, will have day-to-day supervision over the execution of this Project Amendment.

ROCAP will be assisted in routine project monitoring by periodic reporting from NRECA and close collaboration with the CARES program management team. Semi-annual review meetings, and other meetings as necessary, will be held between ROCAP, NRECA/CARES and appropriate bilateral USAID personnel to assure proper coordination.

In addition, although ROCAP will maintain primary oversight and control of the implementation process, the bilateral Missions in each country will have the opportunity to participate in the planning of activities to be implemented in their respective country. They will also have the responsibility of guiding and directing activities and interventions being conducted in their host-country.

NRECA Management

Under this Amendment, full time local staff will be hired for Belize, Costa Rica and Honduras to assist with the increased work loads in those countries.

A local hire Power Economist or a Financial Manager is planned for Guatemala. This person would be partially paid from the funding for Nicaragua and Panama.

VII. REVISED FINANCIAL PLAN

A. Summary Description

The proposed Amendment will provide funding until March 1994, which includes a year and a half extension of the existing Central America Rural Electrification Support Program (CARES), being implemented under Cooperative Agreement No. 596-0146-A-00-7022-00 signed between NRECA and USAID.

Following are the summary cost estimates for the Project.

SUMMARY COST ESTIMATES
($000)

PROJECT COMPONENTS	AID FUNDS
1. Dialogue on Policy and Institutional Reform	2,575.0
2. Enhancement of Operational Efficiency	350.0
3. Least-Cost Rural Electric System Design	225.0
4. Productive Use of Electricity Programs	100.0
5. NICARAGUA	453.0
6. PANAMA	453.0
7. ROCAP's Energy Policy Planning and Efficiency	500.0
8. CARES Program Administrative Costs	250.0
9. Audits and Financial Review	94.0
TOTAL	$5,000.0

B. Detailed Amendment Budget by Component

Summary Cost Estimates
by Line Item Break-Down
(in U.S. $)

PROJECT COMPONENTS		
1. Dialogue on Policy and Institutional Reform		
BELIZE		
Salaries	$149,027	
Fringe benefits	49,179	
Overhead	111,770	
Travel & Transp.	33,366	
Allowance	72,104	
Other direct cost	67,054	
Equipment and Supplies	17,500	
		$500,000
COSTA RICA		
Salaries	$347,700	
Fringe benefits	114,741	
Overhead	229,482	
Travel & Transp.	46,500	
Allowance	62,171	
Other direct cost	1,119,406	
Equipment and Supplies	80,000	
		2,000,000
HONDURAS, Aguan Valley S.E. Study		
Salaries	$28,315	
Fringe benefits	9,344	
Overhead	18,688	
Travel & Transp.	4,464	
Allowance	728	
Other direct cost	10,250	
Equipment and Supplies	3,000	
		74,788
Sub-total		2,574,788

1/ Includes $1.0 million debt-conversion funds for capitalization of the CONELECTRICAS initiative.

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2. Enhancement of Operational Efficiency

Operations and Administrative Technical Assistance and Training		
Salaries	$25,382	
Fringe benefits	8,376	
Overhead	16,752	
Travel & Transp.	59,500	
Allowance	570	
Other direct cost	34,000	
Equipment and Supplies	5,000	
		149,580
Rural Electric Management Training		
Salaries	$26,900	
Fringe benefits	8,877	
Overhead	17,755	
Travel & Transp.	48,400	
Allowance	890	
Other direct cost	95,500	
Equipment and Supplies	2,000	
		200,322
Sub-total		349,902

3. Least-Cost Rural Electric System Design

Rural Electric Standard Revision Honduras		
Salaries	$23,350	
Fringe benefits	7,706	
Overhead	15,411	
Travel & Transp.	14,512	
Allowance	733	
Other direct cost	10,600	
Equipment and Supplies	3,000	
		75,312
Surplus Equipment		
Salaries	$16,846	
Fringe benefits	5,559	
Overhead	11,118	
Travel & Transp.	3,700	
Allowance	463	
Other direct cost	7,000	
Equipment and Supplies	5.000	
		49,686

Local Manufacture - Wood Poles		
Salaries	$31,338	
Fringe benefits	10,341	
Overhead	20,683	
Travel & Transp.	27,500	
Allowance	158	
Other direct cost	4,900	
Equipment and Supplies	5,000	
		99,920
Sub-total		224,918

4. Productive Use of Electricity Programs

Salaries	$31,567	
Fringe benefits	10,417	
Overhead	23,675	
Travel & Transp.	16,215	
Allowance	1,699	
Other direct cost	3,927	
Equipment and Supplies	12,500	
		100,000

5. NICARAGUA

Salaries	$54,360	
Fringe benefits	18,120	
Overhead	31,710	
Travel & Transp.	36,240	
Allowance	4,530	
Other direct cost	289,920	
Equipment and Supplies	18,120	
		453,000

6. PANAMA

Salaries	$54,360	
Fringe benefits	18,120	
Overhead	31,710	
Travel & Transp.	36,240	
Allowance	4,530	
Other direct cost	289,920	
Equipment and Supplies	18,120	
		453,000

7. ROCAP's Energy Policy Planning & Efficiency

Salaries	$0	
Fringe benefits	0	
Overhead	0	
Travel & Transp.	0	
Allowance	0	
Other direct cost	500,000a/	
Equipment and Supplies	0	
		500,000

8.	CARES Program Activities Costs		
	Salaries	$60,208	
	Fringe benefits	19,868	
	Overhead	45,156	
	Travel & Transp.	7,352	
	Allowance	6,912	
	Other direct cost	106,496	
	Equipment and Supplies	4,400	
			250,392
9.	Audits and Financial Review		94,000
	TOTAL		$5,000,000

a/ This amount will be used by ROCAP to finance technical assistance, training, seminars, etc. for the region's electric sector as deemed necessary.

C. **Methods of Implementation and Financing**

The entire $5,000,000 in AID funding will be implemented through a Cooperative Agreement with the National Rural Electric Cooperative Association (NRECA), and the direct payment method of financing will be employed. Payments will be processed through AID Washington, FM/PAFD, which will then transfer the charges to the Mission through the advice of charge mechanism.

Allowable costs and contributions are on line with the Standard Provisions for U.S. Grantees and U.S. Subgrantees, which are:

The Grantee shall be reimbursed for costs incurred in carrying out the purposes of this grant which are determined by the Grant Officer to be reasonable, allocable, and allowable in accordance with the terms of (1) this grant, (2) any negotiated advance understanding on particular costs items, and (3) cost principles contained in OMB Circular A-122 entitled "Cost Principles and Non-profit Organizations" in effect on the date of this grant referred as "applicable cost principles".

D. **Projection of Expenditures by Fiscal Year**

The following table presents the projected expenditures of AID financing by fiscal year, beginning in the third quarter of FY 1990 and ending in the second quarter of FY 1994.

PROJECTION OF EXPENDITURES BY FISCAL YEAR
AID FINANCING
(in U.S. $)

COMPONENT	FY1990	FY1991	FY1992	FY1993	FY1994	TOTAL
1. Dialogue on Policy and Inst. Reform						
BELIZE		237,520	262,480			500,000
COSTA RICA	150,000	1,250,000	300,000	300,000		2,000,000
HONDURAS Aguan Valley Study		74,788				74,788
2. Enhancement of Operational Efficiency						
Operations & Admin. T/A and Training		40,000	40,000	40,000	29,580	149,580
R.E. Management Training	50,081	50,081	50,080	50,080		200,322
3. Least-Cost Rural Electric System Design						
R.E. Studies	12,500	25,000	25,000	12,812		75,312
Surplus Equip.	6,000	13,000	13,000	13,000	4,686	49,686
Local Mfged. Poles	10,000	60,000	29,920			99,920
4. Productive Uses of Electricity						
Productive Uses		44,887	33,017	22,096		100,000
5. NICARAGUA	50,000	165,000	144,000	54,000	40,000	453,000
6. PANAMA	50,000	165,000	144,000	54,000	40,000	453,000
7. ROCAP	50,000	250,000	200,000			500,000
8. CARES ADMIN.	5,000	30,000	30,000	125,392	60,000	250,392
9. AUDITS & FIN. REVIEW		70,000	12,000	12,000		94,000
TOTALS	383,581	2,475,276	1,283,497	683,380	174,266	5,000,000

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E. Financial Management and Reporting Requirements

Disbursements for activities funded under this Amendment will be processed through AID Washington, FM/PAFD. However, as ultimate financial management responsibility rests with the Mission and NRECA, NRECA will be required to submit annual work plans to ROCAP for approval prior to utilizing project funds. Quarterly accrued expenditure reports will also be required. The expenditure reports provided to ROCAP will serve as management tools, and will contain an appropriate level of detail to permit correct monitoring and evaluation of the Project.

Annual Work Plans: Annual work plans will be prepared by NRECA and five copies submitted to ROCAP no later than August 15 of each year. The Annual Work Plan is to provide a summary plan for proposed activities and expenditures during the calendar year. These work plans will provide the basis for approval of annual budgets. Budgets must be itemized by sub-component and the level of effort described.

The work plan should identify how the proposed activities relate to the activities completed during the previous period and how they relate to the overall purposes of the Cooperative Agreement. In particular, if the proposed work plan constitutes a major change in the existing overall program substance or priority focus, any such changes should be described and justified in detail.

ROCAP requires prior approval of work plans and budgets, and for any substantive modifications that may be proposed by NRECA during the course of a six-month period, for which ROCAP approvals have already been given. While ROCAP maintains the primary responsibility for project oversight, the bilateral Missions in each participating country will participate in and guide activities and interventions being conducted in their host country. Therefore, ROCAP may require concurrence by the bilateral Mission and the host government of specific activities prior to approving work plans.

On a quarterly basis, NRECA will submit a proposed schedule for all travel and major events. Any short-term consultants and sub-contracts will be carried out in accordance with the "Procedures for the Selection of Consultants and/or Sub-contractors for Work with NRECA/CARES Program in Central America" as approved by the regional contracting officer on July 6, 1989.

When prior approval is needed, the AID Regional Contracting Officer will respond to requests for approval on a timely basis and with sufficient lead time to permit NRECA to make all necessary preparations, recruitment, materials acquisition, etc. for scheduled activities.

Reports: It is expected that the Regional Contracting Officer's Technical Representative (COTR) will be kept fully informed of all planned

activities, particularly those involving usage of contingency funds or requests for technical assistance. Full and timely communication on this matter on a regular basis will facilitate program monitoring and approval.

NRECA will submit to the COTR at ROCAP, annual reports summarizing the accomplishments and problems of the Project. These reports will review and explain the development of project activities over the prior fiscal year in relation to the Annual Work Plan. They will also identify any areas of particular success or implementation problems which need to be resolved, and describe the planned accomplishments for the coming year consistent with the approved work plan. Ten copies of the annual reports will be submitted no later than November 15 of each year.

In addition, NRECA will submit semi-annual status reports on project activities and accomplishments. The reports should be submitted no later than thirty days after the end of each half of the respective Fiscal Year (April 30 and October 30). They should include a description of project activities under each component and in each country, with a discussion of those activities in relation to the Annual Work Plan. They should also include a discussion of planned activities and a tentative schedule for the next semester.

These status reports should be accompanied by semestral accrued expenditure reports presenting a summary of total project expenditures to date, and broken down by project subcomponents consistent with the budgets included in the work plans. These reports will be management tools to monitor expenditures against planned activities and budgets, and as such will facilitate the preparation and approval of work plans and budgets.

Included also in the semestral status reports should be a list of all personnel whose services are paid for with grant funds. The list should indicate whether the personnel are contracted professionals or support staff, long-term personnel, and the site of assignment.

Accounting, Audit, and Records

With respect to accounting, records, and audit, NRECA shall comply with the requirements set forth in paragraphs 1I, 1J, 1L, and 1 M of Handbook 13.

The AID Inspector General and the Controller General of the United States or their duly authorized representatives (paragraph 1I6 of Chapter 1 of Handbook 13) reserve the right to conduct an audit of the Grantee's books and records to determine whether the Grantee has expended AID's funds in accordance with the terms and conditions of this Amendment. NRECA agrees to make available any further information requested by AID with respect to any questions arising as a result of the audit.

In this Amendment, $94,000 dollars are included for three annual audits and a financial review, which will be contracted by NRECA and approved by ROCAP/AID.

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IMPLEMENTATION SCHEDULE AND MONITORING PLAN

A. Implementation Schedule

Central American Rural Electrification Support Program Amendment Number 6.

July 1990 Project Paper Amendment authorized and signed by all parties concerned.

1. Dialogue on Policy and Institutional Reform

BELIZE

July 1990 All of the following will have been implemented:

* Proposed Workplan for the Belize Rural Electric Membership Association (BREMA) delivered to GOB.

* Written comments on Proposal received by CARES from GOB.

Negotiation/consultation with BEB and others by the CARES Team.

Legislation drafted for the creation of BREMA by NRECA Staff and the Solicitor General.

Legislation submitted to GOB (by the Solicitor General) for the creation of BREMA.

August 1990 Cooperative Agreement signed between NRECA and the GOB.

Cooperative Agreement reached between NRECA and supporting NGO's.

ANNEX "A"

First funding transferred from GOB to BREMA.

Interim General Manager hired.

Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.

September 1990 Director elections held in all districts.

Engineering Plan, including Long Range Plan, prepared.

Financial Forecast prepared.

October 1990 Long-term Resident Advisor for assignment to Belize hired to provide technical assistance for the life of the project.

Distribution line staking carried out.

First construction materials ordered.

General Manager hired.

Office facilities obtained.

Detailed feasibility study prepared.

Loan application submitted.

Initial training of directors and staff begun.

December 1990 Initial training of directors finished.

January 1991 Initial construction as defined in Schedule III of the BREMA Proposal initiated.

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ANNEX "A"

June 1991	Construction as defined in Schedule III completed.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.
September 1991	Electrification of additional villages initiated. A detailed Long Range Plan and Financial Forecast is to be prepared for this construction activity beyond Fiscal Year 1991.
August 1992	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1993 Workplan.

COSTA RICA

July 1990	San Lorenzo Feasibility Study will have been initiated.
	Approval for construction on the San Lorenzo River basin by ICE will have been secured.
	Legislation to permit private construction and operation of electric generation facilities will have been presented to Costa Rican National Assembly.
	Negotiation for the purchase of electricity by ICE will have begun.
July 1990	Negotiation for options on land and water rights to develop the hydroelectric site situated in San Lorenzo basin will have been initiated.
	Full time (U.S.) NRECA Advisor for Costa Rica hired.
August 1990	San Lorenzo Feasibility Study completed.

	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.
October 1990	Management Assistance for COOPEGUANACASTE begun. Expected to last for at least two Fiscal Years.
	Start Evaluation of Investment Initiatives. On going for the life of the project (three years).
December 1990	Project approval for the use of the San Lorenzo River Basin's land and water rights given by Servicio Nacional de Electricidad (SNE).
January 1992	Agreements for power sales (ICE) and debt swap financing ceded.
July 1991	Local Advisor for Costa Rica hired.
	San Lorenzo construction begun.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
March 1992	Service of U.S. NRECA Advisor ended.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
March 1992	Service of U.S. NRECA Advisor ended.
August 1992	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1993 Workplan.
March 1993	San Lorenzo construction completed and the hydroelectric generation facility energized.

Implementation schedules for specific Member Services activities and Investment Initiatives activities are not yet defined as to scope and timing, but will be so determined not later than FY1991.

HONDURAS, Aguan Valley Socio-economic Study

January 1991 — Initiation of the Socioeconomic Study of the Rural Electrification Project in the Aguan Valley initiated.

June 1991 — Socioeconomic Study of the R.E. Project in the Aguan Valley completed.

2. Enhancement of Operational Efficiency

OPERATIONS AND ADMINISTRATION TRAINING AND TECHNICAL ASSISTANCE

August 1990 — Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.

November 1990 — Initiate development of the CARES/INCAE Financial Accounting Course.

Initiate technical assistance in Billing and Collecting for ICE in Guatemala.

February 1991 — Audit of Commercial and Accounting Departments of ENEE in Honduras initiated.

March 1991 — Audit of the Commercial and Accounting Department of ENEE in Honduras completed.

April 1991 — Completion of the development of the NRECA/INCAE Financial Accounting Course.

ANNEX "A"

May 1991	Initiate adaptation of NRECA Course entitled "Service Excellence" for use in Central America.
June 1991	NRECA/INCAE Electrical Utility Financial Accounting Course initiated and completed.
August 1991	Technical assistance in Billing and Collecting for INDE in Guatemala (first phase) completed.
	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
October 1991	Present NRECA Training Course entitled "Service Excellence" to INDE and ENEE Staff.
April 1992	"Service Excellence" course to be presented to a minimum of 20 persons at INDE and EGGSA in Guatemala. Course to be open to participants from other Central American Countries.

It is planned that Technical Assistance in all areas of billing, collecting, and other consumer service areas will be offered during the life of the CARES Project to Belize, El Salvador and Costa Rica; and to Nicaragua and Panama. The precise implementation plans for Nicaragua and Panama cannot be developed at this time, but will be presented with each revision and presentation of the Annual Workplan.

RURAL ELECTRIC UTILITY MANAGEMENT TRAINING

February 1991	Five top policy makers from the region participate in the NRECA 49th Annual Meeting in New Orleans, Louisiana, USA. There will be seven participants, if Nicaragua and Panama are included.
June 1991	CARES Staff participate in the Biannual CLER Conference in Costa Rica.

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June 1991	CARES/INCAE Electrical Utility Financial Accounting Course given.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.
September 1991	Five persons from the Region to begin participation in the NRECA Training Course entitled "Organization, Management and Operations of Electric Distribution Utilities (OMO)" in the U.S. (Seven persons, if Nicaragua and Panama participate.)
October 1991	Five (or seven) persons complete the OMO course.
February 1992	Five (or seven) top policy makers from the region participate in the 50th NRECA Annual Meeting in Anaheim, California, U.S.A.
June 1992	Second CARES/INCAE Electric Utility Financial Accounting Course given. Perhaps in Guatemala.
August 1992	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1993 Workplan.
September 1992	
October 1992	The above five (or seven) persons from the region complete the OMO Training Course.
January 1993	Five (or seven) top policy makers from the region participate in the NRECA 51st Annual Meeting in Dallas, Texas, U.S.A.

ANNEX "A"

3. Least-cost Rural Electric System Design

RURAL ELECTRIFICATION DISTRIBUTION STANDARDS

August 1990	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1991 Workplan.
October 1990	Initiate Technical Assistance for RE Standards for Three-Phase Lines for Guatemala.
January 1991	Initiate Technical Assistance for RE Standards for with ENEE in Honduras.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
September 1993	Revised, secured approval and the publication of new RE Standards for Honduras.

SURPLUS EQUIPMENT

September 1990	Part-time staff hired for the NRECA International Foundation to collect and process Surplus Equipment in the U.S. Such a person to be hired for the life of the program, or until March 1994.

WOOD POLE TECHNOLOGY

September 1990	Initiate the process of coming up with Standards for the Wood Pole Industry in Central America.
November 1990	Begin the development of a Wood Quality Control Program for the Central American countries.

ANNEX "A"

March 1991	Standards for the Wood Pole Industry in Central America Developed.
April 1991	Standards presented to each of the electrical distribution companies in Central America for study and comment.
July 1991	Initiate Seminars to present and debate proposed Standards.
August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
September 1991	Initiate series of seminars to present and debate proposed Standards.
March 1992	All participating countries approve and are using the Standards developed.
September 1992	Wood Quality Control Program for Central America, or for each individual country, established.

4. <u>Productive Uses of Electricity</u>

September 1990	Initiate international exchange of professionals working in productive uses promotion. Five trips planned between this date and September 1993.
March 1991	Institutionalize (hand over) productive uses promotion activities to appropriately trained personnel in Guatemala.
April 1991	Initiate planning for conference on productive uses of electricity promotion program to be held in July.
July 1991	Hold conference on productive uses of electricity promotion programs.

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August 1991	Any projected changes in Implementation Schedule submitted to ROCAP along with Fiscal Year 1992 Workplan.
October 1991	Complete the implementation of assistance to the development of 20 credit programs for productive uses of electricity equipment in the region.

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INITIAL ENVIRONMENTAL EXAMINATION

I. Basic Project Data

Project Location:	Central America, Belize, and Panama
Project Title:	Central American Rural Electrification Support Program (CARES)
Project Number:	596-0146, Amendment No. 6
LOP Funding:	$10,000,000
Life of Project:	6 years
Date:	May 1990
Action Recommended:	Negative Determination

II. Description of Project:

The Project Paper Amendment will continue to focus on addressing rural poverty in the region by increasing rural access to the benefits of existing and planned power sector investments in Central America. The strategy to accomplish this is to exchange the economic and financial attractiveness of rural electric investments by reducing investment costs, improving the organizational basis and operational efficiency of rural electric utilities and expanding economic benefits and financial revenues.

The project components included in this Amendment are designed as a comprehensive approach to the major problems identified in the region's rural electrification subsector. Therefore, they include technical assistance and training to create adequate organizations and technical and managerial capabilities; closely linked is institutional reform to permit the decentralization and privatization of RE which allows for a range of cost-efficiencies. On the supply side, technical standards are being modified to permit cost savings in construction. On the consumer side, a range of

consumer services are considered to increase the rates of connection and productive use of electricity.

Major components of the project are:

1. Dialogue on Policy and Institutional Reform
2. Enhancement of Operational Efficiency
3. Last-cost Rural Electric System Design
4. Productive Uses of Electricity

The Amendment also includes a proposed new initiative, a project on "Energy Policy Planning and Efficiency" based on ROCAP's Regional Electric Power Sector Strategy.

III. Impact and Evaluation

The environmental impact of the proposed Project Amendment will be minimal. The electrical infrastructure promoted and developed will be limited to subtransmission lines, networks and household installations. The networks and household installations are built along the streets or paths of existing communities and subtransmission lines recommended are primarily single pole lines; therefore, clearing of vegetation is minimal.

Permission from the appropriate government and/or private officials will be obtained before conducting any activities related to the development of hydroelectric resources. In the case of wood-pole technology activities, rationale silvicultural practices such as forestation will be followed.

IV. Environmental Determination:

The proposed Project Amendment is not one which will have a significant environmental effect in and of itself. In view of the nature of the project and of the evaluation outlined in part III of this IEE, a negative threshold determination is recommended.

Ronald Nicholson
Acting Regional Director

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PROJECT ACCOMPLISHMENTS TO DATE

CARES Program

1. Dialogue on Policy and Institutional Reform

Component Results to Date

a. Belize. Decision by the Belize Electricity Board and the Ministry of Energy and Communications to give serious consideration to an alternative organization for carrying out rural electrification.

b. Costa Rica. Decision by the GOCR and others to allow cogeneration (their term for non-governmental entities selling power to ICE) by the private sector. The Project has been active together with other major parties in supporting this initiative. Initiation of process where the Rural Electric Cooperative Consortium (CONELECTRICAS) can construct and manage a hydroelectric facility.

c. El Salvador. Decision by the GOEL to allow for the creation of an electric cooperative on the Manguera Islands.

d. Honduras. Decision by the GOH to allow the Electric Utility, ENEE, to request a feasibility study for the creation of rural electric cooperatives, or other decentralized methods for rural electrification.

e. Guatemala. Decision by the GOG to allow the strengthening of the existing municipal electric systems.

f. Region. Participation of 11 high ranking officials representing both the public and private sectors of El Salvador, Guatemala and Honduras in privatization seminars on Private Sector Involvement in the Electric Sector in Chile and Costa Rica.

2. Enhancement of Operational Efficiency

Component Results to date. (Selected Major Achievements)

a. Operations Training. Trained 86 top engineers and operations staff in such courses as "Rural Electric Distribution Line Construction," "Distribution Design and Staking" and in the use of new Distribution Design Standards in Guatemala and El Salvador.

b. Rural Electric Utility Management Training. Trained 121 Top Management Staff. 67 persons in the NRECA/INCAE Management Training Course "Management Planning and Control of Rural Electric Distribution Systems"; 16 in NRECA'S U.S. based Course in "Organization, Management and Operations of Rural Electric Distribution Systems"; 15 persons exposed to the involvement of the Private Sector in the Electric Sector through three seminars and observational tours to Chile and Costa Rica; 10 person exposed to the National leadership of the rural electric cooperatives of the U.S. by attendance at the NRECA Annual Meetings of 1988, 1989 and 1990; and 13 others involved in Observational Tours to the U.S. to view cogeneration projects, rural electric distribution systems, billing and collection procedures and the like.

Linemen Training. By the end of May 1990, some 106 linemen will have been trained in Hot Line, Training in Guatemala, El Salvador and Costa Rica.

ANNEX "C"

3. Least-cost Rural Electric System Design

Component Results to Date

a. Revision, approval, publication, and training of completely new design standards for rural electrification by INDE in Guatemala.

b. Revision, approval and awaiting publication of completely new design standards for rural electrification by CEL in El Salvador. Training presented to approximately 40 persons in CEL.

c. Acceptance for use by the BEB in Belize of REA Rural Construction Standards in the Stann Creek proposal (Project not implemented because of high cost for small population.)

d. Completion of nine (9) RE design studies for the BREMA Project in Belize.

e. Delivered to the Region some $54,000 of Surplus Electrical Distribution Equipment. Made arrangements for and additional $100,000.00 work of equipment to be delivered to Guatemala during May of 1990.

f. Surveys for the Utility Pole Industry completed in all of the CARES Countries. Three Wood Quality Control Seminars carried out which included participants from all of the CARES Countries.

ANNEX "C"

4. Productive Uses of Electricity

Component Results to Date (Selected Major Achievements)

a. Conducted Productive Uses of Electricity Seminars in Guatemala, El Salvador (2), and Belize.

b. Intervened to assure adequate productive use program support within rural electrification projects in the region (Guatemala PER III - $1 million and El Salvador RE project - $1 million).

c. Trained national utility staff in productive use concepts, demonstration program development, site selection, and follow-up promotion (Guatemala and El Salvador).

d. Established formal links between national utilities and private sector development groups and government ministries to facilitate credit, promotion, and coordination of productive use programs with on-going development activities. (Guatemala and El Salvador).

e. Coordinated site selection efforts (Demand Assessment Model) with productive uses promotion programs to assure optimal impact of both activities (Guatemala, El Salvador and Belize).

f. Developed database of rural development projects for use in selecting rural electrification sites in coordination with other development agency activities (El Salvador).

g. Facilitated credit for productive use equipment by four credit sources (Guatemala and El Salvador).

h. Assisted in design and construction/implementation of demonstration trailer for productive uses equipment promotion (El Salvador).

i. Developed proposal for additional USAID/ROCAP funding to support rural electrification entity with emphasis on productive use of electricity promotion (Belize).

PROJECT MANAGEMENT

1. Program Manager

Responsibilities:

Within the limits of established policies, budgets and authority delegated by the Administrator, International Programs Division, National Rural Electric Cooperative Association, in carrying out his/her responsibility to plan, develop and supervise programs, projects and activities relating to the Central American Rural Electrification Support Program (henceforth to be referred to as the CARES Program), the program manager will personally:

a. Learn the organization's plans, programs, policies, objectives and viewpoints dealing with the CARES Program.

b. Assist in the staffing of the Regional CARES Office in Guatemala and ensure adequate orientation and equipping of the staff.

c. Establish procedures, policies and administrative guidelines for the management and administration of the CARES Program, its personnel and its program activities.

d. Provide overall supervisory management for CARES Program personnel including permanent full-time staff and temporary specialists, and directly supervise the Senior Rural Electrification Engineer, Productive Uses Advisor, and Program Office Support Staff.

e. Promote the economic and social development of the area by providing leadership and by cooperating with regional, national and local public and private organizations through a series of planned inputs and activities.

f. Explain and encourage acceptance of the CARES Program for strengthening the base for rural electric program in the region.

g. Assume major responsibility for the development of the Management Training Programs.

h. Assume a major support role in the development of the productive uses programs, surplus equipment process, standards publication, linemen training and other activities of the program.

i. Prepare input for a detailed report and present it to NRECA Washington, so that they can prepare the required report at the conclusion of each 12-month period during the Program. Present the report to the COTR ROCAP when completed.

j. Prepare and present semi-annual status reports to the COTR ROCAP describing progress in various aspects of the Program, problems encountered, and narrative discussion of plans for the next quarter.

k. Prepare detailed quarterly work plans which will revise and refine the programming presented in each annual work plan.

l. Present quarterly accounting reports to the COTR ROCAP that summarize disbursement and accruals and their relation to budget guidelines of the work plan.

m. Submit Bi-weekly Activity Reports to NRECA.

n. Carry out annual personnel appraisals of subordinates.

o. Perform other duties as may be assigned.

Relationships:

The Manager of the CARES Program establishes and maintains the following contacts and relationships:

Internal NRECA

The Program Manager will report to and receive support from the NRECA home office through the CARES Program Coordinator. Home office support will be provided by the Administrator for the International Programs Division (IPD), the Assistant Administrator for Institutional Development Projects, the CARES Program Coordinator, and NRECA's accounting, secretarial, and other support services.

The Assistant Administrator for Institutional Projects will maintain general management responsibility for the Program, but will delegate the primary home-office management and routine home-office support for the Program to the CARES Program Coordinator. Ultimate authority for determining NRECA policy with respect to the CARES Program will reside with the IPD Administrator.

The Program Manager will have direct supervisory responsibility for the CARES Program field professional and support staff. In this capacity, he/she will provide guidance, training, informational support as necessary to oversee and administer the CARES Program activities. He/she will also take primary responsibility, in collaboration with the CARES Program Coordinator, for planning and preparation of Program work plans, budgets, and reports.

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ANNEX "D"

External

Regional Office for Central America and Panama (ROCAP)/USAID. Confer on matters concerning policy, procedural and program directions of the CARES Program to assure support of ROCAP objectives in the region. Request guidance and necessary support from the COTR. Provide necessary reports to the COTR.

USAID Missions of Participating Countries. Keep officials fully informed of any and all activities within their given areas of responsibility. Seek clearance, through the COTR/ROCAP, for any travel by any person under CARES activity to any of these countries. Seek advice, assistance and cooperation as appropriate and necessary for the completion of the CARES objectives.

Host Country Officials. Including but not limited to, maintain contacts with Ministries of Planning, Energy, Agriculture and Development; the public and private electric companies, and other private and public individuals related to the energy and electricity sectors. Keep fully informed of any and all activity taking place within their spheres of responsibility. Seek out and stimulate cooperation and participation in the CARES programs that would provide mutual benefits, and coordinate planned programs and activities.

Multi-national and Bilateral Funding Agencies and Institutions. Stimulate interest in support of and participation in programs of rural electrification and the specific portions of the CARES Project Activities appropriate for each country situation and priorities.

Regional and Local Organizations. (Such as INCAE, ICAITI, SIECA, Pan American Agriculture School, the University of San Carlos, the EARTH School and the Belize Chamber of Commerce and Industry.) Enlist their understanding, support, assistance and cooperation, and if appropriate, participation in the CARES Program.

ANNEX "D"

2. Senior Rural Electrification Engineer

Responsibilities:

Within the limits of established policies, budgets and authority delegated by the Manager, Central American Rural Electrification Support Program, International Programs Division of NRECA, in carrying out his/her responsibility to plan, develop and supervise programs, projects and activities relating to the technical and engineering aspects of the CARES Program, will personally:

a. Learn the organization's plans, programs, policies, objectives and viewpoints dealing with the CARES Program.

b. Provide overall guidance in the areas of engineering and technical aspects of rural electrification for the CARES Program and staff assigned thereto.

c. Conduct principal relationships with the engineering and technical project officers within ROCAP and the USAID Missions in the region.

d. Explain and encourage acceptance of the CARES Program for strengthening the base for rural electrification in the region.

e. Assume major responsibility for the development and carrying out completion of the following work components of the CARES Program:

34.5 kV Rural Distribution Standard; Transformer Evaluation and Management; Monitoring Equipment; Surplus Equipment; Technical Publications; Linemen Training; Operations Training for Technical Staff; Technical Design; Small Power Generation; Distribution Master Plans; Operations Studies; Engineering Standards; Small Hydro-Power Rehabilitation; Assistance to Municipals.

f. Assume a support role in the rural electric management training.

g. Prepare necessary input for the detailed annual report.

h. Assist in the preparation of the semi-annual status report.

i. Assist in the preparation of detailed quarterly work plan which will revise and refine the programming presented in each Annual Work Plan.

j. Present expense reports on a timely basis so as to allow the NRECA Accounting Department to adequately prepare the quarterly accounting reports.

k. Submit Bi-weekly Activity Report to the Program Manager.

l. Perform other duties as assigned.

Relationships:

The Senior Rural Electrification Engineer assigned to the CARES Program establishes and maintains the following contacts and relationships:

Internal NRECA

The Senior Rural Electrification Engineer reports directly to the Program Manager for job planning, guidance, and approvals.

He/she will contribute to the preparation of all planning and report documents pertaining to the Program and in particular, will coordinate closely with the Productive Uses Advisor in the development and execution of Program activities as needed to ensure a coherent, coordinated approach in the on-going conceptualization, scheduling and implementation of the CARES Program activities.

(B)

He/she will have general responsibility for ensuring that temporary consultants and contractors retained for the purpose of carrying out Program sub-components and activities under his/her primary responsibility have adequate guidance and instruction; technical and material support; and that the various terms of reference for these individuals are adequately met.

External

ROCAP. Keep appropriate personnel informed of programs toward stated objectives. Coordinate activities in the engineering and technical areas. Look for guidance and assistance as necessary in the performance of his/her responsibilities.

USAID Mission of Participating Countries. Keep officials fully informed on any and all activities within their given sphere of responsibility. Seek advise and assistance as necessary.

Host Country Officials. Stimulate cooperation, coordinate planned programs and encourage participation in Work Plan components as agreed to in the Memoranda of Understanding or Letters of Intent.

Regional and Local Organizations. Enlist their understanding, support, assistance and cooperation as appropriate to undertake and complete the CARES Work Plan Components within his/her responsibilities.

Host Country Electric Utility Companies. Stimulate cooperation, coordinate planned programs and encourage participation in the CARES Programs. Seek advice and assistance on meeting their needs in rural electrification development and improvement.

ANNEX "D"

3. **Productive Uses Advisor**

Responsibilities:

Within the limits of established policies, budgets and authority delegated by the Manager, Central American Rural Electrification Support Program, International Programs Division of NRECA, in carrying out his/her responsibility to plan, develop and supervise projects and activities relating to productive uses of electricity, demand assessments and pre-feasibility studies aspects of the CARES Program, will personally:

a. Learn the organization's plans, programs, policies, objectives and viewpoints dealing with the CARES Program.

b. Provide overall guidance in the areas of productive use, demand assessments and pre-feasibility aspects for the CARES Program and staff, consultants and contractors assigned thereto.

c. Explain and encourage acceptance of the CARES Program for strengthening the base for rural electrification in the region.

d. Assume major responsibility for the development and carrying out the completion of the following work components of the CARES Program:

Demand Assessments and Pre-feasibility Studies; Alternative Rural Electric Financing Initiatives; Productive Uses of Electricity Publications; Demonstration/Experimental Farm; Productive Uses Program Development; Isolated Systems Development; Tariff Studies; Socio-Economic Assessments.

e. Assume a support role in the rural electric management training.

f. Prepare necessary input for the detailed annual report.

g. Assist in the preparation of the semi-annual status report.

h. Assist in the preparation of detailed quarterly work plans which will revise and refine the programming presented in each Annual Work Plan.

i. Present expenses reports on a timely basis so as to allow the NRECA Accounting Department to adequately prepare the quarterly accounting reports.

j. Submit Bi-weekly Activity Report to Program Manager.

k. Perform other duties as assigned.

l. In coordination with NRECA home-office staff and the CARES Program Manager, supervise and/or support temporary consultants and contractors retained to provide services in carrying out program activities.

Relationships:

The Productive Uses of Electricity Specialist assigned to the CARES Program establishes and maintains the following contacts and relationships:

Internal NRECA

The Productive Uses Advisor reports directly to the Program Manager for job planning, guidance and approvals.

He/she will contribute to the preparation of all planning and report documents pertaining to the Program and in particular, will coordinate closely with the Senior Rural Electrification Engineer in the

development and execution of Program activities as needed to ensure a coherent, coordinated approach to the on-going conceptualization, scheduling and implementation of the CARES Program activities.

He/she will have general responsibility for ensuring that temporary consultants and contractors retained for the purpose of carrying out Program sub-components and activities under his/her primary responsibility have adequate guidance and instruction, technical and material support, and that the various terms of reference for these individuals are adequately met.

External

ROCAP. Keep appropriate personnel informed of progress toward stated objectives. Coordinate activities in the productive uses, agricultural and rural development areas. Look for guidance and assistance as necessary in the performance of his/her responsibilities.

USAID Missions of Participating Countries. Keep officials fully informed of any and all activities within their given sphere of responsibility. Seek advice and assistance as necessary.

Host Country Officials. Stimulate cooperation, coordinate planned programs and encourage participation in Work Plan Components as agreed to in the Memoranda of Understanding or Letters of Intent. Keep them fully informed of any and all activity taking place within their spheres of influence and responsibility.

Regional and Local Organizations. Enlist their understanding, support, assistance, and cooperation as appropriate to undertake and complete the CARES Work Plan Components within his/her responsibilities.

Host Country Electric Utility Companies. Stimulate cooperation, coordinate planned programs and encourage participation in the CARES Program. Seek advice and assistance on meeting their needs in rural electrification development and improvement.

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ANNEX "E"

PROJECT AMENDMENT
LOGICAL FRAMEWORK

Life of project:
From: FY 1987 to FY 1994
Total US Funding: 10,000,000
Date Prepared: May 1990

Project Title and Number: Central American Rural Electrification Support Program (CARES)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
To increase rural acces to the the benefits of existing and planned power sector investments in Central America, Belize, and Panama by making rural electrification programs technically, financially, and economically more efficient.	Electric service in the rural areas is expanded in each of the participating countries.	Project records, utility records, investment records, funding institution records.	The targeted governments and utilities willing to participate actively in the program.
	Annual kilowatt-hour sales increase in rural areas of each participating country.	Organizational charts and utility policies.	Relative stability is maintained in each country.
	Affordable electric service to rural consumers.	Audit reports. Periodic evaluations.	Governments give high priority to rural electrification programs and their management and operations.
	Increased rate of investment in rural electrification in Guatemala, Honduras, and Belize.	Tariff schedules.	There are no prolonged power sector labor disputes.
	Decentralized rural power systems constructed.		There is an adequate power supply.
			There is no drastic increase in the cost of fuel and commodities.

LOGICAL FRAMEWORK

Life of project:
From: FY 1987 to FY 1994
Total US Funding: 10,000,000
Date Prepared: May 1990

Project Title and Number: Central American Rural Electrification Support Program (CARES)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
To enhance operational efficiency of rural electric systems.	Effective training programs in management and operations and for the linemen result in improved management and operations. Increased employee productivity. Trainees are able to upgrade their employment status because of increased skills acquired. Staff turnover reduced by 1%. Increased reliability of electric service. Rates of technical and administrative losses reduced by 2%. Trained trainers are in place to continue training when CARES Program is completed Higher financial rates of return. A minimum of two operational audits. Decrease of 5% in operation cost per kWh sold.	Project utilities' records, personnel appraisals. Technical consultant's reports. Periodic evaluations. Financial statements. Key performance indicators. Outage records, number of reclosers. Generation and sales records. Personnel records. Operations records.	Governments and utilities are willing to allow trainees to travel to training sites and/or take level with full pay to participate. Adequate and continuing supply of trained management and technical personnel. Utilities willing to receive and utilize technical assistance offered. There will be no drastic change in the needs of the utilities or agencies. The utilities/agencies possess the absorptive capacity to utilize the skills of those trained and the technical assistance offered. Utilities willing and able to purchase identified cost saving equipment. There are no fundamental physical or technical capacity changes in the electric system.

PROJECT AMENDMENT
LOGICAL FRAMEWORK

Life of project:
From: FY 1987 to FY 1994
Total US Funding: 10,000,000
Date Prepared: May 1990

Project Title and Number: Central American Rural Electrification Support Program (CARES)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
To establish productive uses of electricity programs and increase productive use of electricity in rural areas	Average monthly electricity consumption in rural areas increased by 40% by 1994. Consumption for productive and economic uses increase 20%. Higher financial return for the utilities. Increased awareness of the importance of productive uses promotion on the part of the electric utilities, government ministries, and other public and private agencies involved in rural development. Credit programs are established and being used	Project, utility, ministry, and private agency records. Periodic evaluations. Increased sales of electric appliances. Credits records of lending institutions.	No major economic disruptions occur. Utilities willing to undertake productive uses of electricity programs and commit staff to same. Consumers able to afford increased use of electricity. Consumers willing to use electricity for productive and economic uses. Additional electric energy is available and utility able to manage increased usage. Rates are in line with cost of providing service to the rural consumer. Ministries and other public and private agencies are willing and able to participate in the learning process, and encourage staffs to actively support productive uses programs. Credit programs are affordable by the rural consumer and are available to them in terms they understand.