DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

CAPITAL ASSISTANCE PAPER

**Proposal and Recommendations
For the Review of the
Development Loan Committee**

NICARAGUA - Rural Electrification III

AID-DLC/P-969

DEPARTMENT OF STATE
AGENCY FOR INTERNTIONAL DEVELOPMENT
Washington, D.C. 20523

UNCLASSIFIED

AID-DLC/P-969

June 3, 1971

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Nicaragua - Rural Electrification III

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed $4,300,000 to the Empresa Nacional de Luz y Fuerza, a public power company owned by the Government of Nicaragua, to assist in financing the foriegn exchange costs associated with the organization and construction of a new rural electric cooperative and expansion of the distribution systems of four previously organized cooperatives.

Please advise us as soon as possible but not later than close of business Friday, June 11, 1971, if you have a basic policy issue arising out of this proposal.

Rachel R. Agee
Secretary
Development Loan Committee

Attachments:
Summary and Recommendations
Project Analysis
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June 3, 1971

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NICARAGUA - RURAL ELECTRIFICATION (III)

PART ONE: SUMMARY AND RECOMMENDATIONS

1. BORROWER:

The Empresa Nacional de Luz y Fuerza (ENALUF), a public power company owned by the Government of Nicaragua, will be the Borrower. The Government of Nicaragua (GON) will guarantee the loan.

2. AMOUNT: Not to exceed $4,300,00 U.S. dollars.

3. TOTAL COST OF THE PROJECT:

The total cost of the project is estimated at $6,700,000. The following table indicates the sources and uses of funds:

(in thousands of US dollars or equivalent)

	Local Currency Expenditures	Foreign Cost Expenditures	Total	%
A.I.D. Loan		4,300	4,300	64
Nicaraguan Contribution	2,400		2,400	36
TOTAL:	2,400	4,300	6,700	100

Cost of organizing and constructing the facilities of the new Cooperative "E", are estimated at $5,200,000. The balance of the Project will be funded as follows: up to $1 million of loan funds to finance the foreign cost of material and equipment for the four previously organized cooperatives A, B, C and D, in order to permit them to extend their distribution facilities and expand power sales and number of customers served. Cooperatives A, B, C and D will contribute an estimated amount of $500,000 to cover the cost of additional construction and installation required. Up to $1.6 million will be used for CACM costs.

4. DESCRIPTION OF THE PROJECT:

This project involves the organization and construction of a consumer owned and operated rural electric cooperative (Cooperative "E") and expansion of the distribution systems of four previously organized electric cooperatives. The Borrower, ENALUF, will have major responsibilities for implementing the project. It will guide and assist organization of the cooperative; provide, or arrange for the provision of the necessary engineering services to design and supervise construction of the transmission and distribution systems of all of the cooperatives; and contract for the construction of the new cooperative system. Extension of the existing systems will be done by force account by the respective cooperatives. ENALUF will make loans to the cooperatives at the same terms as the AID loan.

Implementation responsibilities will be vested in the rural electrification department of ENALUF which will provide all of the technical and engineering services required to organize, administer and construct the system. Power will be purchased from ENALUF.

Loan funds will be utilized to finance the following expenditures:

a. The acquisition of all eligible material not of Nicaraguan source and origin. This will include any purchase made in other Central American countries up to US$1.6 million. (AID/W may choose to consider the foreign cost of purchases of eligible material and equipment from Central American Countries other than Nicaragua as local cost to be financed with loan funds.); and

b. Technical assistance and engineering services to the extent determined essential to develop the institutional capacity of the cooperatives, design and construct the system to the extent that such services are not provided by Nicaraguan firms.

ENALUF and the GON will jointly finance all local cost of implementing the project. These include but are not limited to labor, engineering, locally available materials and other costs related to developing the cooperative systems.

After initiation of operations ENALUF will explore, with all of the cooperatives, the possibility of organizing some type of national organization of rural electric

cooperatives responsible for the coordination of activities and the performance of beneficial services. The cost of such an organization would be borne by the cooperatives.

5. PURPOSE OF THE PROJECT:

The purpose of the project is part of a continuing effort to electrify rural Nicaragua. It is estimated that 19,000 residential consumers will receive power by the tenth year in the 2,200 square mile area. In addition, it is estimated that 221 industrial and commercial establishments will utilize seven million K W of power and that 47 farms will consume five million KWH for irrigation purposes. When considered as a part of the on-going rural electrification program, cooperatives are projected to serve about 30 percent of the rural population in a 6,200 square mile area with consumption of about 133 million KWH within a two year period. It is expected that this project can contribute to increased earnings and an improved standard of living of the rural population in the area to be served.

6. BACKGROUND OF PROJECT:

Rural electrification as such had its beginning in Nicaragua with the energization of the first electric cooperative made possible by AID Loan No. 524-L-007. As a result of this experience, ENALUF officials became interested in electrifying the rural areas of the country in a cooperative manner. Discussions between ENALUF and AID resulted in performing a detailed feasibility study of four previously selected areas in 1968. Although this project area was found feasible at that time it was dropped in order to decrease the scope of the project, shorten the implementation period and reduce counterpart costs.

AID Loan No. 524-L-021, authorized in 1968 made construction of three additional systems possible.

ENALUF approached AID again in 1970 regarding a loan to finance the remaining area found to be feasible in the 1968 study. AID agreed to consider financing the project, if and when there was assurance of counterpart and country priority. ENALUF updated the feasibility study in February and March 1971 and assured AID of the interest of the GON and availability of cordobas for the local cost components. For purpose of clarification, designations, name of

cooperatives and areas served as specified by ENALUF are as follows:

Designation	Name	Areas Served
Coop "A"	Cooperativa de Abastecimiento de Energía Eléctrica Rural No. 1	Masaya, Tisma, Tipitapa
Coop "B"	Cooperativa Nor-Occidental de Electrificación Rural	El Viejo, Somotillo, El Sauce, Cosiguina
Coop "C"	Cooperativa de Electrificación Rúral del Departamento de Rivas	Rivas Department
Coop "D"	Cooperativa de Electrificación Rural Amerrisque	Boaco, Chontales, Rio San Juan
Coop "E"	(Board of Directors will name when organized)	Madriz, Nueva Segovia, Estelí

7. ALTERNATE SOURCES OF FINANCING:

International lending agencies have formally stated that they are not interested in financing this project. Local and foreign credit institutions are not able to offer the concessional terms and conditions required to make this project feasible.

8. VIEWS OF COUNTRY TEAM:

The Country Team supports this project and finds is consistent with U.S. strategy in Nicaragua. It has particular application to the development of agriculture and the distribution of agricultural production within and outside the area involved. It will also contribute to agricultural diversification and stimulate intensive cropping. Beyond the monetary aspects its cooperative aspects will definitely contribute to the formation of democratic institutions at the grass-roots level.

9. STATUTORY CRITERIA:

Certification of the Director of USAID/Nicaragua in accordance with Section 611 E is attached hereto. All other statutory criteria have been met. (See Annex I, Exhibits 1 and 2).

10. ISSUES:

a. Power Availability

ENALUF has accepted the responsibility of providing to each of the rural electric cooperatives a continuing and adequate power supply over the ENALUF 138KV transmission system. The Yalaguina substation which will serve Co-op E will be on a 138KV transmission line which is included in a loan now being negotiated with the IBRD for the construction of a termal plant and a 138KV transmission line from Sebaco to the Honduran border for interconnection purposes. Inasmuch as the loan negotiations between ENALUF and IBRD have not been completed, the availability of adequate power on a timely basis remains on issue. The borrower in a memorandum of April 14, 1971 (Annex I Exhibit 3 paragraphs 2 and 4) promises to take the necessary action to provide when needed an adequate supply of power to Cooperative E. This will be the subject of a Condition Precedent to disbursement in the Loan Agreement.

b. Engineering Services

ENALUF will be responsible for the engineering services in connection with the design and construction of the electric facilities in this project. ENALUF is qualified in this respect and has competent and adequate staff to perform the work. However, because of the extensive generation and transmission program now being carried out ENALUF it is possible that key supervisory staff personnel cannot be released for the proposed distribution work. Consequently as a Condition Precedent to disbursement in the loan agreement ENALUF should submit a plan satisfactory to AID for staffing and carrying out the engineering work and the utilization of consultants if needed to supplement its staff.

c. Terms of the Loan

Financial projections in the updated feasibility study were made on the assumption that loan terms to ENALUF and to the cooperatives would be the same as the terms of AID Loan No. 524-L-021. Although the interest rate on this loan will be a little higher (3% instead of 2-1/2%) during the amortization period, the cash flow projections indicate that there should be no major problem with liquidity during the early years of operations nor difficulty in debt service after ten years.

11. RECOMMENDATIONS:

Authorization of a loan to Empresa Nacional de Luz y Fuerza (ENALUF) in the amount not to exceed $4,300,000. The loan would be subject to the following terms, conditions and covenants:

a. Terms of Payments

(1) The Borrower shall repay the loan within 35 years from the date of first disbursement under the loan including a grace period of not to exceed 10 years at an interest rate of 2% per annum during the grace period and 3% per annum thereafter.

(2) The GON will fully guarantee the loan and, at its option, may elect the two-step payment procedure. If the two-step procedure is elected the GON will accept payment in cordobas from the Borrower and will make payments in dollars to AID under the following terms:

(a) Principal within 40 years, including a grace period of not to exceed 10 years.

(b) Interest at 2% per annum during the grace period and 3% per annum thereafter.

b. Conditions and Covenants

There are no conditions proposed to be met prior to the signing of the Loan Agreement.

It is recommended that the following conditions and covenants be incorporated in the Loan Agreement:

(1) Prior to and as a condition precedent to the first disbursement or issuance of disbursement documents under the loan, the Borrower shall submit in form and substance satisfactorily to A.I.D.:

(a) A schedule of ENALUF's electrical rates to the cooperatives

(b) Evidence that the necessary technical assistance to implement the project has been employed or contracted

(c) A detailed implementation plan for the project specifying the way in which progress will be monitored and recorded.

(d) Evidence that power will be available at the specified site or sites by the time the project is ready to be energized

(e) ENALUF will submit to A.I.D. evidence that a fund is being established to provide advisory services and training in cooperative member relations and cooperative management techniques to the five cooperatives after the energization period.

(2) As a condition precedent to the disbursement of loan funds for the cooperative the Borrower will submit evidence in form and substance satisfactory to A.I.D.:

(a) That the cooperative has been legally constituted and organized under the laws of Nicaragua

(b) That the cooperative has been given an adequately long-term concession to the area in which it will serve

(c) That a loan contract has been entered into between ENALUF and the cooperative

(d) That the necessary arrangements have been made between ENALUF and the cooperative for engineering

services in connection with the design, construction and inspection of the transmission and distribution facilities; and

(e) Of the retail rate schedule of the cooperative.

(3) ENALUF will covenant to provide the necessary technical assistance to the cooperative so as to adequately operate and maintain the project throughout the life of the loan.

(4) Equipment, materials and services financed under the loan shall have their source and origin in Code 941 countries Marine insurance financed with loan funds will be placed at the lowest available competitive rate in Nicaragua or in a country included in Code 940 of the A.I.D. Geographic Code Book.

(5) ENALUF shall furnish to A.I.D. for A.I.D.'s prior approval, all plans, specifications, construction schedules, bid documents and contracts relating to the project, and any modifications therein, whether or not the goods and services to which they relate are financed under the loan.

(6) The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

12. PROJECT COMMITTEE:

Chairman:	Carl D. Koone, USAID
Engineer:	Carl M. Forsberg, USAID
Program Officer:	Allen Goldstein, USAID
Capital Development Officer:	Jean M.E. Artaud, USAID

Reviewed and Approved by:

Deputy Chief of Mission:	Robert E. White, U.S. Embassy
Mission Director	William R. Haynes, USAID
Assistant Mission Director:	Charles B. Johnson, USAID

Drafted by: A.Goldstein
C.M.Forsberg
C.D. Koone

PART TWO - THE PROJECT

Section I - NATURE OF THE PROJECT

A. Description and Justification of the Project

1. Purpose

The purpose of the project is part of a continuing effort to electrify rural Nicaragua. It is estimated that 19,000 residential consumers will receive power by the tenth year in the 2,200 square mile area. In addition, it is estimated that 221 industrial and commercial establishments will utilize seven million KWH of power and that 47 farms will consume five million KWH for irrigation purposes. When considered as a part of the on-going rural electrification program, cooperatives are projected to serve about 30 percent of the rural population in a 6,200 square mile area with consumption of about 133 million KWH within a two year period. It is expected that this project can contribute to increased earnings and an improved standard of living of the rural population in the area to be served.

2. The Borrower

a. History

Electric power was first introduced into Nicaragua toward the end of World War I, when three 200 HP steam driven generators were installed in Managua. During the 1920's private firms installed power systems in Chinandega, León, and Granada, selling their electricity to the general public. The local municipalities purchased these private systems soon after their installation, thereby creating the first public power companies in Nicaragua. Some of these public companies ran into management and financial troubles under the administration of the municipalities and therefore resold their installations to private investors.

The original Managua power company was financed by a group of British investors, who sold their interests to the Pacific Railway of

Nicaragua, a government owned entity, on April 18, 1941. The Railway operated the power company until 1954 when the government reconstituted it as an autonomous public corporation under the name of Empresa Nacional de Luz y Fuerza (ENALUF), which it bears today. Under this new arrangement ENALUF grew both by expanding its own facilities and by absorbing smaller firms until in 1969 it produced or controlled the production of approximately 79% of all electric power distributed to the general public in Nicaragua.

b. Scope of Authority

ENALUF is a public power company entirely owned by the Government of Nicaragua, with a legal personality ("Personería Jurídica") and the ability to acquire property and contract obligations. Its duration is indefinite.

The prime objectives of ENALUF as specified in its charter of October 23, 1954, are the production and distribution, for both public and private users, of electric lighting and power; it can also extend its activities to give similar or complementary services.

The company can acquire all types of movable and inmovable property, mortgage or annex its assets, contract loans and in general execute all the legal acts that may be necessary or convenient for it to accomplish its objectives.

ENALUF is fully empowered to contract this loan and undertake the program contemplated. The necessary legislation exists for the organization of the cooperatives.

c. Organization and Management

ENALUF is administered through a board of directors, an executive president who is also chairman of the board, and a general manager. Below the executive management level there exists: a general assistant manager, an administrative assistant manager, an auditor, a public relations office, and several operational divisions which include departments of economic studies and rural electrification. The rural

electrification department was established in January 1969 when ENALUF initiated the movement to electrify rural Nicaragua. This department has been responsible for implementing the program partially funded by AID Loan 524-L-021 which is reaching the operational stage.

The Board of Directors is composed of the executive president, a representative of the private sector, a representative of the minority party and their respective alternates. The President of Nicaragua appoints all of the board members for two year renewal terms. The principal executives of the company are named by the board with the approval of the President of the Country. The principal operating officers are appointed by the Executive President and General Manager. See Annex II, Exhibits 1 and 2 for organization charts of ENALUF and of the rural electrification department. ENALUF has on its staff 51 professional level personnel which include 36 engineers, 5 lawyers, 4 economists, 3 CPA's and 3 medical doctors. See Annex II, Exhibit 4 for brief bio-data on the principal officers of ENALUF, that are or will be associated with the rural electrification program.

d. General Program and Operating Policy

In the 15 years, from its formation through CY-1969, there has been an expansion of the annual consumption of electricity generated by ENALUF from 23 million KWH to 448 million KWH, or an annual rate of increase of almost 28.3%.

The high increase of consumption of electricity was made possible by the rapid expansion of the generating capacity of ENALUF in this same period. From an installed capacity of 12,000 KW generated by several small diesel plants in 1953, the company increased its installed capacity to 117,675 KW by the end of 1969. Thus from a small local power company limited to serving the capital city, ENALUF expanded into a company serving the country in general.

Through its expansion of generating, transmission and distribution facilities, ENALUF is forming an integrated system on the Pacific Coast. This integrated system and the economics of large scale generation of electricity has enabled ENALUF to lower its power rates. These decreased power rates initially went to residential consumers but more

recently ENALUF has focused its rate decreases on industry and irrigation in line with national production goals. Within its integrated system ENALUF is attempting to establish a postage stamp rate system (the same rate scales for similar consumers at any place in the system). However, there are still areas primarily rural, which are outside of the ENALUF integrated system that are served from isolated generation and distribution facilities. These areas generally have much higher rates due to high costs of generation. This project will expand the interconnected system and contribute to establishment of the standard rate.

ENALUF has plans to continue expanding its electric generating capacity during the next five years. Distribution facilities will also have to be increased but ENALUF will continue primarily to serve urban population areas.

The project which this loan supports, as well as the AID Loan No. 524-L-021 being implemented, will enable ENALUF to consolidate four of its isolated systems into the integrated network. It will also greatly expand the total number of consumers reached (by 1980 the cooperatives will have total consumers equal to ENALUF's total present system) and will be especially important because it will complement ENALUF's efforts in the urban areas by serving primarily rural areas. Last of all, this project will allow ENALUF to remove itself from the distribution business in the areas covered, turning this aspect of electrification over to the cooperatives. When this project is implemented, there will be five cooperatives distributing power in the rural areas and virtually all of the populated areas of the Pacific Coast and the Central Plateau will be covered.

B. Project and Background

1. Rural Electric Cooperative (I)

On May 11, 1964, A.I.D. granted a loan of $400,000 to the Cooperativa de Abastecimiento de Energía Eléctrica Rural No. 1 ("CAEER NO. 1"), with the Government of Nicaragua (GON) participating as loan guarantor. The Loan was made for the purpose of constructing

and equipping a rural electric distribution cooperative in Tisma, Nicaragua. The loan was granted on the basis of a feasibility study prepared in May, 1962, by the National Energy Commission of Nicaragua ("Comisión") with the assistance of the National Rural Electric Cooperative Association of the United States ("NRECA"). Some 150.8 miles of distribution lines and a headquarters building were to be constructed with the proceeds of the loan plus an in-kind contribution of $63,300 from the GON. Construction of the distribution facilities was to be by force account of the cooperative. The Comisión was to supervise project implementation and supply engineering services for line staking, drafting of technical specifications, and in the engineering supervision of line construction. NRECA was to provide technical services to assist both the Comisión and the Cooperative in implementing the project.

The project, as originally planned was completed in mid-1968. It is presently operating successfully, serving about 1,100 members, making expansion plans and is current in interest and principal payments.

The principal reasons for this protracted project execution period was the amount of time taken (21-1/2 months) to satisfy Conditions Precedent. This delay was caused by the inexperience on the part of the Borrower and the cooperating GON agency ("The Comisión") in handling matters of this kind, because of difficulties encountered in power contract negotiating between the Cooperative and ENALUF and because of the number (16) and complexity of the Conditions Precedent (CP's). However, if we discount the time taken to meet CP's, construction was completed in 28 months, or in approximately 7 months more than the 21 months estimated in the Capital Assistance Paper.

As an indicator of the relative success of the cooperative it should be noted that the feasibility study estimated total sales of electricity at 427,000 KWH in the second year of operations, increasing to 935,400 KWH in the sixth year and to 1,220,400 KWH in the tenth year. Actually the cooperative has surpassed the tenth year projection by almost 80% more electricity sold (2,051,425 KWH), in only its fourth year of operations. This has been brought about primarily because of the large and small industrial consumers having exceeded the initial projections of their revenues by some 630%. When the rural electrifi-

cation activities were expanded under AID Loan No. 524-L-021, ENALUF agreed to charge the same rates to COOP I that it charges the other cooperatives. Also, ENALUF agreed to provide similar assistance to this cooperative as it provided to the new entities. Since the "Comisión" became defunct, Coop I continues to improve the quality of its operations.

As with all new undertakings, operating problems in the early days were many and varied. Engineering assistance provided by the Comisión was deficient and untimely, personnel from the Board of Directors down to the lowest paid employee was inexperienced and not trained for the job. Lack of dedication to duty and motivation problems were encountered. There were several changes of managers and accounting and clerical personnel. Consequently records were in poor condition and in some cases non-existant. In spite of these shortcomings the project was completed and service is being expanded and improved on a continuous basis. ENALUF has and is providing assistance in all day to day problem areas. This was a positive result of AID Loan No.524-L-021. Management and accounting now appear adequate and there is every indication that the project will succeed. Monthly statements show that the financial situation will be tight for the next three years but with the cooperation of ENALUF and the GON this can be overcome. About $100,000 of funds requested in this project will be provided to this cooperative in the form of a sub-loan to enable it to extend services to an adjacent area for which a concession has been granted and serve about 1,200 additional consumers.

2. Rural Electric Cooperatives (II)

On August 23, 1968, AID made a loan in the amount of $10,200,000 to ENALUF (guaranteed by the Government of Nicaragua), to defray the dollar cost of organizing and constructing the required facilities for three rural electric cooperatives ("B, C and D"). Total cost of the project, based on the feasibility study completed earlier that year by ENALUF, with assistance from NRECA, was about $16 million with the cordoba financing provided by ENALUF and the GON. The rural electrification section of ENALUF was elevated to the department level in January 1969 and project activities were initiated. Distribution facilities are about 30 percent constructed and construction of transmission lines

was started in March of 1971. About 1,000 members are presently receiving service and new services connected daily.

Combined, the three systems will consist of approximately 125 miles of 138 KV transmission lines; 80 miles of 69 KV transmission lines; seven substations with combined capacity of 45,000 KVA; 1,700 miles of 14.4/24.9 KV primary lines, 300 miles of 120/240 Volt secondary lines and service installations to supply power to approximately 25,000 consumers. Naturally, it takes a lot of doing in this setting to build a system of this size and develop the administrative organization to operate the systems at the same time.

To implement the project, ENALUF has contracts with two engineering firms, Kuljian Corporation of the U.S., for design and construction supervision of the 138 KV network and ESIN, a Nicaraguan firm, for design and supervision of construction of the distribution system and 68 KV transmission lines. In addition there is a contract with NRECA for a resident project consultant. A U.S. construction firm, Fischbach and Moore, has been awarded all construction contracts. It has been working on construction of the distribution system for several months, has just started the 69 KV transmission line and will start building the 138 KV transmission system in June 1971, with a firm completion date for all construction in May 1972. Completion of this work will coincide very well with the initiation of construction of the cooperative E facilities.

Purchase orders have been issued for all major construction materials. One IFB for cooperative line maintenance and office equipment remains to be issued.

Insurmountable problems have not occurred, although aggravating circumstances are always present. These have ranged over all activities of the project. Locating and contracting for competent cooperative personnel is difficult. Obtaining rights-of-way can be time consuming. There have been differences between personnel of the engineering and construction firms. On occasions, decisions by ENALUF could have been more timely. Some early construction was poorly designed and executed, requiring issuance of change orders at additional expense. Material shortages, late

arrivals and breakage with a long supply line and reordering make for difficulties. In the final design of the distribution system many customers have been located that were not shown in the feasibility study. These have caused some changes in distribution line locations. This has also caused ENALUF and the cooperatives to look into the possibilities of extending services to members not originally contemplated. In order to do this, $900,000 of this loan will be used to purchase materials for extending the systems of cooperatives B, C and D. This will enable the three cooperatives, in a force account manner, to serve some 3,600 residential, commercial and irrigation consumers not contemplated in the original study, in a three year period.

The three cooperatives are organized and functioning. About twenty Peace Corps Volunteers are assigned to assist with member sign up, locations of lines, power use and organization of the cooperatives.

Several things contributed to delays with the largest single item being the time required for preparation and approval of the 138 KV system IFBs. ENALUF, at one time dubious of the feasibility of consumer owned and operated power systems, is now the leading advocate of the program and desires to electrify the remaining part of the rural area in this manner. When this project is completed, the job will be largely accomplished.

In summary, both projects involving the organization and operations of four consumer owned and operated rural electric cooperatives are considered a success. ENALUF and AID are satisfied with the results at this stage of development. This has stimulated ENALUF to request a third loan to electrify the last non-electrified, densely populated rural area. It has the conviction and capacity to carry out the project in accordance with the plans being developed.

3. Origin of Project

The present project grew out of the successful experience of the two rural electric cooperative projects described above. The interest shown by ENALUF, after reviewing this project, to utilize rural electric

cooperatives to expand the distribution of electricity to rural Nicaragua, prompted discussions between USAID and ENALUF officials in 1970. As a result of these discussions in January and February of 1971, ENALUF updated the feasibility study made in 1968. This area was included in the feasibility study that resulted in AID Loan No. 524-L-021 but dropped in order to decrease the scope of the project. At that time, the country as a whole was reviewed with eight areas isolated for more intensive study. Of these eight, four were determined to be the most appropriate for rural electric cooperatives. Cost estimates and socio-economic analysis were prepared for these four areas with the information presented to the USAID as a loan request in late December, 1967. The USAID sent an Intensive Review Request to AID/W on January 17, 1968, and received authorization to proceed with Intensive Review on February 9, 1968. An indepth Feasibility Study was begun by ENALUF in late March, with the assistance of an NRECA engineer contracted by the USAID. The study was prepared based on extensive field investigation, careful review of census and map information, review and study of ENALUF information and experience and U.S. standards and designs. The project committee reviewed the study and analyzed the working materials, and found the study to be well prepared. The updated study has been reviewed in a like manner and is believed to be accurate. An intensive review request was not made in this instance since it had been previously approved.

4. Borrower Concurrence

The Project Committee has worked closely with ENALUF personnel during the updating of the feasibility study. This capital assistance paper is based on the feasibility study prepared by ENALUF. The recommended conditions, covenants and necessary contributions as outlined in this CAP have been reviewed by ENALUF and found acceptable.

5. Country Team Views

The Country Team considers this project fully consistent with U.S. objectives in Nicaragua and recommends authorization of the proposed loan.

Section II - PROJECT ANALYSIS

A. General Scope

The purpose of this project is to provide electricity to a rural area in the North-Central part of Nicaragua. This will be accomplished through the organization and construction of a rural electric cooperative which will be sponsored and supported by ENALUF. Through the construction of the cooperative it is estimated that some 100,000 rural inhabitants will have electricity by the 10th year of operations of the cooperative and that agricultural production facilities such as irrigation and dairy machinery will have the inexpensive electrical power needed to make them profitable.

In addition, this project includes funds needed to make it possible for the four previously organized cooperatives to extend their systems to service an additional 4,700 residential, commercial and irrigation consumers.

The area covered by the cooperative will be approximately 2,200 sq. miles located in the North-Central part of the country. This cooperative location was specifically selected for its demonstrated agricultural productivity and development potential.

The AID loan is considered as both an institutional building and an actual physical construction project. Loan funds will be sublent to the cooperative, along with ENALUF's own funds, to construct the distribution and transmission facilities of the cooperative. In addition, the loan will finance technical assistance to ENALUF to strengthen its rural electrification department in order to enable ENALUF to provide the necessary technical services to develop and monitor the five electric cooperatives.

The cooperative will basically be an electric distribution entity, purchasing its power from ENALUF. It will be a private, non-profit organization functioning through a democratically elected Board of Directors. The management of the cooperative will be the responsibility of the general manager and staff of the cooperative.

In addition to electrical distribution, it is expected that the cooperative will become a natural center of other community activities and that it will act as

a catalytic agent for other development programs in the area.

B. Program at the Borrower Level

1. Rural Electrification Department

ENALUF began in 1967 to make studies which led to the feasibility study made in 1968 upon which AID Loan 524-L-021 and the proposed loan are based. At that time ENALUF assigned eight specialists from different operating departments to work as a group on rural electrification as a part of the Financial Department. With the assistance of an NRECA specialist this small group conducted the feasibility study to support the loan application.

In early 1969 ENALUF established the Rural Electrification Department to implement AID Loan 524-L-021. This department now has a permanent staff of engineers, organization and administrative specialists, accountants and other personnel competent to adivse and assist and assist the cooperatives in their overall management, accounting, records, billing and collection practices and system operations and maintenance.

The Rural Electric Department has done a very good job in the development of the rural electric program. Its staff is interested in this program and has been of much assistance to the cooperatives. This Department provided the assistance needed in the organization of the three cooperatives, all of which where organized before June, 1969. Each cooperative was assisted in its selection of a manager and operating staff and continuous, training has been given to cooperative personnel. It helped in the arrangements for ceremonies in connection with the energization line and the connected consumers. The staff obtained the information used in the feasibility study which it up-dated to support the application for this loan.

ENALUF has a contract with NRECA for advisory services in connection with the development of the Rural Electric Department. Under the contract NRECA has provided one specialist continuously to provide overall assistance and advice to ENALUF and the Rural Electric Department in its implementation of AID Loan 524-L-021. In addition to the full time specialist NRECA has provided management, public relations and accounting specialist on short term assignments. Advice was given by these short term specialists on organization of an electric cooperative division in the Rural Electric Department, a two-weeks management training program for ENALUF and the managers and directors of the three cooperatives, accounting advice and assistance not only to the Accounting Division in ENALUF but also to the individual cooperatives as training for the ENALUF staff.

The Rural Electric Department still needs guidance in developing a more effective staff in electric cooperative management, member relations, power use and to a lesser extent accounting practices. ENALUF recognizes this continuing need and has requested the continuance of the NRECA assistance through the construction period of Cooperative E.

In addition, the department will draw on personnel from other ENALUF divisions and the loan will include provision for the contracting of consultants to the extent necessary to carry out the project in an effective manner.

2. ENALUF Contracts with Cooperative

In addition to general services through its rural electrification department ENALUF will provide all engineering services for design and construction supervision to the cooperative. The cooperative will enter into a contract with ENALUF for this purpose.

ENALUF will enter into a Loan Agreement with the cooperative for the financing of the cooperative facilities. The interest rates and amortization terms under this Agreement will be the same as the AID loan to ENALUF. Clauses in the Agreement will give ENALUF the right of disapproval of the appointment of the cooperative general manager and of approval of the cooperative rate schedule, or any changes therein.

The cooperative will also sign a power contract with ENALUF. This contract will probably be for a 5 year period. Rates under this contract will be tied to ENALUF's acutal costs for generation, transmission and amortization of their integrated system; some minimal administration and operating costs; plus 20% for reserves. Rates will be adjusted on the basis of ENALUF annual audit reports. Rates will be the same for all cooperatives.

ENALUF proposes to provide power at 69KV and 14.4/24.9 KV to Co-op E from a substation to be built by ENALUF at Yalaguina. The transmission line to serve the Yalaguina Substation is a proposed transmission line between Sebaco and the Honduran border and is included in a loan now being negotiated between ENALUF and IBRD. In the event negotiations with IBRD do not result in this construction in time to provide service when needed by Co-op E then ENALUF has agreed to either construct 96 kilometers of 69 KV line to serve the Co-op or alternately to expand its generating capacity in the area to adequately supply the cooperative load. A 69 KV transmission if needed would cost approximately $490,000 and become a part of ENALUF's country-wide transmission grid. Additions to existing generating capacity in the area would cost substantially less than a transmission line because the ineremental generating capacity would be only for the Cooperative E's load. Expansion of existing generating facilities would probably be the most economical if the construction of the high-voltage transmission line is imminent.

C. Program at Cooperative Level

1. Organization and Management

Some initial organizational work has been carried out in the cooperative area. ENALUF's rural electrification personnel has had contacts with the population in the area over the past three years.

Visits have been made to the principal towns and talks were held with local governmental and civic leaders. The project was explained to these individuals and to leaders in most of the communities in each area.

Formal organization and legalization of the cooperative will begin as soon as the loan is approved. ENALUF's legal staff will draft the constitution and by-laws for the cooperative. The constitution and by-laws will be reviewed by the community leaders. A general assembly will then be held with potential cooperative members and, if acceptable, the constitution will be passed and a Board of Directors elected. Legalization of the cooperative will then be obtained through the Ministry of Labor with the assistance of the ENALUF staff.

The cooperative Board of Directors will then look for a general manager. It is expected that the Manager will be hired for the cooperative by about January 1972. The cooperative will pay his salary during the construction period through a loan from ENALUF which has been calculated as part of the cost of the project.

The General Manager will be the principal point of coordination with ENALUF. He will receive some training in Nicaragua and/or the U.S. He will work primarily on membership sign up, right-of-way easements and membership contributions during the construction of the cooperative facilities. He will not be directly involved in construction but rather will rely on ENALUF for the coordination and supervision of construction. Actual operation of the cooperative system is expected to begin in the last half of CY 1973 when the distribution system should be 100% completed.

This same approach was used in organizing the three cooperatives that are initiating operation at this time. It has been found to work successfully and there is no need for change. Experience gained should facilitate the work in organizing this cooperative. The constitution and by-laws will be basically the same and the contractual arrangements with ENALUF will change very little. ENALUF personnel presently on board are expected to be utilized.

2. Ownership of the Systems

All distribution and transmission facilities will be fully owned by the cooperative. ENALUF will make a loan for the construction of these facilities and will take a first mortgage as collateral. The cooperative will receive a long-term concession to the area which it serves. Right-of-way easements shall be obtained for all land to be used or crossed by the transmission and distribution facilities. The cooperative will be responsible for all easements to be acquired, but ENALUF will assist it on legal matters. It is expected that all of the easements for the distribution and transmission lines will be donated, however, some cost provision has been made for purchasing if necessary. The land for the cooperative building will probably be donated but funds have also been provided for its purchase.

The cooperative will be a private, consumer-owned, non-profit organization. The Board of Directors will be its governing body and the General Manager will be its chief administrator. General membership meetings will be held once a year for conducting the required business. Each member of the cooperative will be entitled to no more than one vote at these meetings. (See Annex II, Exhibit 3 for Cooperative Organization Chart and Personnel Requirements).

3. Services of the Cooperative

The cooperative will be fundamentally an electric distribution entity. It will service any consumer within its system who can be reasonably served.

Provision has been made in the design and cost calculations to construct facilities which will serve from 80 to 90 percent of the inhabitants in the zone of influence of the cooperative. Part of the service of the cooperative will be the installation of some minimum house wiring for the consumer. This is expected to increase the number of consumers reached in the early years. The cost of these facilities will be recuperated by the cooperative in the payments for electricity.

In addition to supplying electricity the cooperative staff will work its members to educate them as to the use of electricity for both consumption and production. The ENALUF Rural Electrification Department will assist in this work.

It is expected that the cooperative will also be utilized as the catalytic agent for other development programs. Its office facilities, the knowledge its officers will have of the area and people, and its membership organization will make it an effective means of stimulating other activities.

4. Future Expansion of the Cooperative

The cooperative system is designed for estimated loads in the tenth to fifteenth year. Some inventory is included in the initial financing to connect up additional customers after initial construction is completed.

The financial projections of the cooperative indicates that it should have ample capital for connecting projected customers and even for some system expansion. (See Financial Section).

Normal minor construction and maintenance functions, when the cooperative begins to operate, will be carried on with the cooperative's own facilities. Sufficient vehicles, equipment, tools, etc., have been provided in the cost projection of the project for these activities.

5. Additional Assistance to the Four Previously Organized Cooperatives

At the time AID Loans No. 524-L-021 and 524-L-007 were authorized, there was a provision to purchase materials beyond those required to complete the initial construction. This was done but the additional requirements for service were underestimated. The first cooperative is without line material and requests for service in the area exceed the financial capacity of the cooperative to make the service connections.

As construction proceeds in the three cooperative areas financed under AID Loan No. 524-L-021 many additional feasible loads have been identified that were not contemplated at the time the feasibility study was completed. Material purchased will be insufficient to connect the additional customers identified.

The need and feasibility to expand the systems has caused ENALUF to request that funds for system expansion of the four cooperatives be included as a part of this loan. The loan committee is familiar with the requirements and considers them realistic. Additional lines and services will be erected in the areas by the cooperatives on a force account basis. This will make it possible for the first cooperative to serve 1,200 additional residential and small commercial rural and urban members. It will also add 3,500 residential and commercial consumers to the three cooperatives under construction and enable them to serve several large irrigation loads and a salt industry that have developed since the original plans were made. ENALUF will provide the engineering assistance required.

A cost breakdown of the additional materials is shown in Annex III, Exhibit 12.

ENALUF has complied with the covenants set forth in the Loan 524-L-021 to the extent possible at this time. Although the three electric systems now being constructed have only a small part of their systems energized, ENALUF has provided accounting and management training to personnel of the cooperatives through not only its own staff but also by the use of specialists under the NRECA consulting service contract. As the cooperatives put more of their systems into operation ENALUF will have more opportunity to provide the technical assistance needed by the cooperatives. In the meantime ENALUF has provided technical assistance when needed.

ENALUF has also provided technical assistance to CAEER No. 1 in the same manner as to the three systems under construction. One major action taken by ENALUF was placing into effect the same wholesale rate for power as is to be charged the three new systems. In addition ENALUF has included the expansion program of CAEER No. 1 in its consideration for the present loan.

D. Power Regulatory Agency

A power regulatory agency (National Electric Institute) was established by Nicaraguan law in 1969. It has a director, small staff and an operating budget. This agency grants concessions, serves as an arbitrator in case of differences between power companies and their clients and reviews and approves electrical rates. Discussions with the director of the institute indicate that the cooperative will not have any problem in obtaining a concession to serve the area. Translation of a letter from the Institute to ENALUF treating this subject is included as Annex II, Exhibit 7.

E. Federation of Rural Electric Cooperatives

The first capital assistance paper prepared in 1968 had set an optimistic deadline of 5 years for the possible formation of a private federation of rural electric cooperatives. The Project Committee took notice of the fact that any attempt to form a federation with only one operating system would be futile. During the disbursement period of this loan, three additional systems will become fully operative. Then the possibilities will be explored for the organization of a private federation of cooperatives which could coordinate general activities, personnel training programs, joint procurement and even joint administration programs.

F. Engineering and Technical Analysis

1. Description of Project

The engineering part of this project consists of the construction of electric distribution facilities required to provide electric service in North Central Nicaragua, the transmission line required to connect this area to the ENALUF transmission system and technical services which ENALUF needs in carrying out the project. The cooperative system will total 690 miles of 14.4/24.9 KV primary distribution line to serve about 9,500 consumers initially and an estimated total of 19,000 consumers, by the end of the first 10 years of operation. A total of 30 miles of 69 KV transmission line and one 69 to 14.4/24.9 KV substation will be required to connect the

ENALUF system to the cooperative load centers and service the area. In addition, materials will be procured for the extension of service in Cooperatives A, B, C and D over the next three years.

2. Disposition of Existing Properties in Cooperative Areas

ENALUF generates and distributes electrical power in the Southern and Central parts of the area, where the towns of Ocotal, Somoto, Palacaguina, Pueblo Nuevo, Yalaguina and Totogalpa are provided with 24-hour service. The ENALUF owned distribution system consists of 104 Km. of 14.4/24.9 KV line, which can be integrated into the proposed cooperative system without change. The leased facilities will become the property of the cooperative after 20 years.

A map showing the location of each cooperative and its service area is included in Annex III, Exhibit 1. A more detailed description of this cooperative system is in Annex III, Exhibit 2.

3. Engineering Analysis

a. Studies

The area to be electrified was one of four which were investigated by ENALUF during the latter part of 1967. Feasibility studies were prepared and subsequently three areas were selected for construction. ENALUF was assisted in its feasibility study work by Glenn R. Benjamin, Engineer, under PIO/T 524-056-1-3-80025 & A1 and Task Order No. 6 to the AID/NRECA contract AID/CSD 1504. The feasibility study submitted by ENALUF in support of its application includes Mr. Benjamin's report and establishes that the proposed projects are technically and economically sound.

The 1967 data for the project area was updated during February and March 1971 by ENALUF with NRECA assistance.

b. Engineering Plan for Execution of Project

i. Engineering Services

ENALUF has the experience and technical staff to provide the engineering and administration on the distribution and 69 KV transmission line, and proposes to furnish all of the engineering services in the form of a loan to be repaid at the same rate and terms as the other part of the loan.

To accomplish this, ENALUF will contract with the cooperative to do the engineering involved in the design and construction of the project. ENALUF will then employ its own engineering skills or engineering consultants to do the necessary engineering work including preparation of labor and/or material bid calls and contract for both the transmission and distribution systems, make recommendations, and perform inspection and construction activities.

ii. Design and Construction Standards

The distribution line design and construction standards will follow those of the Rural Electrification Administration, U.S. Department of Agriculture. ENALUF has already adapted these standards for its own rural system. The design of the 69 KV transmission line will be the same as that which ENALUF uses in its present transmission system.

iii. Construction

Construction of the transmission and distribution facilities will be done by contracts awarded on the basis of competitive bids. Bids will be requested from Code 941 construction firms.

The transmission facilities will be completed as needed in order to provide a source of power to energize the first completed section of the cooperative system. The cooperative system will be energized and consumers served as soon as a sufficient number of consumers can be served to make initial operation of the system practicable. As

other sections of line are completed they will be connected to the system. A construction schedule for the cooperative is shown in Annex III, Exhibit 6.

iv. Technical Feasibility

The distribution system for the cooperative is well designed according to U.S. industry standards. The design of the system follows the practice of the utility industry in the United States by being based on the number of consumers expected at the end of the first 10 years of operation. Utility experience in the United States has demonstrated that it is most economic to design distribution and transmission facilities for the loads expected during the first 10 years of operation because of the high cost of replacing facilities which would be adequate only for a shorter period. The proposed system will have ample capacity to allow expansion and development of consumer loads without expensive rebuilding within a period of 15 to 20 years.

The distribution voltage of 14.4/24.9 KV has been selected on the basis of economic studies which show this voltage to be preferable to 7.2/12.5 KV. The transmission line voltage of 69 KV was selected because a line of lower voltage would be inadequate to serve the loads expected within the first 10 years of operation.

The primary source of power for the cooperative will be the 138 KV transmission system of ENALUF. The ENALUF power complex consists of hydroelectric and thermal generation and a 138 KV-69 KV transmission network. ENALUF is in the process of completing expansion of the present thermal plant in Managua. A new hydroelectric generation plant and additional 138 KV transmission lines are now under construction and will be in service in early 1972. The expanded capacity of the ENALUF generation and transmission system will be ample to provide the power requirements of the new cooperative without difficulty. The ENALUF power complex is shown in Annex III, Exhibit 5.

The cost estimates were developed from recent material quotations, the labor situation, cost records of ENALUF and experience of the

three electric cooperatives financed by A.I.D. and now under construction. Considering local conditions the cost estimates of the proposed lines compare favorably with costs of similar lines in the U.S. A detailed breakdown of the cost estimates is included in Annex III, Exhibits 7, 8 and 9.

The engineering reports and plans presented in support of the request for A.I.D. loan funds to construct the project indicate that the project is technically sound. Cost estimates have been developed in a logical manner from reliable sources and can be considered reasonably firm. Therefore, the requirements set forth in FAA 611 (a), (1) have been met.

v. Wholesale and Retail Rates

ENALUF's proposed wholesale rate to the cooperative is a special rate to non-profit organizations and is intended to cover only those costs related to ENALUF generation and transmission components. Special consideration has been given to irrigation loads. These are flat rates without any incentive to the cooperative to improve its load factor. Later, it will be of mutual benefit to both ENALUF and the cooperative to introduce a demand-KWH type of rate and adjust the effective rate downward.

The cost of power to the cooperative will be approximately US$ 1.8 ¢ KWH, (irrigation about US$ 1.2 ¢ KWH) at the points of delivery from the ENALUF interconnected transmission grid. The wholesale rate schedule is given in Annex III, Exhibit 9.

The average cost per KWH of power sold by the cooperative has been determined to be that necessary to provide feasibility of their operations. The revenues are obtained from several classifications of users, each of which is to be billed on a different retail rate schedule.

The retail rates for electric service in the isolated systems owned by ENALUF are substantially higher than the rates in areas served from the ENALUF integrated system. The retail rate schedule proposed for use by the cooperative will result in as high as an 80% reduction in rates for the smaller consumers in those areas. In some areas there

are small privately owned electric companies which have a flat rate charge for electricity. Since the service is not supplied on a regular basis the rates become exorbitantly high for the electricity used. The proposed cooperative rates could reduce the cost of electricity in those areas as much as 300%.

In addition to the reduction in cost of electricity the cooperative will provide dependable service on a 24 hour basis.

The proposed retail rate schedules for initial operations are shown in Annex III, Exhibit 10 and are reasonable.

vi. Operation of Project

The operation and maintenance of the distribution system will be the responsibility of the cooperative to be organized. Considerable preliminary work has already been done in the cooperative area, so that formal organization and legalization of the cooperative will begin as soon as the loan is approved. A recommended organizational chart for the cooperative was developed in the loan application and is shown in Annex II, Exhibit 3. The organization recommended is satisfactory and provides for sufficient personnel to operate and maintain the distribution system.

ENALUF will assume as part of its responsibilities the assistance and guidance needed in the organization of the cooperative. Because personnel with experience in electric utility operation are not widely available, ENALUF will develop training programs for administrative and operational personnel early in the development stages of the cooperative. First attention will be given to the development of the manager selected by the cooperative. In this manner trained people will be available when the cooperative begins to operate its system. ENALUF will assist the cooperative in the selection of its staff.

In addition to providing loan funds for engineering consulting services loan funds are being made available to finance the cost of technical assistance to ENALUF in the development of its electric

cooperative department. ENALUF proposes to utilize the services of NRECA which has qualified personnel for this specialized kind of assistance. To provide flexibility in advisory services funds are provided for about five-man years of assistance. It is contemplated that a Project Specialist will be required full time during the organization and construction of the cooperative. During that period specialized consultants in such fields as accounting, office management, public relations and power use promotion will be required for intermittent period of four to eight weeks. The NRECA consultants will be available to assist ENALUF in its work with the cooperative.

4. Supporting Facilities

a. Buildings

Office and warehouse buildings will be constructed at the cooperative headquarters location. In addition, due to the size of the area to be served, the cooperative will have one sub-office/warehouse building. Construction, financed from local currency contributions, will be by contract with ENALUF furnishing engineering and supervisory services. Cost estimates were based on preliminary plans developed for the feasibility study.

b. Equipment

Funds have been included for vehicles, shop and field equipment, and office furniture and equipment for operations and maintenance needs for each cooperative. Details are shown in Annex II, Exhibit 5 and Annex III, Exhibit 12.

5. Materials for Cooperatives A, B, C, and D.

a. The materials for these Cooperatives are needed to cover the following types of development not contemplated when the original loan was prepared.

i. Three-phase service to INCEI grain elevators located throughout the four cooperative service areas.

ii. Within the CAEER No. 1 (Coop. A) service area there are approximately 200 signed members who desire service and are awaiting available finances to permit the purchase of materials. Currently, under construction are two 600 unit and one 200 unit rural-urban housing developments which desire electric service. Also, CAEER No. 1 has recently annexed a resort area on Lake Nicaragua which provides sufficient load potential to serve a number of adjoining farms. Additional funds for the purchase of materials would assist CAEER No. 1 to more rapidly meet its utility responsibilities within its service area.

iii. Three-phase service to a total of 5,000 KVA in irrigation pump load in the El Viejo Substation area of the Northwest Cooperative (Coop B). Within the next three years, the Standard Fruit Company contemplates an additional banana development near Villa Salvadorita which will necessitate an additional 69 to 14.4/24.9 KV step-down substation. Water resources studies in the Department of Chinandega indicate that the Standard Fruit Company can expand their irrigation load to some 20,000 KVA and it is anticipated that the Company will request additional service on a regular basis as long as there is available water.

iv. In the Amerrisque Cooperative service area (Coop D) there is a similar situation involving some 2,500 KVA of irrigation pump load for rice production.

v. Initial service to some 7,000 consumers in the Rivas Cooperative service area (Coop C) rather than the 3,800 consumers stipulated in the loan document is creating material allocation problems during the initial construction program (AID Loan No. 524-L-021). Also, for example, a large salt processing installation at Salinas, Rivas, requires some 25 three-phase transformer installations not contemplated in the original study. As construction is progressing, other inquiries for service are being received which will probably not be served without an additional supply of materials.

b. The cost breakdown for the above additional materials is given in Annex III, Exhibit 12.

G. Economic Analysis

1. The Role of the Rural Sector in the Economy

Despite the rapid growth of the industrial sector of the economy, and some movement into the urban areas from the country-side, Nicaragua remains predominantly a rural economy. According to the Central Bank and the Ministry of Economy, 53 per cent of its population (or 1,074 thousands inhabitants) was classified as rural and 47% (901,172) was classified as urban, as of June 30, 1970. The majority of the rural population was situated in the Northern and Central zones, somewhat less in the Pacific, and a considerably smaller portion in the Atlantic zone. Although there has been a reduction in the rural population (59 per cent in 1963 to 53% in 1970), the increase in the absolute numbers of the rural population indicates that it will remain the predominant sector for some time to come. Although there is no official data, it is estimated that 60 per cent of the economically active population is involved in rural activities, i.e., agriculture, forestry, fishing and livestock. Of course, to the extent that the industrial sector depends on the rural sector for its raw materials, the importance of the latter sector is even more evident.

The relative economic position of the rural sector has been reduced over the past five years, but it still plays the single most important role in the economy. In fact, the recent slowdown in agricultural economic activity has been, to some degree, compensated for by an increase in industrial and other non-agricultural activities. This compensation has been only partial, however, and economic growth indeed has been stunted by the slowdown in the agricultural sector during the past few years.

While the growth of the Gross Domestic Product rose by 3.7 per cent in 1970, the output of the primary sector (agriculture, forestry, fishing and livestock) actually declined by 0.3 per cent. The value of agricultural crop output actually declined 4 per cent in 1970 while the fishing sector fell by 7.4 per cent. The livestock and forestry sectors continued to grow.

In terms of contribution to GDP, the primary sector also declines, amounting to about 27 per cent of GDP from an average of about 30 per cent in previous years. However, since a portion of agricultural products is processed by the industrial sector, and much of commerce consists of trade in agricultural commodities, the direct and indirect participation of the rural sector in the economy's total output of goods and services is greater than that shown by the above data. The total value of agricultural production did increase in 1970 to a value of $211,630,000 but production of the major crop, cotton ($47,020,000), actually fell by 19 per cent. Although the value of production of most other crops also increased in 1970, it was the 47 per cent growth in the value of coffee production that prevented a serious decline in the total value of agricultural ouput.

Although the position of the rural sector, as exemplified in export statistics, did deteriorate in 1970, its contribution still remained high. In 1970, cotton exports fell to 19 per cent of total exports from 29 per cent the previous year. (and peaks of 45 per cent in years prior to 1966) but coffee exports rose to 18 per cent of total exports. Other non-traditional agricultural crops, particularly meat and fish, increased. (It should be noted that in Nicaraguan statistical data, fresh meat exports are considered industrial exports; in the above narrative, they are attributed to the rural sector). In general then, no matter how one cuts up the economy, and despite the poor showing of certain agricultural products, the output of the rural sector continues to play a major role in the economy. In fact, it is because of the slowdown in the rural sector that overall economic growth has slowed to a point where it just exceeds the rate of population growth. The industrial sector has just about taken up the slack, but it has not been able to affect as many economic indicators or as many people as can be affected by developments in the rural sector. It is this situation that is one justification for a U.S. input into the rural sector in the form of loans such as this one.

Programs by the GON and USAID to improve and diversify agricultural development so as to improve the welfare of rural population are discussed below.

2. Rural Development of the GON and AID

There are several GON agencies involved in improving the economic condition of the rural sector. Those directly related to improving agriculture include the Ministry of Agriculture, the National Bank (BNN), the National Development

Institute (INFONAC), the Institute for Internal and External Commerce, (INCEI) and the Agrarian Reform Institute (IAN). Following is a brief resumé of some of the rural development projects being undertaken by these agencies:

a. Ministry of Agriculture

The Ministry is a policy and regulatory agency primarily, with much of the actual work being undertaken by the various autonomous agencies such as BNN, INCEI, etc. Agricultural education, research and extension are responsibilities of the Ministry. With USAID assistance, the MAG has undertaken applied research projects in rice, animal nutrition and forage crops, and has an extension service that provides technical assistance to small farmers. The Ministry is participating in the development of rural youth clubs, and cooperates with other Ministries in promoting school garden programs throughout Nicaragua. The USAID is continuing to support an irrigation demonstration project to determine the economic application of irrigation on selected crops.

b. The National Bank

The BNN, under a $9.4 million U.S. loan, is financing the U.S. dollar costs of agrochemicals to be used for the production of rice, corn, sorghum, beans, sesame, forage, peanuts and some other crops. To date, this program has involved 4,000 clients and 110,000 acres of crop land. The BNN has a program of rural credit providing financial resources and technical advice to the medium and small sized farmers to assist them in financing crop inputs. (The BNN provides 80-90 percent of all credit provided to the agricultural sector by the banking system). The BNN has a contract with TAHAL, an Israeli concern for irrigation assistance primarily on cotton. It has a rice irrigation project and a cattle improvement project, supported by funds from the Inter-American Development Bank. The BNN also administers a supervised agricultural credit program for which AID supplied one million dollars of capital. (AID Loan No. 524-L-015).

c. The National Development Institute (INFONAC)

INFONAC is involved in a number of projects directly related to the rural sector. It has concluded an agreement with Standard Fruit Company for the cultivation of Bananas; has invested in a tobacco program for export of Havana-type leaf and cigars; has a cattle improvement project and has invested resources in a modern meat packing plant (IFAGAN). With IDB assistance, it is carrying out the PROLACSA project which involves the development of a milk production area (roads and a processing plant) in the North-Central region of Nicaragua. Assisted by the U.N., INFONAC conducted a forest resource inventory of 300,000 hectares of land on the North Atlantic Coast and is presently improving the forested area. Primarily, however, the majority of INFONAC's resources are allocated to industrial-type projects rather than agricultural projects per se.

d. The Institute for Interior and Exterior Commerce (INCEI)

INCEI is the Government agency in charge of the price stabilization of basic grains. It is now receiving assistance, under a US-AID-funded borrower-grantee contract, for the development of a price stabilization, storage and marketing program for agricultural products. INCEI is terminating the construction of 100 small drying and storage units with a 1,000 tons capacity each, distributed throughout the country. Two regional grain terminals each with 10,000 MT capacity are scheduled for completion in 1972.

e. Agrarian Reform Institute (IAN)

IAN is involved in the distribution of titles to national lands and the development and settlement of new colonies. Under the former project land titles have been issued to more than 12,000 families affecting more than 80,000 people. There are more than 30 colonies under IAN's direct supervision, covering an area of 41,700 hectares and benefiting almost 3,000 families.

The above do not represent all of the programs to improve the welfare of the rural population. There are other programs in health, education,

roads, electric power, etc., that are currently active in the rural sector supported by AID and international agencies. In general, this rural sector remains a major priority concern of the GON and the International Financial agencies and continues to receive aid in a number of programs and projects.

3. General Economic Panorama

Economic growth as measured by the Gross Domestic Product (GDP) continued to stagnate. In 1970, GDP rose by only 3.7 per cent as measured against a population increase of about 3.2 per cent. There were several factors that caused this low rate of increase. The value of agricultural output declined by 5.0 per cent in 1970 compared to a minus 0.2 per cent in 1969. In addition, while the output of the fishing sector grew by 14.5 per cent in 1969, it actually fell by 7.4 per cent in 1970. Thus the output value of the primary sector actually declined slightly (0.7) in 1970, compared to an increase of 2.9% the previous year. The secondary sector rose 5.1 per cent in 1970 thereby compensating in part for the decline in the primary sector, but even this increase was less than in 1969. Two reasons account for this: (1) a decline (8.7%) in the construction sector compared to a 7.8 per cent increase in 1969 and (2) a sharp fall in mining output (-24.0%) compared to a decline of "only" 9.3 per cent the previous year. Manufacturing output continued to grow (9.5%) but at a much smaller rate than in the previous year (15.0%). The tertiary sector (commerce, transportation and communication, etc.) continued to rise and in 1970 increased by 4.1 per cent.

Despite the poor general growth, other economic factors were favorable in 1970. Central government revenue reached a peak of $81.5 million in 1970, an increase of more than $10 million over the previous year. The GON projects an additional $10 million increase in 1971. Government savings and capital expenditures also rose and are expected to increase further in 1971.

Loans from the banking sector to the private sector rose at 6.5 per cent, approximately at the previous year's rate of growth. This was a relatively tight credit ceiling as measured by rates of growth in 1968 and 1967 (9.4% and 13.7 per cent respectively). Meanwhile banking claims on the government and official entities declined somewhat, with the result that

total domestic credit of the banking system increased by only 5.2 per cent, compared to rates of growth of 8.6 per cent and 6.3. per cent in 1969 and 1968 respectively. Savings and time deposits rose by 18.8 per cent, considerably higher than rates of growth prevailing in the last several years. The money supply (currency in circulation and demand deposits) also continued their upward trend, after declining in 1967 and 1968. The monetary situation remains stable in Nicaragua. The Government has not had to resort to inflationary financing to cover the budgetary deficit, and the control over credit has prevented a surge of inflation.

The Balance of Payments also has improved in 1970. Total exports rose to $178.7 million, an increase of $21.2 over the previous year. Imports increased to $177.9 million (f.o.b.) from $158.4 in 1969. Including services, the balances on current account did remain at a high deficit level, i.e., minus $36.8 million. The large inflow of capital, both private and public, exceeded the current account deficit and permitted the GON to increase its reserves by $12.5 million in 1970 after a decline of $6.5 million the previous year.

4. Socio-Economic Analysis of Project

Nicaragua has progressed rapidly in the past several years in the total and the per capita generation of electrical power. In 1969, the total production of electric power reached 448 million KWH, or 236 KWH per capita, second highest in Central America.

Of the total energy generated by ENALUF, the two largest consumer blocks were industrial with 39% and domestic clients with 26% in 1969. Following them, commercial users accounted for approximately 13% of the total, with government, municipalities, irrigation and various other uses accounting for the remaining 22%.

ENALUF generated approximately 79% of the total electricity in 1969 with private electric plants and companies (principally industrial establishments) generating the remaining 21%. Because of its dominance in electric generation ENALUF basic policies have great importance in the consumption patterns. Thus largely because of a rate reduction by ENALUF to industrial users in 1967, the total consumption by such clientele for that year increased by approximately 35% over the 1966 figures. These new industrial rates plus

the special irrigation rates announced in 1968 by ENALUF are having a positive effect on stimulating more consumption by both of these blocks. ENALUF's policies in this respect are geared to the national policy of stimulating production in both agriculture and industry.

In the structuring of this project, as was the case with AID Loan No. 524-L-021, ENALUF specifically had in mind the GON policy to increase national agricultural production. As indicated previously, in Section II, eight rural areas were initially studied. Of these, four were selected as being the most productive agriculturally and having the best development potential. In selecting these four areas, attention was specifically focused on potential in irrigation, dairy farming, grain storage and general processing of agricultural products. AID Loan 524-L-021 is making possible the electrification of three of the areas. This loan is intended to finance the last of the areas considered presently feasible.

The total consumption of electricity by this cooperative is estimated at 13 million KWH in the first year of operations increasing to 36 million KWH by the tenth year.

Of the tenth year totals of electricity sold to the cooperative some 7 million KWH are estimated to be consumed by 221 industrial and small commercial establishments and some 5 million KWH are estimated to be consumed by 47 farmers for irrigation uses.

In addition, the cooperative will supply electricity to approximately 19,000 residential consumers by the tenth year of operations -- estimated at about 100,000 people.

Taken together (with the families served and to be served by the cooperative in operation and under construction) Cooperatives "A, B, C, D, and E" are projected to serve about 30 percent of the rural population by the tenth year. Covering an area approximating 6,200 square miles. Power consumption in the homes and on the farms, is projected at 133 million KWH within ten years.

a. Economy of Service Area (Cooperative "E")

The Cooperative service area will have an estimated population of 183,000 by 1983 in an area of about 2,200 square miles. It is

estimated that there will be approximately 30,000 homes in this area and that 70% of these are potential consumers during the first 10 years of operations. There are about 12,200 farms in the area comprising 481,000 manzanas (1 manzana - 1.74 acres), of which 73,000 are in annual crops and fallow; 268,000 are in permanent crops pasture and 140,000 in forest. Total annual value of agricultural production is estimated at 12 million dollars, of which 3, 3.6 and 1.3 million represent value of cattle, coffee and lumber respectively.

Commerce and industry rank second to agriculture in the economy of the area. There are about 20 sawmills with a combined capacity of about 30 million board feet per year. The area also has several tobacco processing plants and sugar and coffee mills. The other commercial and industrial establishments are modest and consist of ice plants, tanneries, carpenter shops, shoemaking, bakeries, rice mills, and similar repair and processing facilities. The GON has completed construction of 13 regional granaries, with a capacity of 24,000 cwts. each. Most of these are in operation and located at: El Jicaro, Quilali, Somoto, San Lucas, Palacaguina, Telpaneca, Condega, Pueblo Nuevo, Totogalpa, Wiwili, Jalapa, Ocotal y Ciudad Antigua.

Present and potential uses to be made of electrical power in this area are:

i. Municipal lighting (all towns)

ii. Residential uses

iii. Agriculture: irrigation, coffee tobacco and timber processing, sugar cane milling, grain drying, storage, grinding and milling and animal slaughtering.

iv. Industrial and commercial: refrigeration (milk cooling), food preservation, freezing, fruit and vegetable processing and packing, gasoline and water pumping, dairy processing, syrup manufacture, cabinet, shoe and cigar making.

b. Physical Description of the Area

i. Political Divisions

There are 22 political divisions known locally as "Municipios". These are: Condega and Pueblo Nuevo (Department of Esteli), Somoto, Las Sabanas, Palacaguina, San José de Cuzmapa, San Lucas, San Juan del Rio Coco, San Juan de Telpaneca, Totogalpa and Yalaguina (Department of Madriz), and Ocotal, Ciudad Antigua, Dipilto, Jalapa, Macualizo, El Jicaro, Mozonte, Murra, Quilali, San Fernando and Santa Maria (Department of Nueva Segovia). None of the population centers in the area would be considered urban by U.S.A. standards. There are many smaller political divisions within the municipios known as "comarcas".

ii. Climate and Geography

Climate in the project area is typical of that of the tropical high-lands, mild and dry during six months of the year. Annual rainfall averages about 52 inches per year, the western part being much drier (about 42 inches) than the eastern part (about 68 inches). This rainfall is reasonably well distributed from May to November. December to April is dry for most of the area. Annual mean temperature is about 72°F. Moderate winds (about 5 knots per hour) prevail during the dry season, blowing mainly from the east. Topography is for the most part broken, followed by undulating land and very few flat areas in small valleys and river benches. There are peaks with elevations of 1,500 meters above sea level.

iii. Infrastructure

The most important infrastructure existing throughout the area consists of roads, schools, health posts, power, potable water and local government.

The area is crossed from east to west by the Panamerican Highway (about 64 kilometers of pavement) and a paved branch from

Yalaguina to Las Manos (Honduras border) via Ocotal of 48 kilometers. There is a total of 88 kilometers of hard surface roads and about 325 kilometers of all-weather roads. Dry weather roads total about 350 kilometers.

The National Bank of Nicaragua has seven Rural Credit Agencies for the purpose of making loans to small farmers to produce cattle, coffee, hogs and basic grains. The Bank also takes care of large farmers through commercial banking credit for large scale production of coffee, tobacco and livestock. The Supervised Credit Agency at San José de Cuzmapa, established by the Bank with an AID loan serves the needs of very small farmers and landless campesinos. In addition to the technical personnel of the National Bank, the Ministry of Agriculture maintains three agricultural extension agencies in the area, whose staff, at each location, is composed of one agent, one assistant agent and one home economist.

At Somoto, the GON maintains a hospital with 94 beds, three doctors and 7 nurses and assistant nurses. The National Guard also maintains a dispensary attended by a resident doctor. At Ocotal there is another hospital with 49 beds, attended by three resident doctors and 7 nurses. The National Guard also has a dispensary here. Other small villages are served periodically by Rural Mobile Health Units operated by the Ministry of Health. The Municipios of Pueblo Nuevo and Condega each has a health post adequately staffed.

There are in the area a total of 206 public primary schools, 177 are rural, the remaining 29 are urban, as well as 3 secondary schools. Enrollment in the primary schools is 14,645 and 586 are matriculated in the secondary schools. These schools are staffed by 190 rural primary teachers and 25 urban secondary teachers.

The local government of large towns in the area is composed of officers appointed by the Ministries of Interior and Defense and the Court of Justice. In the smaller villages the central government representation may be limited to one person appointed by the Ministry of Interior.

ENALUF provides the largest towns of the area with 24 hours a day

electric power, which is generated by a diesel plant located at Ocotal. The power is distributed in the other towns by individual concessionaires. Electric power for small villages, communities and farms is provided by private plants or is non-existent.

The Department of Potable Water Works (DENACAL) of the Ministry of Public Health has installed water systems in the following towns of the project area: Somoto, 590 connections; Telpaneca, 75 connections; Yalaguina, 60 connections; San Juan Rio Coco, 135 connections; El Jicaro, 150 connections; Jalapa, 260 connections; Condega, 280 connections, and Pueblo Nuevo, 150 connections. Plans for the immediate future call for the installation of 9 systems in th same number of small towns, that will benefit about 750 families. This country-wide program is being financed with a loan from the Interamerican Development Bank (IDB).

5. Impact on U.S. Economy

The project will have a favorable effect on the U.S. economy. To begin with the loan will be used to finance the purchase of $4,254,000 of goods and services most of which will originate in the U.S. The purchases will be entirely in addition to normal importation of such goods and services by Nicaragua. In addition to initial procurement, this project will result in additional purchases in future years of materials and goods for replacement purposes and system expansion. Lastly, the increase in rural incomes and the demand for appliances which this project will stimulate should result in additional U.S. imports in consumer and other goods. In this respect it should be noted that Nicaraguan imports from the U.S. increased from $37.7 million in 1960 to $72 million in 1970 while in this same period exports to the U.S. increased from $26.9 million to $56.0 million.

H. Financial Analysis

1. Total Cost of the Project

The total cost of the project is estimated at $ 6,700,000 of which $ 4,300,000 or about 64 percent are foreign costs and $ 2,400,000 or

about 36 percent are local currency costs. The AID loan will finance all the foreign costs and the GON and ENALUF will finance all local costs. In the event part of the materials are procured from Central American countries other than Nicaragua, AID funds will be used to pay the costs of these imported materials. Although it is impossible to estimate the amount of materials that might be supplied from eligible Central American sources until bid calls are evaluated, ENALUF estimates that this would not likely exceed the equivalent of $1,400,000 that might consist of poles, conductor and miscellaneous hardware. Cost estimates are based on the Feasibility Study prepared by ENALUF with assistance of NRECA and recently updated as previously mentioned. Calculations are made using ENALUF and Cooperatives B, C and D experience for construction costs; U. S. costs of materials based on recent quotations and normally accepted engineering costs calculated as a percentage of total direct costs and applying a 5 to 10 percent contingency on all direct construction costs. The project committee has reviewed the costs and finds them a reasonably firm estimate of the cost to complete the project as planned. A breakdown of the estimated project cost follows:

	Local Currency Costs (GON and ENALUF) (and Coops A,B,C,D)	Foreign Costs * (AID)	Total
1. Transmission Line	80	150	230
2. Substations	10	60	70
3. Distribution Systems	830	2.500	3.330
4. General (Office buildings; furniture and equipment)	90	70	160
5. Engineering	260	--	260
6. Administration	140	--	
7. Contingency	210	420	630
8. Cooperative Organization	30	--	30
9. Interest during Construction	250	--	250
10. Materials for Coops A,B,C and D	--	1.000	1.000
11. NRECA Technical Services	--	100	100
12. Estimated Cost-Expansion	500	--	500
TOTAL:	2.400	4.300	6.700

* Estimated purchases from Central American Countries other than Nicaragua are included in these costs.

Annex III, Exhibits 7, 8 and 9 show details of cost estimates.

The Nicaraguan contribution will be provided as follows:

ENALUF - $ 750,000 in the form of engineering and administrative services and cash; GON - $ 1,150,000 as a cash contribution. The cost of additional construction and installation of the material and equipment to be procured under this loan for Cooperatives "A", "B", "C" and "D" is estimated at $500,000. Such cost will be borne by the above mentioned Cooperatives and will be considered as their contribution to the project. The GON contribution will be in the form of a grant to ENALUF which will in turn lend to the cooperative at the same terms as the AID loan to ENALUF. Annex I, Exhibit 3 is a statement submitted by ENALUF regarding GON and ENALUF commitments.

Assuming authorization in June 1971 and completion of loan negotiations, execution of Loan Agreement, meeting of Conditions Precedent by the end of the year the project funds are expected to move as follows:

Estimated Flow of Project Funds
(in thousands of US dollars or equivalent)

	1972		1973		1974		
	Local	Foreign	Local	Foreign	Local	Foreign	TOTAL
GON	$30	-	570	-	550	-	1.150
ENALUF	$40	-	360	-	350	-	750
ABCD	$ -	-	500	-	-	-	500
AID	$ -	20	-	3.200	-	1.080	4.300
	$70	20	1.430	3.200	900	1.080	6.700

2. Financial Analysis of ENALUF

a. Present Situation

Financial statements of ENALUF are attached as Annex IV, Exhibit 4. Accounts are kept on a calendar year basis and conform to generally accepted public utility practices and are audited annually by Arthur Anderson and Co. of Chicago.

As of December 31, 1970 ENALUF had total fixed assets and work in progress of 536 million cordobas (U.S. $76 million) of which ₡144 million represented the investment in the Rio Tuma Hydroelectric project partially financed under AID Loan No. 524-A-002 and ₡46,979,020 million cordobas represented investment in Rural Electric Cooperatives II partially financed by AID Loan No. 524-L-021.

The healthy earnings position described in AID-DLC/P-732 in 1968 has been maintained during the last three years of operations. The present rural electrification program being implemented has been fully supported by ENALUF by providing all the necessary local funds and other requirements as committed. For 1970 ENALUF's net profits amounted to over ₡32 millions (about three million more than in 1969) and maintained its debt/equity ration under a 1:1 relationship. ENALUF capitalization as of December 31, 1970 is summarized as follows:

Equity	Millions of Córdobas	Millions of Dollars	Percentage of Total Debt/Equity
Capital Contributions by GON	67	9.5	13.6
Surplus	195	28	40
Contributions	14	2	2.4
Total	276		56
Long Term Debt (Including 12 mos. maturities)			
IBRD	175	25	35.8
Bank of America, Banco Nacional & INFONAC			
AID	36	5.2	7.4
CABEI	2	0.35	0.8
Total long-term debt	213		44
Total Capitalization	489	70	100

Accounts receivable, always a perplexing situation for a public utility, have been kept at a lower relative level in 1970 than in 1969.

b. Future Developments

ENALUF investment in 1971 is estimated at ₡143 million. This will cover part of the cost of the new administration building scheduled for occupancy in May, valued at ₡17 million, the 45 MW thermal plant about ready to go on the line valued at ₡42 million, the Santa Barbara thermal plant with 25 MW scheduled for completion in late 71 and 25 MW in 1972 valued at ₡121 million and the rural electrification project being implemented and scheduled for completion in mid 1972 at a total cost of ₡112 million.

Beyond the immediate future, and in addition to this project, ENALUF is at present negotiating another loan from the IBRD to finance a thermal plant in Managua and an interconnection with Honduras.

c. Effect of Project on Borrower

Although the ENALUF balance sheet and cash flow projections (Annex IV, Exhibit 4) do not incorporate the effect of this project they indicate that it is in a sound financial condition and has the capacity to provide the financial support required. The ENALUF contribution to the project in the form of a soft term sub-loan and technical services amounting to $750,000 is more than offset by the GON grant to ENALUF and increased wholesale power sales that the project will generate. It is estimated that ENALUF will not have any difficulty in making required funds available on a timely basis over the three year construction period.

Power rates used for projection purposes have initially been set at cost -- plus a fixed percentage for reserves, and technical services will be provided the cooperatives at cost. Rates will be determined by ENALUF's actual average costs for generation, transmission, amortization and general operating and maintenance expenses as they apply to the cooperatives' purchase of electricity. Two rate schedules will be applied. One will be a wholesale rate calculated on the basis of both fixed and variable costs; the other will be a special rate for irrigation calculated on the basis of variable costs and will be tied to peak loads. In addition to costs, the power rate will include a reserve of 20 percent of the total costs for the wholesale rate and 45 percent of the total costs for the irrigation rate. These reserves will be applied to interest payments and earnings. Rates will be reviewed and adjusted annually based on actual costs as shown in previous year audit reports in accordance with sound management standards.

3. Financial Analysis of the Cooperative

The financial projections prepared for the new Cooperative "E" are appended as Annex IV, Exhibit 1. These have been reviewed by the project committee. Such projections are realistic and reasonably reflect the soundness of the project. New financial projections have not been made for Cooperatives A, B, C and D since the projections made in 1968, at the time AID Loan No. 524-L-021 was authorized, are considered to adequately reflect the projected operating conditions. One million dollars of the loan will be used for the purchase of construction materials for these cooperatives.

Initial operations of cooperative "E" are estimated to begin about the end of the third year of construction. The total cost of construction including some inventory and operational materials and equipment is projected as being financed from the ENALUF loan to the cooperative. Interest during construction and working capital are included in the loan amount. The cash contribution of cooperative members and consumer deposits are not included as a source of funds for financing construction of Cooperative "E". These contributions plus the working capital provided in the ENALUF loan enable the cooperative to have a positive cash position at the beginning of operations of about $40,000. Cumulative cash surpluses are projected at about $1,682,600 by the end of the tenth year or after about seven years of operations. The accumulated earnings are believed to be adequate to cover debt service, working capital and reinvestment in the form of system expansion. A clause in the ENALUF loan agreement with the cooperative will stipulate that, unless ENALUF shall otherwise agree, the cooperative may not declare patronage dividends until total equity is equal to an established percentage of net fixed assets or until a specified percentage of the long term debt has been paid.

In the profit and loss projections the cooperative shows a negative net income the first year after depreciation. Cumulative net profit after depreciation does not occur until the fifth year. After this point however, net profits increase rapidly and surpass two million dollars by the end of the tenth year.

4. Repayment Prospects

Based on the past performance of the GON and ENALUF in meeting international obligations and given the debt/equity ratio of ENALUF and taking into

consideration the projected financial soundness of the cooperative after seven years of operation, repayment prospects are excellent.

5. Loan and Sub-loan Terms

For purposes of the updated feasibility study interest was calculated at 2 percent during the projection period. The financial projections in Annex IV, Exhibit 1 apply only to the Cooperative "E" portion of the loan, that is ₲34,154,600. The additional one million dollars, as previously mentioned is to be used to finance construction materials for Cooperatives A, B, C and D. Interest rates charged by ENALUF on the sub-loans will be the same for all of the cooperatives. Cash flows, balance sheets and profit and loss statements prepared in 1968 and published in AID-DLC/P-732 for the other cooperatives are considered current and have not been included in this paper.

Amortization payments of the cooperative is calculated at 40 years with a ten year grace period. The 10 year grace period is considered essential in order for the cooperative to build up its cash surplus position to a level where system improvements and expansion can be financed from earnings. Even though calculations were not projected beyond the 10th year, the 30 year repayment period should allow the cooperative to make its amortization payments without financial difficulty.

The feasibility study suggests that loan terms to the cooperative of 40 year amortization with a ten year grace period on principal and two percent interest on the outstanding balance of the loan. This means that ENALUF will pass on the local currency contribution (from GON and ENALUF sources) at the same terms which it receives from AID. The cost of loan administration, which will be relatively low, will be reflected in the power rate schedule and not show up elsewhere in the loan to the cooperative.

The project committee is in basic agreement with the project and with the feasibility study. Based on the earning projections of the cooperative and the financial soundness of ENALUF it recommends that the loan be authorized. Terms of the loan, however, shall be harder than the assumptions made for projection purposes indicate. Suggested terms of the loan are 35 years for amortization with a 10 year grace period with interest at 2 percent during the grace period and 3 percent thereafter. This leaves a small margin for the GON in case the two-step procedure is elected that can be deposited in the

special fund to be used for projects as mutually agreed upon by the GON and AID.

I. Environmental Effects:

Because construction activities will be financed under this loan, it will have some impact on the environment of the affected areas. Due to the remoteness and typography of the areas involved, it is difficult at this time to assess this impact. Nevertheless, we believe that because of the type of work to be performed (placement of power line poles), the overall adverse impact on the environment will be minimal. In addition, because of the borrowing country's state of development in relation to the expected economic returns to be derived from this project, the limited adverse environmental impact would appear to be warranted under the circumstances.

Section III - IMPLEMENTATION PLAN

Both ENALUF and the USAID Mission have acquired considerable experience in the implementation of rural electrification projects during the 1968-71 period, not to mention lessons learned in organizing and constructing what is now Coop "A". In spite of this, there are still a few unkowns regarding the details of how the engineering aspects for Coop "E" will be handled.

At the time AID Loan 524-L-021 was authorized it was ENALUF's firm intentions to do the engineering of the 69 KV transmission lines and substations as well as the distribution systems by force account. However, as the period for initiation of implementation approached, ENALUF decided that it did not have adequate, qualified staff to do this without adversely affecting other construction underway and contemplated. Consequently, ENALUF decided to contract the engineering of the transmission, sub-stations and distribution facilities. Even though the implementation of the program has moved satisfactorily in general terms, it is about one year behind schedule as a result of necessary adjustments.

Construction is now in full swing and apparently, with the exception of minor logistics problems inherent to this type of project there are no significant restraints to completing the systems by about May 1972.

Even though this project is much smaller than the last one and does no include any 138 KV transmission, ENALUF is carefully studying the best method of providing engineering services for this project. Several alternatives have been narrowed to two: one is the possibility of it being done by force account using U.S. qualified engineers in supervisory positions; the other is contracting for the services of a consulting firm. This decision will probably not be reached until after authorization of the loan and will therefore, of necessity, become a condition precedent to disbursement of funds.

Another issue related to implementation has to do with the acquisition of materials and labor for the project. Loan funds will be used for the purchase of imported materials while labor will be paid with Nicaraguan funds.

The Engineering and Construction Schedule, Annex III, Exhibit 6, is based

on a combined contract for labor and materials for the 69 KV transmission line and sub-stations and separate contracts for labor and materials for the distribution system. Here, as with the case for engineering, this is one of the many alternatives. It is satisfactory for planning purposes but discussions with Borrower have determined that the decision is not final. Further evaluation is required to determine the most economical and practical method. Regardless of the decision reached, the procurement of materials will be done in compliance with AID rules and regulations.

Prior to the authorization of AID Loan 524-L-021, the Borrower and the USAID Project Committee agreed that a critical path or similar analytical method would be desirable for project implementation due to the complexity of the interrelated activities. This was done for the past loan by a consulting firm. Everyone involved agrees that the exercise has been beneficial, but the cost prohibitive. In the light of past experiences and given the relative simplicity of this project, the Committee feels that it would be difficult to justify the expenses involved in using CPM programming techniques. It suggests instead that ENALUF, the engineers and the constructors utilize charts and graphic schedules to plan measure and report progress.

A tentative schedule for cooperative organization in the updated feasibility study is appended hereto as Annex III, Exhibit 6. The schedule assumes that the loan will be authorized by May 31, 1971, signed by June 30, 1971 and that conditions precedent will be met by September 30, 1971.

The schedule contemplates immediate initiation of several activities in June and July of 1971: organization and legalization of Coop concession; organize. and contract for engineering or engineering supervisory services; preparation of bid documents for materials and construction services; and routing of transmission and distribution lines and procurement of easements.

During the last quarter of 1971, ENALUF plans to: organize and train Coop personnel and begin signing up members; award and order distribution materials; initiate field staking of lines; and acquire sites for substations and offices.

By October 1972, ENALUF plans to have awarded the construction contracts, begin receiving the materials and initiate construction on all transmission lines, distribution lines and substations so as to complete all transmission and

substation construction, 75% of the distribution construction and the buildings by December 1973. All work is to be completed and energized by June 30, 1974.

Terms, Conditions and Covenants

1. Terms

The following terms are recommended for a loan not to exceed $4,300,000:
Repayment in 35 years including a grace period of 10 years.
Interest 2% during the grace period and 3% thereafter.
The two-step payment procedure will be offered to the GON.

2. Conditions and Covenants

There are no conditions proposed to be met prior to the signing of the Loan Agreement.

It is recommended that the following conditions and covenants be incorporated in the Loan Agreement:

(a) Prior to and as a condition precedent to the first disbursement or issuance of disbursement documents under the loan, the Borrower shall submit in form and substance satisfactorily to A.I.D.:

(i) A schedule of ENALUF's electrical rates to the cooperatives
(ii) Evidence that the necessary technical assistance to implement the project has been employed or contracted;
(iii) A detailed implementation plan for the project specifying the way in which progress will be monitored and recorded.

(iv) Evidence that power will be available at the specified site or sites by the time the project is ready to be energized.

(v) ENALUF will submit to AID evidence that a fund is being established to provide advisory services and training in cooperative member relations and cooperative management techniques to the five cooperatives after the energization period.

(b) As a condition precedent to the disbursement of loan funds for the cooperative the Borrower will submit evidence in form and substance satisfactory to A.I.D.:

(i) That the cooperative has been legally constituted and organized under the laws of Nicaragua;

(ii) That the cooperative has been given an adequately long-term concession to the area in which it will serve;

(iii) That a loan contract has been entered into between ENALUF and the cooperative;

(iv) That the necessary arrangements have been made between ENALUF and the cooperative for engineering services in connection with the design, construction and inspection of the transmission and distribution facilities; and

(v) Of the retail rate schedule of the cooperative.

(c) ENALUF will covenant to provide the necessary technical assistance to the cooperative so as to adequately operate and maintain the project throughout the life of the loan.

(d) Equipment, materials and services financed under the loan shall have their source and origin in Code 941 countries. Marine insurance financed with loan funds will be placed at the lowest available competitive rate in Nicaragua or in a country included in Code 940 of the A.I.D. Geographic Code Book.

(e) ENALUF shall furnish to A.I.D. for A.I.D.'s prior approval, all plans, specifications, construction schedules, bid documents and contracts relating to the project, and any modifications therein, whether or not the goods and services to which they relate are financed under the loan.

(f) The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

Section IV - ISSUES

a. Power Availability

ENALUF has accepted the responsibility of providing to each of the rural electric cooperatives a continuing and adequate power supply over the ENALUF 138KV transmission system. The Yalaguina substation which will serve co-op E will be on a 138KV transmission line which is included in a loan now being negotiated with the IBRD for the construction of a thermal plant and a 138KV transmission line from Sebaco to the Honduran border for interconnection purposes. Inasmuch as the loan negotiations between ENALUF and IBRD have not been completed, the availability of adequate power on a timely basis remains an issue. The borrower in a memorandum of April 14, 1971 (Annex I Exhibit 3 paragraphs 2 and 4) promises to take the necessary action to provide when needed an adequate supply of power to Cooperative E. This will be the subject of a Condition Precedent to disbursement in the Loan Agreement.

b. Engineering Services

A final decision has not been reached on whether ENALUF will do the engineering and construction supervision on a force account basis with its own staff or contract the services of a Latin American or U.S. consulting firm. The job is relatively simple, comparatively speaking, and can be completed satisfactorily either way. Irrespective of this, and since ENALUF and many consulting firms have limited experience in building power lines to serve rural consumers, the Mission considers it highly desirable that one or more, as necessary, U.S. consultants with extensive experience be retained by ENALUF to supervise and/or advise in engineering, construction, as well as all other phases of development of the cooperative. Advantage can also be taken of these consultants to advise on operations of the other four cooperatives. This will be further discussed with Borrower and AID/W and perhaps made a condition precedent to disbursement in the Loan Agreement.

c. Terms of the Loan

Financial projections in the updated feasibility study were made on the assumption that loan terms to ENALUF and to the cooperatives would be the same as the terms of AID Loan No. 524-L-021. Although the

interest rate on this loan will be a little higher (3% instead of 2½%) during the amortization period, the cash flow projections indicate that there should be no major problem with liquidity during the early years of operations nor difficulty in debt service after ten years.

AID 1240-2(1-71)

June 3, 1971

CHECKLIST OF STATUTORY CRITERIA

(Alliance for Progress)

In the right-hand margin, for each item write answer or, as appropriate, a summary of required discussion. As necessary, reference the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is further discussed. This form may be made a part of the Capital Assistance Paper.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

App. - Foreign Assistance and Related Agencies Appropriations Act, 1971.

MMA - Merchant Marine Act of 1936, as amended.

COUNTRY PERFORMANCE

Progress Towards Country Goals

1. FAA Sec. 208; Sec. 251 (b)

A. Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

(1) The GON is continuing to make substantial efforts to increase food production and improve food storage and distribution facilities. AID Loan No. 524-L-022 (Basic Crops) required that the GON match the amount of $9 million with its own funds. The GON is complying beyond the requirement. In addition the GON has received and is using Funds from the EXIMBAN to increase storage capacity. The GON has also signed a grant agreement with the USAID for a TC Program in marketing and distribution to improve food storage and distribution system.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.	(2) The GON has created a favorable climate for foreign and domestic private enterprise and investment. Only the size of the markets and the scarcity of skilled human resources can be considered as limiting the participation of the foreign and domestic private investors.
(3) Increasing the public's role in the development process.	(3) The public's role in the development process has been considerable in Nicaragua and the GON is actively attempting to stimulate further participation therein the GON is contributing cash to this project that will reach about 100,000 people in the rural area to be served.
(4) (a) Allocating available budgetary resources to development.	(4) (a) The GON allocates a significant portion of its National Budget to activities related to Development. Twenty-five percent of total budgetary expenditures was allocated to investment.
(4) (b) Diverting such resources for unnecessary military expenditure (See also Item No. 16) and intervention in affairs of other free and independent nations. (See also Item No. 14.)	(4) (b) Nicaragua does not appear to be making unnecessary military expenditures nor preparing to intervene in the affairs of any other free and independent nation.

(5) Willing to contribute funds to the project or programs.	(5) The GON is contributing to this project to the extent of its capacity. In addition it is providing adequate budget funding for the Coordinating Committee and the National Planning Office which is being reorganized and reinforced. Both Institutions will have substantial inputs in this project. The GON and the borrower are investing about $1.6 million in this project.
(6) Making economic, social and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprises.	(6) Nicaragua has initiated various programs tending to social and political reforms, tax collection improvement, additional taxes, changes in land tenure, reliability on property records. AID Loan No. 524-L-012 (Tax Improvement) has been a great help. Nicaragua recognizes the value of freedom of expression and of the press as well as the importance of individual freedom, initiative and private enterprise. See CFS for 1969 for additional information in this respect.
(7) Adhering to the principles of the Act of Bogota and Charter of Punta del Este.	(7) Account has been taken of the Borrower's adherence to the principles of the Act of Bogota and the Charter of Punta del Este.
(8) Attempting to repatriate capital invested in other countries by its own citizens.	(8) In following a course of political stability and in its efforts to promote economic development, Nicaragua gives an incentive to its own citizens to repatriate capital.

(9) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	(9) Account has been taken of the Borrower's responsiveness to the vital economic political and social concerns of its people. Nicaragua is improving its educational system and its public health service.
B. Are above factors taken into account in the furnishing of the subject assistance?	Yes
Treatment of U.S. Citizens	
2. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?	2. The Borrower is not known to be indebted to any U.S. Citizen in any such manner.
3. FAA Sec. 620 (e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?	3. The GON has not taken any such action.
4. FAA Sec. 620(o); Fishermen's Protective Act. Sec. 5. If country has seized, or imposed any penalty or sanction against any U.S. fishing vessel or account of its fishing activities in international waters.	4. The GON has not seized or imposed any penalty or sanction against any U.S. fishing vessel on account of its fishing activities in international waters.

a. Has any deduction required by Fishermen's Protective Act been made?	a. N.A.
b. Has complete denial of assistance been considered by A.I.D. Administrator?	b. N.A.

Relations with U.S. Government and Other Nations.

5. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?	5. No productive enterprise which will compete with U.S. private enterprise in the U.S. is being financed by this project.
6. FAA Sec. 620(i). Has the country permitted or failed to take adequate measures to prevent, the damage or destruction by mob action, of U.S. property?	6. Nicaragua has not permitted this and has taken adequate measures to prevent such damage or destruction.
7. FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. Administration within the past year considered denying assistance to such government for this reason?	7. The GON has instituted the investment guaranty program in which guaranties were issued for operations amounting to more than $25 million by the end of CY 1970.
8. FAA Sec. 620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country?	8. No.
9. FAA Sec. 620(t). Has the country severed diplomatic relations with U.S.? If so, have they been resumed and have new bilateral assistance agreements been nogotiated and entered into since such resumption?	9. Nicaragua maintains diplomatic relations with the U.S.

10.	FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearage taken into account by the A.I.D. Administrator in determining the current A.I.D. Operating Year Budget?	10. Nicaragua is not delinquent on its U.N. obligations.
11.	FAA Sec. 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?	11. Nicaragua does not furnish assistance to Cuba and has taken appropriate steps to prevent trade with Cuba.
12.	FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?	12. The Secretary has so determined.
13.	FAA Sec. 620(f). Is recipient country a Communist country?	13. No
14.	FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the U.S. or any country receiving U.S. assistance, or (b) the planing of such subversion or aggression?	14. No
15.	FAA Sec. 620(n) Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam?	15. Available information reveals no case of trafficking or permitting trafficking with North Viet-Nam.

Military Expenditures

16. FAA Sec. 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points to be coordinated with PPC/MAS).

16. Approximately 11% of the budget goes for military expenditures. Foreign exchange resource spent on military equipment is minimal. No expenditure is made for the purchase of sophisticated weapons systems.

CONDITIONS OF THE LOAN

General Soundness

17. FAA Sec. 201(d). Information and conclusion on reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

17. The proposed loan is legal under the laws of Nicaragua and the U.S. and its terms are considered reasonable for Nicaragua at this

18. FAA Sec. 251(b) (2); Sec. 251(e). Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds $100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

18. A detailed feasibility study has been prepared for this project. The USAID has reviewed this study and finds the project to be economically and technically sound.

19. FAA Sec. 251(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

19. Nicaragua is current in meeting its external debt service obligations. It appears reasonably certain that Nicaragua will repay the loan. The country's foreign exchange position warrants the conclusion that dollars will be available as needed for repayment.

20. FAA Sec. 611(a) (1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	20. Preliminary engineering plans, specifications and cost estimates and detailed financial projections have been prepared and were the basis of the data in this paper. Estimates on which loan is based reasonably represent maximum level of U.S. assistance.
21. FAA Sec. 611(a) (2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purposes of loan?	21. Additional legislation is not required in order to execute this project as planned. The Loan Agreement will require congressional ratification but this is not expected to interfere with timely execution.
22. FAA Sec. 611(e). If loan is for capital assistance, and all U.S. assistance to project now exceeds $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?	22. Yes (See Annex 1, Exhibit 2)
23. FAA Sec. 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.	23. At the time AID Loan No. 524-L-021 was authorized, the interest and willingness of international agencies to finance the project was determined. None of them expressed any interest in participating . It is assumed that this condition has not changed.

Loan's Relationship to Achievement of Country and Regional Goals.

24. FAA Sec. 207; Sec. 251(a). Extent to which assistance reflects appropriate emphasis on; (a) encouraging development of democratic economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained man-power in the country; (d) programs designed to meet the country's health needs, or (e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and voluntary agencies; transportation and communication; planning and public administration; urban development; and modernization of existing laws.

24. (a) The cooperative aspects of this project will definitely encourage the development of democratic grass--root institutions.

(b) This project will be aimed at reaching 100,000 of rural populations. The small farmers to be reached primarily produce food crops, so that a benefit of the project should be increased food production.

(c) The technical assistance and training aspects of the project will increase the availability of trained manpower.

(d) By improving the "Campesinos" living conditions and raising his level of aspiration, the project will have an indirect positive affect on health.

(e) This project will have direct positive affects on the development of industry, cooperatives and communications.

25. FAA Sec. 209. Is project susceptible of execution as part of regional project? If so why is project not so executed?

25. No.

26. FAA Sec. 251(b) (3). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.	26. This activity is an integral part of the USAID and the GON rural development programs and is aimed at raising the standard of living in the countryside and the development of the agricultural sector. (See Section V.B).
27. FAA Sec. 251(b) (7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.	27. Through assisting in the development and modernization of the rural sector the activity to be financed will contribute to the achievement of self-sustaining growth.
28. FAA Sec. 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private and local government institutions.	28. The nature of this project with its cooperative aspects will assure maximum participation on the part of the people in the economic development of Nicaragua.
29. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	29. This project is in response to a demonstrated need and desire of the people of rural Nicaragua, utilizes the country's intellectual resources to encourage institutional development and supports civic education.

30. FAA Sec. 601(a). Informationa and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competi tion; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.	30. The project will contribute favorably to each of these goals with the exception of (c) savings and loan associations and (f) labor unions, which are not applicable to this sector of the population in Nicaragua.
31. FAA Sec. 619. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?	31. Nicaragua is not a newly independent country.
32. FAA Sec. d 251(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of Inter-American Committee for the Alliance for Progress in its annual review of national development activities.	32. This activity is consistent with the findings and recommendations of the recent CIAP reviews held in March 1971, in Washington, D.C., which called for better planning and project preparation.
33. FAA Sec. 251(g). Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.	33. This loan will be directly used in the development of Rural Electric Cooperatives in Nicaragua and therefore assists in promoting the cooperative movement in Latin America.
34. FAA Sec. 209; Sec. 251(b) (8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America.	34. The improvements which are expected to result from this project should have a favorable impact on the economic and political integration of Latin America. It should contribute to advancing the date for an electrical interconnection with Honduras.

Loan's Effect on U.S. and A.I.D. Program

35. FAA Sec. 251 (b) (4); Sec. 102 Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.

35. This loan project will have a favorable impact on the U.S. economy in that a large part of the goods and materials financed thereunder will be from the U.S. and will be in addition to regular purchases in past years. (See Section V.E.)

36. FAA Sec. 601 (b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

36. Loan funds will be used to purchase goods, materials and services through U.S. private enterprise.

37. FAA Sec. 601 (d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?

37. Yes, procurement of engineering and professional services will be made according to the new guidelines of the U.S. policy as announced by President Nixon.

38. FAA Sec. 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.

38. U.S. small business will have a chance to participate in the furnishing of goods and services financed by the loan because all proposed procurement will be published in the Commerce Business Daily and AID Small Business Circular as specified in the AID Capital Guidelines.

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39. FAA Sec. 620 (h). Will the loan promote or assist the foreign aid proje cts or activities of the Communist-Block countries?	39. The Loan Agreement will provide that the assistance provided by this loan will not be used in a manner which promotes or assists foreign aid project of Communist-Block countries.
40. FAA Sec. 621. If technical assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional a nd other services from private enterprise on a contract basis. If the facilitiesof other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.	40. The Loan will finance the procurement of goods and services from pr ivate enterprise on a contract basis. No utilization of the services of other Federal Agencies is contempla ted.
41. FAA Sec. 252 (a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance i mports from private sources, or is otherwise being used to finance procurements from private sources.	41. All of the loan funds will go directly to private enterprise through the Borrower acting, in this case, as an intermediate credit institution, for sub-loans for the importation of materials, goods and services from private sources.
Loan's Compliance with Specific Requirements	
42. FAA Sec. 201 (d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter.	42. Yes.
43. FAA Sec. 608 (a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	43. The nature of the project, for all practical purposes, precludes the use of U.S. Government excess property.

44. FAA Sec. 604 (a). Will all commodity procurement financed under the loan be from U.S. except as otherwise determined by the President?	44. Procurement under the loan will be from the U.S. and other eligible countries as determined by the President of the United States.
45. FAA Sec. 604 (b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?	45. No bulk commodity procurement is contemplated under this loan.
46. FAA Sec. 604 (d). If the host country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the U.S. on commodities financed by the loan?	46. Nicaragua does not discriminate. The Loan Agreement will so provide.
47. FAA Sec. 604 (e). If off-shore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?	47. No agricultural commodities or products will be procured with this loan.
48. FAA Sec. 611 (b); App. Sec. 101. If loan finances wateror water-related land resource construction project or program is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?	48. Not applicable.
49. FAA Sec. 611 (c). If contracts for construction are to be financed what provision will be made that they be on a competitive basis to maximum practicable?	49. Contracts for construction will be awarded on a competitive basis, to the maximum extent practicable.
50. FAA Sec. 620 (g). What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?	50. Assistance provided by this loan will not be used to compensate owners for expropriated or nationalized property and the loan agreement shall so specify.

51.	FAA Sec. 612 (b); Sec. 636 (h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.	51. Nicaragua will contribute funds to meet all of the local currency costs of the project. There are no U.S. owned foreign currencies available for the project.
52.	App. Sec. 104. Will any loan funds be used to pay pensions, etc., for military personnel.	52. No.
53.	App. Sec. 106. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms?	53. Yes (See Summary and Recommendations.)
54.	App. Sec. 108. Will any loan funds be used to pay U.N. assessments?	54. No.
55.	App. Sec. 109. Compliance with regulations on employment of U.S. and local personnel for funds obligated after April 30, 1964 (Regulation 7).	55. Regulation 7 will be complied with.
56.	FAA Sec. 636 (i). Will any loan funds be used to finance purchase, long-term, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction?	56. No
57.	App. Sec. 401. Will any loan funds be used for publicity or propaganda purposes within U.S. not authorized by the Congress?	57. No
58.	FAA Sec. 620 (k). If construction of productive enterprise, will aggregate value of assistance to be furnished by U.S. exceed $100 million?	58. No
59.	FAA Sec. 612 (d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?	59. No

60. MMA Sec. 901 (b). Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and takers) financed with funds made available under this loan shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.	60. All such requirements will be complied with and the loan agreement shall so require.

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, William R. Haynes, the principal officer of the Agency for International Development in Nicaragua, having taken into consideration, among other things, the maintenance and utilization of projects in Nicaragua previously financed or assisted by the United States, do hereby certify that in my judgment Nicaragua has the technical and human resource capabilities to effectively maintain and utilize the Capital Assistance Project, "Rural Electric Cooperatives (III)".

I base this certification, in part, on the evidence of successful utilization and maintenance of projects already completed such as the Rio Tuma Hydroelectric Project, the First Highway Construction Program, the Las Mercedes Airport, and on the successful experience of the first Rural Electric Cooperative Program completed in 1968 and the progress made in implementing Rural Electric Cooperatives II, all of which were partially financed by A.I.D.

In the field of electrification, which is the subject of this loan, the public utility company concerned ("E.N.A.L.U.F.") has successfully executed two of the above A.I.D. financed projects, the Rio Tuma Hydroelectric Project and Rural Electric Cooperatives II and has long been a borrower of the International Bank for Reconstruction and Development ("I.B.R.D.").

The planning and studies for the subject loan were carried out by ENALUF with technical assistance from an A.I.D. contractor, the National Rural Electric Cooperative Association of the United States ("N.R.E.C.A."). This loan is based on a complete feasibility study made in 1968 and updated in 1971. During the intensive review for the project officials of ENALUF were made fully aware of their on-going responsibilities, and full concurrence of the President of Nicaragua was received in support of the project.

The Borrower and Sub-Borrower and the Government of Nicaragua can be expected to provide the financial, technical and human resources required to maintain and utilize the rural electric cooperative financed hereunder.

William R. Haynes
Director, USAID/Nicaragua

TO : Mr. William R. Haynes - Director, Agency for International Development (AID) - American Embassy

FROM : Luis Manuel Debayle - Executive President, Empresa Nacional de Luz y Fuerza

SUBJECT : RURAL ELECTRIFICATION PROGRAM

DATE : April 14, 1971

In relation to the proposed project to expand our Rural Electrification Program through the formation of an additional electric cooperative and through the purchase of additional material for the existing electric cooperatives, for which we have requested a loan from the Government of the United States of America through its Agency for International Development (AID), I am pleased to confirm to you the following:

1.- Regarding our discussions of Rural Electric Cooperative "E", the President of the Republic, General Anastasio Somoza Debayle has communicated to us that the Government of Nicaragua is willing to finance the additional local costs required beyond the contribution of ENALUF to the project, under the same terms and conditions of the AID loan to ENALUF.

2.- ENALUF will take the necessary action to provide an adequate supply of power to Cooperative "E", when solicited and in the future, at Yalagüina. The delivery voltage will be at 14.4/24.9 KV and 69 KV.

3. ENALUF will provide electricity at rates approved by the "Instituto Nacional de Energía Eléctrica" which has legal jurisdiction over such matters. Unless otherwise agreed, the average selling price to the Cooperatives will be ₡0.125 based on the estimated sales to the Cooperatives for 1971 and operating conditions of ENALUF for the same year.

It is also understood that the rates will be revised yearly and, if there is a variation in cost above o below 10%, the rates will be adjusted accordingly.

For the purpose of establishing a rate base for readjustments, the following items will be considered:

a) Cost of O & M of generation
b) Cost of O & M of transmission
c) Amortization of long-term debt for the ENALUF property
d) Accounting, Collection and General Administration
e) 20% of the sum of a, b, c and d for reserve.

Furthermore, in order to make possible for the Cooperatives to sell energy for irrigation at a rate similar to the rate of ENALUF, all energy sold for irrigation by the Cooperatives will be billed at ¢0.085. This rate will also be subject to yearly revision. The items to be considered for the revision, will be the following:

a) O & M of generation
b) O & M of transmission
c) Accounting, Collection and General Administration
d) 45% of the sum of a, b, and c for reserve.

The revision will also be made if the variation exceeds 10%, above or below.

4.- ENALUF will use its best efforts to assure Cooperative "E" that the point of connection at Yalagüina will be provided, and energy will be available to the Cooperative at said point of delivery within 90 days of whenever the Cooperative so requests.

5.- ENALUF agrees to lease, at the depreciation rate, to Cooperative "E", that portion of their distribution system located within the Cooperative territory that the Cooperative can make use of. The Cooperative to be responsible for all operation, maintenance, reinsulation, re-building or other changes. The facilities to become the property of the Cooperative after 20 years.

Any facilities which the Cooperative does not use in its system shall be removed by ENALUF with all materials remaining the property of ENALUF.

6.- ENALUF agrees to relend funds to the Cooperatives for the foreign currency requirements of construction, at the same terms which AID gives to ENALUF. In addition, the funds loaned

directly from ENALUF's own sources. To cover the local currency costs of the project, will be at the same terms as the AID loan to ENALUF.

7.- ENALUF agrees to establish and maintain a Rural Electrification Department of ENALUF under the Manager of Electrification. This Department will consist of at least 4 top personnel reporting directly to the Executive President and to the Manager of Electrification, and will receive full support and assistance from ENALUF's other Departments and personnel as necessary for backstopping. This Department will provide continuing technical services to the five rural electric Cooperatives. However, the overall goal of this Department will be to electrify all of the rural areas of Nicaragua. To this end much of their time must be spent working with other rural areas.

8.- ENALUF agrees to assist the Cooperatives in organization, establishing territory, training personnel, setting up records, etc., and in providing continuing assistance and training to the Cooperatives. Provide engineering, auditing, rate review and special services such as setting and maintaining regulation and oil circuit reclosers, installing 3 phase meters and testing on a cost basis.

9.- ENALUF agrees to use its best efforts to get full territorial rights for Cooperative "E" to serve in the areas as shown in the feasibility study.

10.- ENALUF agrees to provide the necessary engineering services for the original construction of the Cooperative "E" facilities from ENALUF's staff, at the price established in a contract with the Cooperative for these services.

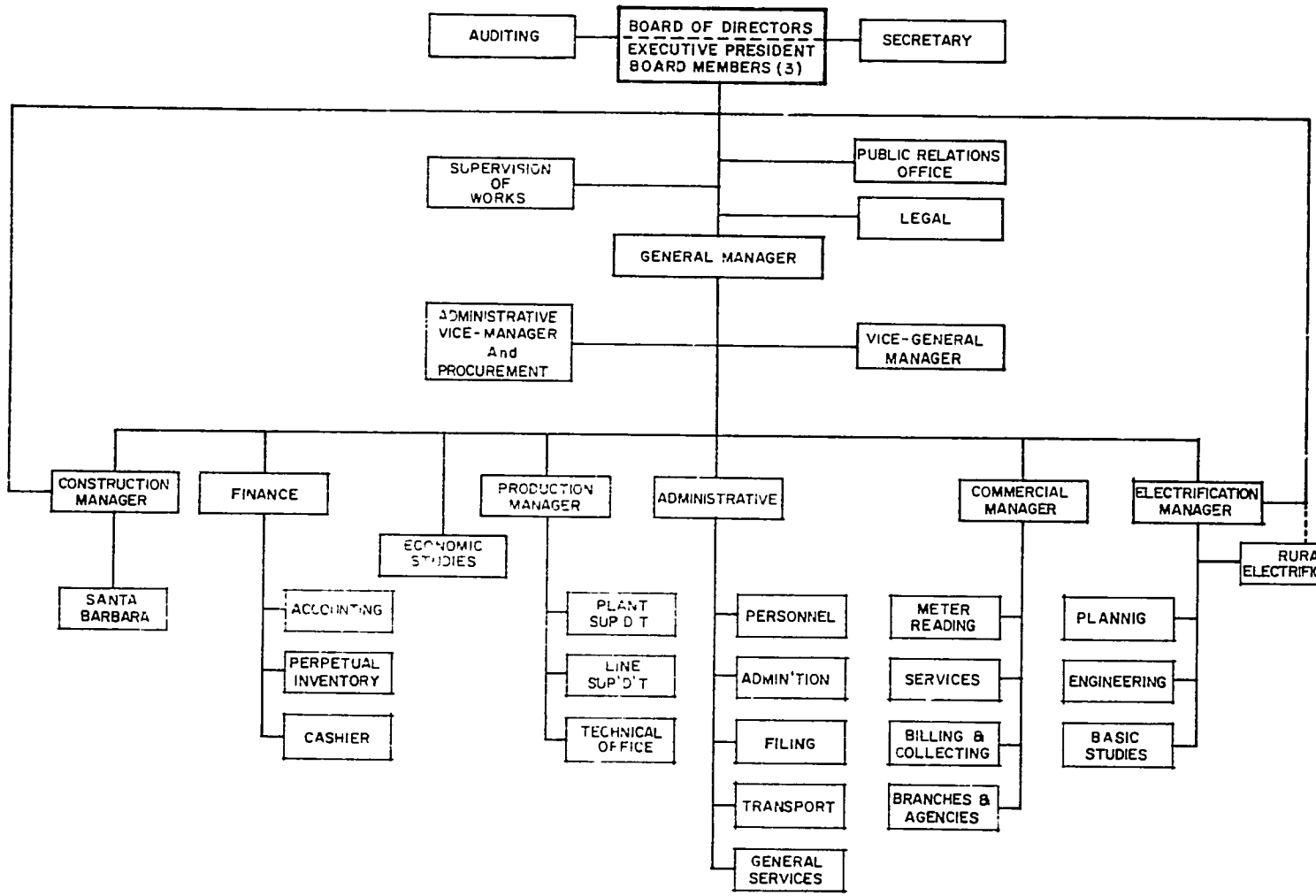
11.- ENALUF agrees to use its best efforts to assure that construction of the Cooperative systems will be executed in a timely manner.

12.- ENALUF will increase the level of loans to Cooperatives "A", "B", "C" and "D" under the terms of the existing sub-loan agreements in the amount of the additional materials being purchased under the loan being considered. These additional materials, to serve customers not contemplated in the original loan will be installed through Cooperative "force account" procedures. The employment of twenty outside employees per Cooperative was contemplated in the original Engineering-Economic Feasibility study for operations and maintenance purposes. Therefore, the costs of these employees is included in the ten-year financial projections.

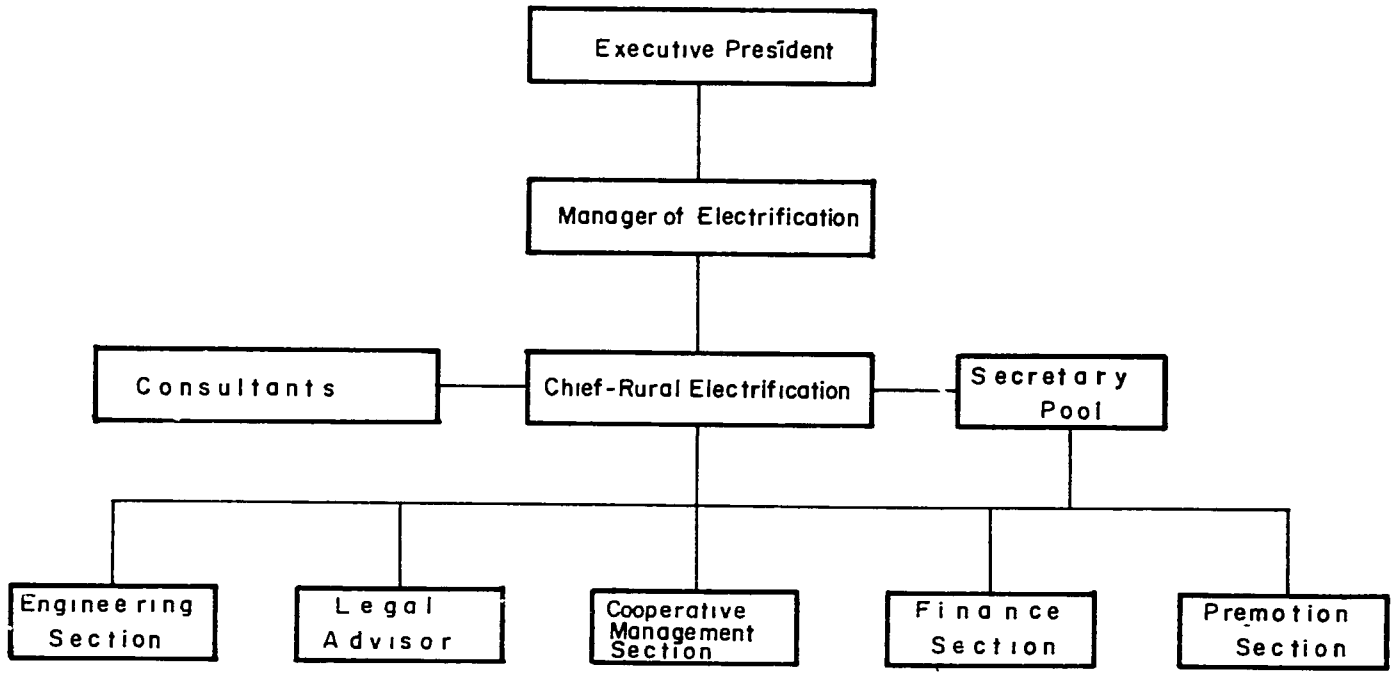
During the early years of operations, when maintenance will be negligible, these employees can be used to construct facilities for consumers who would otherwise not be served.

cc: Gerencia de Electrificación - Depto. de Electrificación Rural - Indice - Archivo.

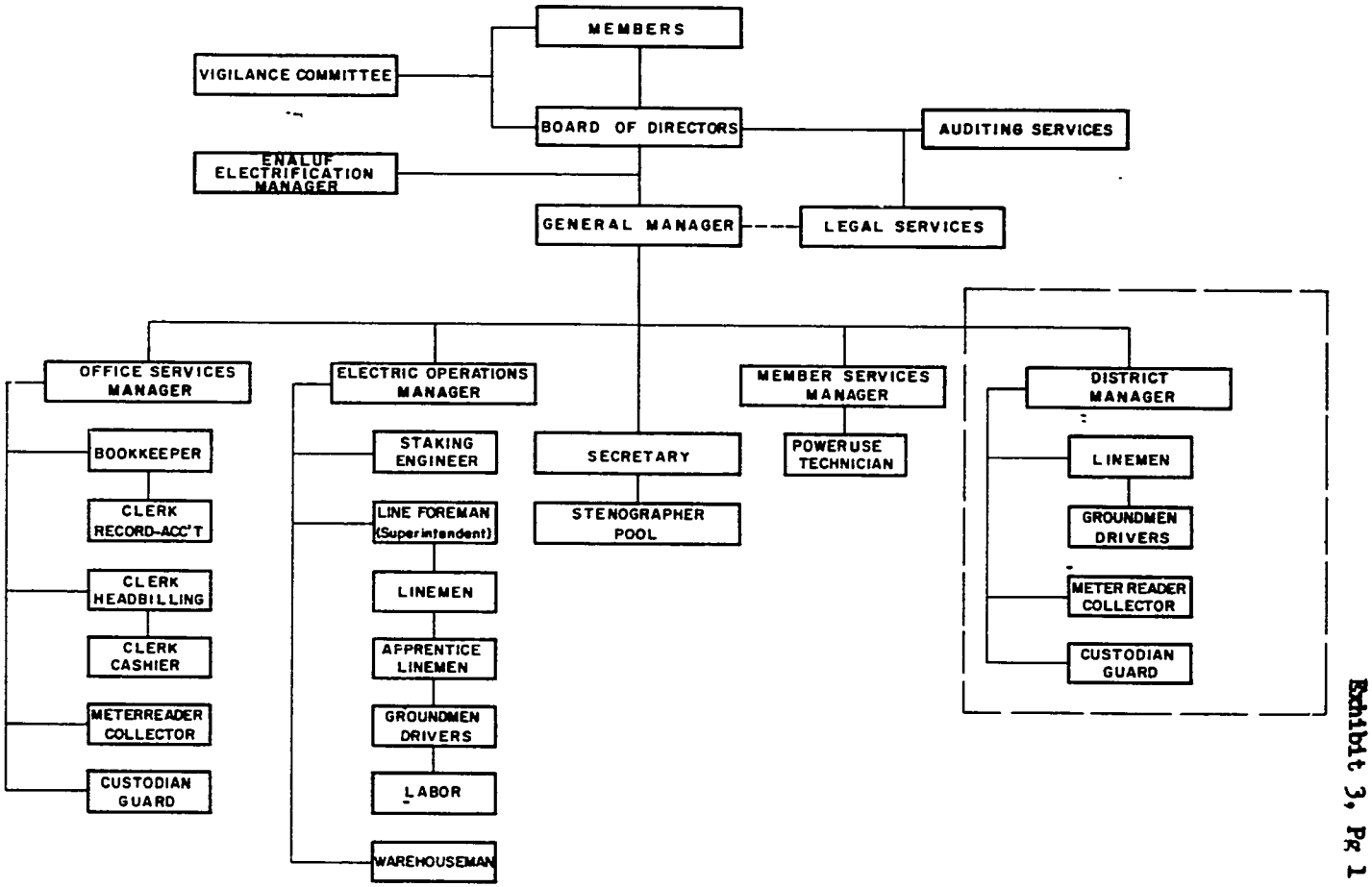
EMPRESA NACIONAL DE LUZ Y FUERZA
NICARAGUA C.A.
ORGANIZATION CHART



ENALUF DEPARTMENT OF RURAL ELECTRIFICATION
ORGANIZATION CHART



COOPERATIVE TYPICAL OPERATIVE ORGANIZATION



ANNEX

BIOGRAPHIC INFORMATION ON PRINCIPAL ENALUF OFFICERS

DR. LUIS MANUEL DEBAYLE, Executive President of ENALUF

Born:	May 24, 1894
Education	Graduated from School of Medicine of U. of Pennsylvanie in 1919 Obtained Master's degree in Public Health from John Hopkins U. in 1934.
Positions Held:	First Director General of Public Health - 1925 Nicaraguan Consul in Baltimore, Md., - 1930 Chargé d'affaire a.i. of Nicaraguan Embassy in Washington, D.C., 1933 Minister of Foreign Relations of Nicaragua-1936 Director General of Public Health, 1937 Member Executive Board of Pan American Health Office, Washington, D.C., 1941 Minister of Foreign Relations of Nicaragua, 1948 Senator of Nicaragua, 1950 President of the Senate and alternatively President of Congress, 1952 Nicaraguan Ambassador to the U.S. 1960/1966.
Conferences Attended:	Nicaraguan Delegate to VI Commercial Conference in Washington, D.S. Head of Nic. Delegation to Peace Conferences in Argentina, 1936 President of Nic. Delegation to Pan American Health Conferences in Colombia, 1938 Honor Guest at Meeting of American Association of Public Health, 1942 Delegate with rank of Ambassador to conferences on the organization of the U.N. in San Francisco, Calif. 1945 President of Nic. Delegation to IX Interamerican Conference in Colombia, 1948. As Minister of Foreign Relations, Represented Pres. Nica. Delegation to U.N. Conference in Paris, France, 1948.
Major Publications:	Political Works Documents and Conferences "For Democracy"; "Political Reality of Nicaragua"; "A Propos the Central American Conferences"; "Defense of Liberalism"; "Panamericanism & Interamericanism"; "Liberalism & Socialism"; "Towards a Social Medicine"; Cooperation & Solidarity of the Americas"; "Democrasy & Communism"; "Mission & Importance of the United Nations". Scientific Works Several Documents of Abdominal Surgery "First Medical Aid in Case of War".

RAMIRO LACAYO MONTEALEGRE - Representative of Private Enterprise in the Executive Council of ENALUF

Born: June 22, 1914

Positions Held:

President of the following enterprises:
Combustibles & Lubricantes, S.A. (Fuel & Lubricators)
Azucarera Lacayo Montealegre, S.A. (sugar refinery)

Secretary Board of Director of Marías Agrícolas (Agriculture)

Treasurer of Board of Directors of Envases Industriales (Industrial Containers)

Director of Board of Maquinarias de Centro America (Machinery)

Member of National Board of Turism of Nicaragua

FRANK ARANA VALLE - Representative of Minority Party (Conservative Party) in the Executive Council of ENALUF.

Born: February 21, 1916

Education: Correspondence studies on Electronic Engineering in the field of Radio Transmission and Reception

Positions Held:

Founder and Co-Owner of Nic. Chain of Broadcasters (Mundial Radio Station)

Treasurer General of Conservative Party of Nicaragua since June 1966.

JORGE ARGUELLO BARRA

Born: January 22, 1916

Education: Chemical Engineer, National University of Mexico

Positions Held: Member of the Integration and Development Studies Commission Ministry of Economy - 1959/62 - Ad Honorem.

Member of the Counseling Committee for the Industrial Technical Cooperation Center of INFONAC - 1960/64 - Ad Honorem.

President of the Industrial Development Consulting Committee Ministry of Economy - 1958/60

Member of the Board of Directors of Comisión Nacional de Energía 1958/60

Founding President of the Industrial Association of Nicaragua 1957/60 - Ad Honorem

Director of the Managua Chamber of Commerce and Industry - 1956/59 - Ad Honorem

Director of the Industrialist Association of Nicaragua - 1960/67 Ad Honorem

Member of the Nicaragua Productivity Center Committee 1965/67 - Ad Honorem

Positions Presently Held:

Member of the Board of Directors of Empresa Nacional de Luz y Fuerza.

President and General Manager of Compañía Industrial Centroamericana, S.A.

OCTAVIO SALINAS M. - General Manager of ENALUF

Born: April 24, 1926

Education: Electric Engineer - Catholic University of America, Washington, D.C., 1950
Special Studies in Administration - U. of Colorado - 1951

Positions Held:

Projection Engineer of Bureau of Reclamarion (Hydroelectric Plants) Denver, Colorado - 1951/52

Projection Engineer - Harza Engineering, Co. (Transmission Lines) New York, U.S.A. 1953

Engineer in charge of linking Electric Projects of ENALUF in the Pacific Zone of Nicaragua - 1954

Chief of Engineering & Planning Department of ENALUF - 1956

Vice Manager & Chief Engineer of ENALUF 1960/1966

General Manager of ENALUF since 1967

Professor at School of Engineering of Nat'l, Univ. of Nicaragua 1956/66

Professor at Central American University in Managua - 1964/66

Nicaraguan Coordinator for interconnection Project between Nicaragua and Costa Rica

Nicaragua Delegate to sub-committee for Central American Electrification.

EDUARDO ROMAN - Vice General Manager
Head of Financial Dept. of ENALUF

Born: May 5, 1937

Education:
Lawyer's Degree of Autonomous Univ. of Guadalajara, Mexico, 1962
Lawyer"s Degree from Aut. Univ. of Mexico 1963
Master's Degree in Economics, Indiana University, 1965
Completed studies required for Ph. D. pending only presentation of Thesis for Granting Ph. D.
Business Administration course given by the Graduate School of Business Administration of Harvard Univ. in Central America
Course on Management & Control of Inventories given by IBM Personnel in Cuernavaca, Mexico 1967.
Course on Human Relations given by Banco Nacional de Nicaragua

Positions Held:
Lawyer of various private enterprises among them Attorney for RANGO S.A. - 1962/1963
Legal Assistant, Personnel & Public Relations Dept. of Banco Nacional de Nic. - 1963
Chief, Financial Sect. of Banking Operations Dept. of Banco Nacional de Nic. - 1967
In charge of Board of Director's Consultant Office at Banco Nacional de Nic.

Conferences Attended:

Part of Nicaraguan Delegation before CIAP Sub-Committee in Washington, D.C. - October 1966, representing Banco Nacional de Nicaragua.

ALFREDO GUERRERO RUIZ - Electrification Manager

Born: March 20, 1929

Education: B.S. in Civil Engineering fron Loyola University in Loa Angeles, Calif. - 1952

Positions Held: Bureau of Reclamation of U.S. In-service-trainee in Hydrology, Canals, Dams and Hydraulic Works - 1953-54

Chief Engineer Road Construction - Ministry of Public Works Nicaragua - 1952-53

Director of National Energy Commission in Ministry of Public Works - 1954/60

T U M A

Construction Manager of Hydroelectric Project of ENALUF - 1960/65

Head of Electrification Office of ENALUF since 1965

Conference Attended:

Congress on Large Dams, New York, 1958
Representing Ministry of Public Works - Nicaragua

MANUEL ANTONIO GUERRERO OBANDO

Born: December 16, 1929

Education: B.S. in Electrical Engineering from Columbia University in New York N.Y.

Studies at NRECA and REA on Rural Electrification Administration and also at University of Wisconsin

Positions Held:

Maintenance Engineer for ENALUF's substations and communication Equipment 1958/61

Chief of Electrical Engineering Department of Energy Commission 1961/1966

Ex-Professor of Electronics at the Central American University, Managua, Nicaragua

Ex-Professor of Physics and Mathematics at the National University of Nicaragua

Delegate of National Energy Commission in Electrical Interconnection betweem Nicaragua and Costa Rica.

National Energy Commission Delegate in Central American Committee for Electric Regulations

Development Division of ENALUF and Chief of Rural Electrification Section since 1967.

Conferences Attended:

III Conferencia de Electrificación Rural as ENALUF representative Mexico D.F. 1969

NRECA Seminar in Louisville, Kentucky - ENALUF representative 1969

LEONTE VALLE LOPEZ

Born: May 3, 1922

Education: Lawyer's degree from Central University of Managua, 1945

Positions presently held:

Legal Advisor to ENALUF since February, 1961

Legal Advisor to INCEI (National Institute for External & Internal Commerce) since January 1964

Vice President of Administrative Council of "Caja Nacional de Crédito Popular" since October 1959.

Substitute Congress Representative and Substitute Judge of Supreme Court of Elections as Delegate of National Liberal Party

Private Law Office since 1945; Legal Advisor to several important private enterprises.

FRANCISCO EDGAR MACHADO ANDRADE

Born: April 29, 1942

Education: Electric Mechanical Engineer degree from Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico

Positions Held: ENALUF -- Engineering Department for 5 years

Presently:

Chief of the Engineering Department

FEDERICO KELLY

Born: August 10, 1941

Education: Globe Business College, St. Paul, Minnesota - concluded studies in Accounting and Auditing

Training received from Federal Electric Commission of the United States of Mexico in Organization, Installation and Control of Warehouses and physical properties in public utilities. (Electrical)

Positions Held: Assistant to Texaco Caribbean Co. - Controller (1 year)

Assistant to Banco Nacional de Nic. Advisor in Reorg. of Accounting and Costs sections of Bank (1 year)

Auditor in C.P.A. firm, Donkin & Argüello ($2\frac{1}{2}$ years)

Internal Auditor of ENALUF for past $6\frac{1}{2}$ years.

OSCAR GALLO

Born: June 10, 1940

Education: Electric-Mechanical Engineer Degree - Universidad Centroamericana de Managua, Nicaragua

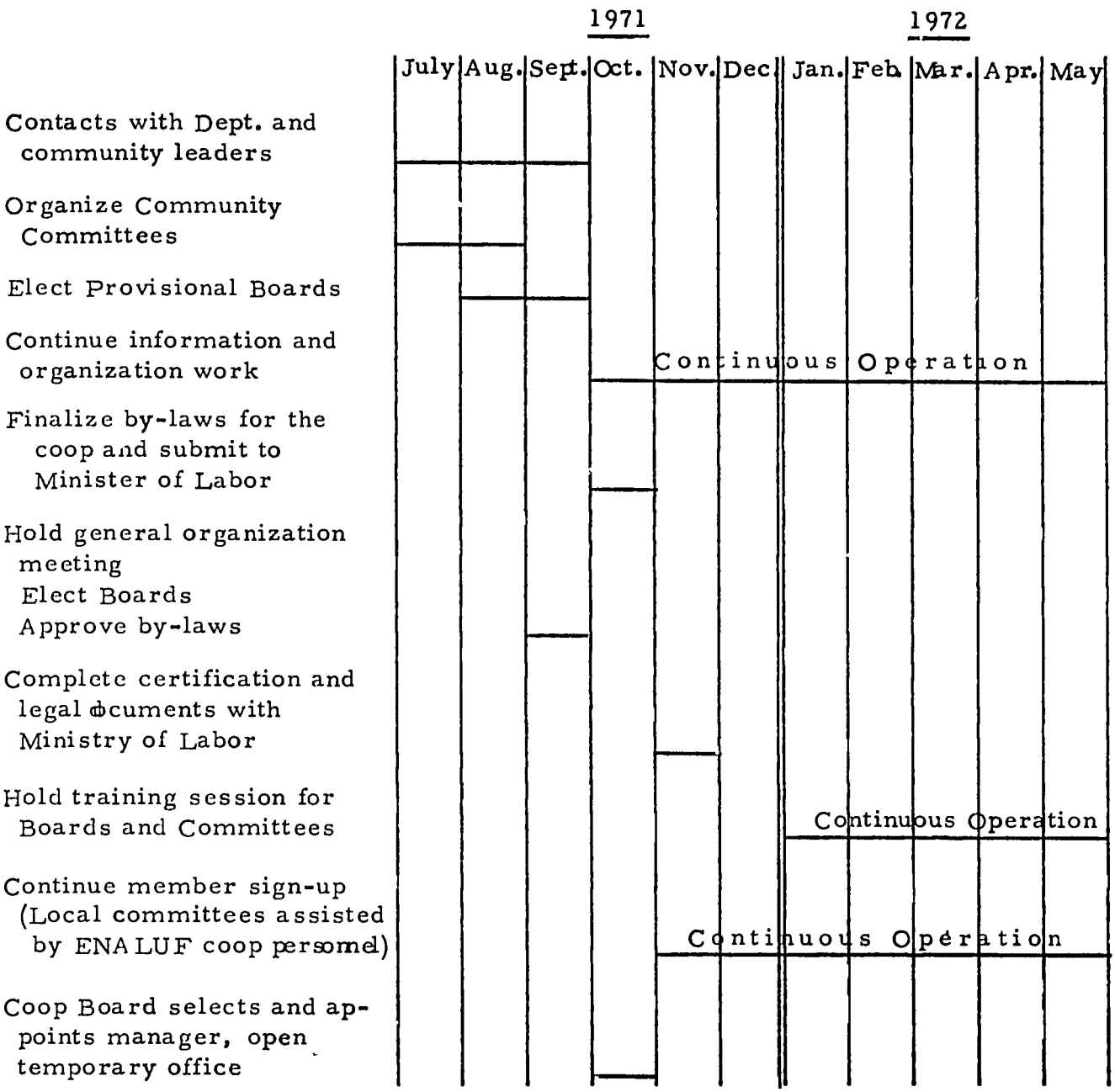
Position Held: Planning Office of ENALUF for the past four years.

SUMMARY OF COOPERATIVE PERSONNEL AND EQUIPMENT NEEDS

		Rate 1st. year	COOP."E" # Req'd	TOTAL COST
A	General Manager	50000	1	50000
A	District Manager	35000		35000
S	Power Use & Public Rel.	35000	1	35000
E	Mgr. of Electric Opr.	35000	1	35000
C	Office Manager	35000	1	35000
A	Secretary	19000	1	19000
C	Bookkeeper	24000	1	24000
C	Clerk	10000	5	50000
A	Guard-Custodian	7000	1	7000
C	Meter Reader-Collector	10000	9	90000
S	Power Use Teck	25000	2	50000
E	Staking Engineer	17000	1	17000
E	Superintendent (LF)	19000	1	19000
E	Lineman	17000	6	102000
E	Apprentice Lineman	12000	4	48000
E	Groundmen-Drivers	9000	5	45000
E	Warehouseman	10000	1	10000
E	Labor	6000	4	24000
	TOTAL		45	695000
	Total Administration		3	111000
	Total Sales			85000
	Total Office (c)			199000
	Total Electric Opr.			300000
	4-Wheel Drive Pick Up with Service Body & Winch	30000	5	150000
	Jeep Station Wagon (4 W.)	20000	3	60000
	Truck 3 ton. with Winch & Boom	45000	1	45000
	Pole Trailer (Small)	1000	2	2000
	Motor Bike	4000	10	40000
	Car, Small	15000	1	15000
	TOTAL			347000

Salary Increases of 5% per year to include additional personnel.

COOPERATIVE ORGANIZATION SCHEDULE



FREE TRANSLATION

INSTITUTO NACIONAL DE ENERGIA ELECTRICA
Callejón de Comunicaciones No. 201
Managua, D. N., Nicaragua, C. A.

Apartado No. 3787
Teléfono 2-2908

April 20, 1971

Agency for International Development (AID)
Managua, D. N.

Gentlemen:

The National Electric Institute, which I am honored to preside, and which constitutes the regulating organism of the electrical industry in the country, has been in close contact with the Rural Electrification Department of ENALUF, in all matters related to the project of Cooperative "E", which includes the Departments of Estelí, Madriz and Nueva Segovia, in the northern part of the country. Knowing thoroughly the significance of the rural electrification programs in the socio-economic development of Nicaragua as they help to improve the standard of living of the population benefitted by these services, the Institute has cooperated closely in the realization of the projects in its legal attributions and, concretely, in that pertaining to the project of Cooperative "E", can grant the following assurances:

a) A concession will be granted to Cooperative "E" in the area of service as soon as requested by the cooperative.

b) That there can be no problem in transfering the ENALUF concession to Cooperative "E" since this State entity is interested in the successful development of rural electrification.

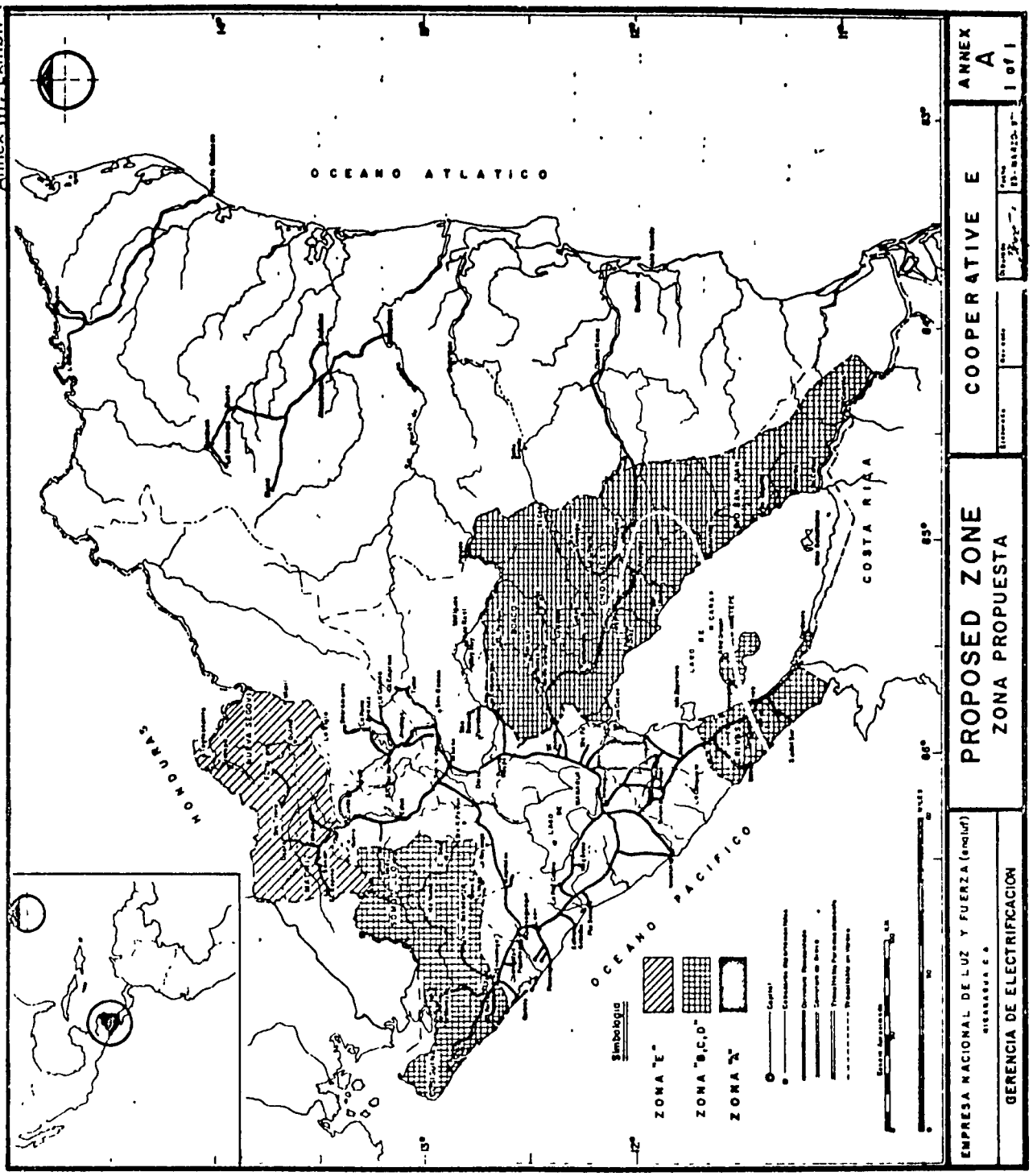
c) That there can be no problem in relation to the concession of the private electrical companies in the area which will be covered by Cooperative "E", because it is a policy of the Institute not to grant new concessions nor extend existing ones in the area which will be covered by the cooperative.

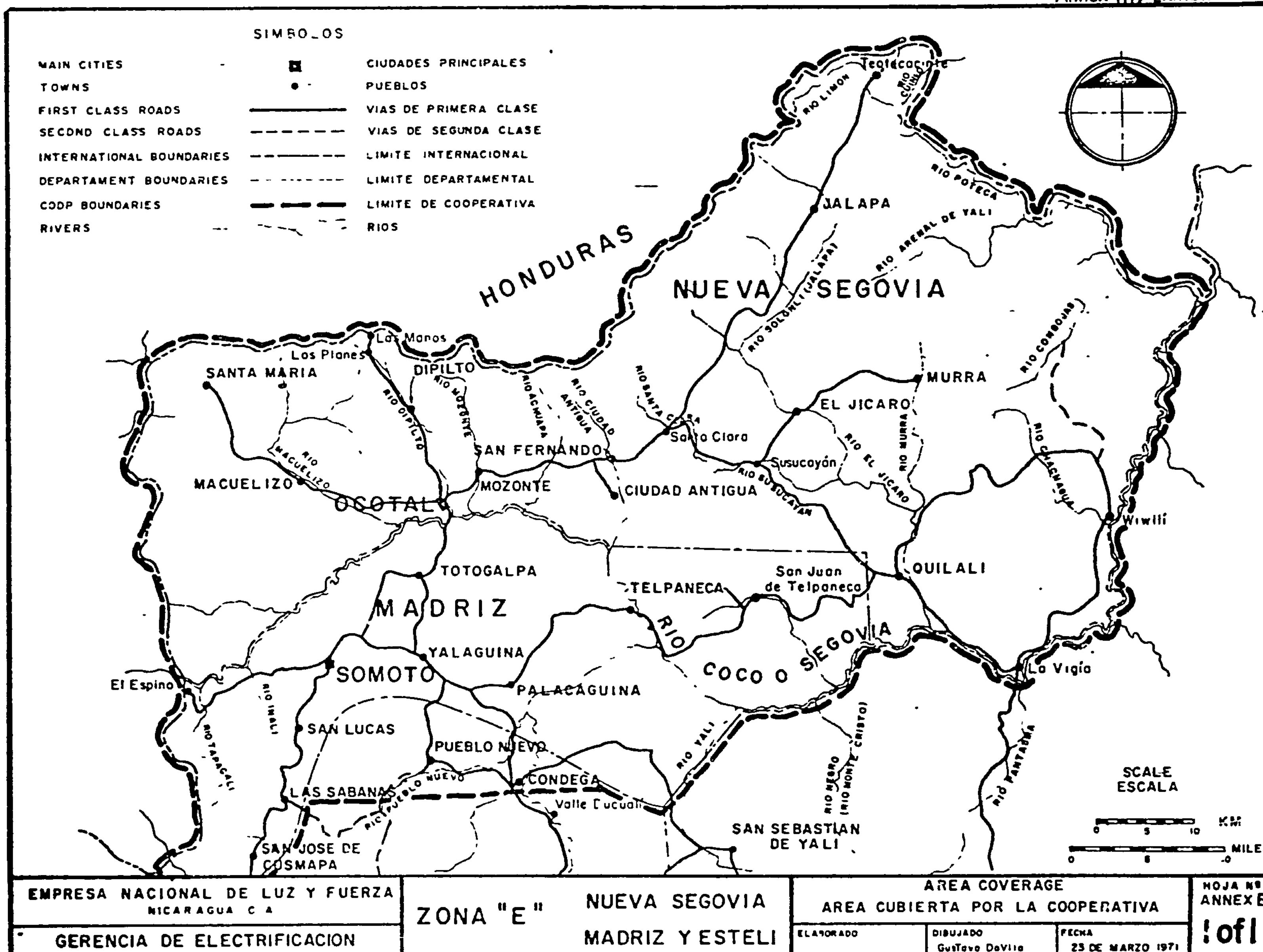
..../..

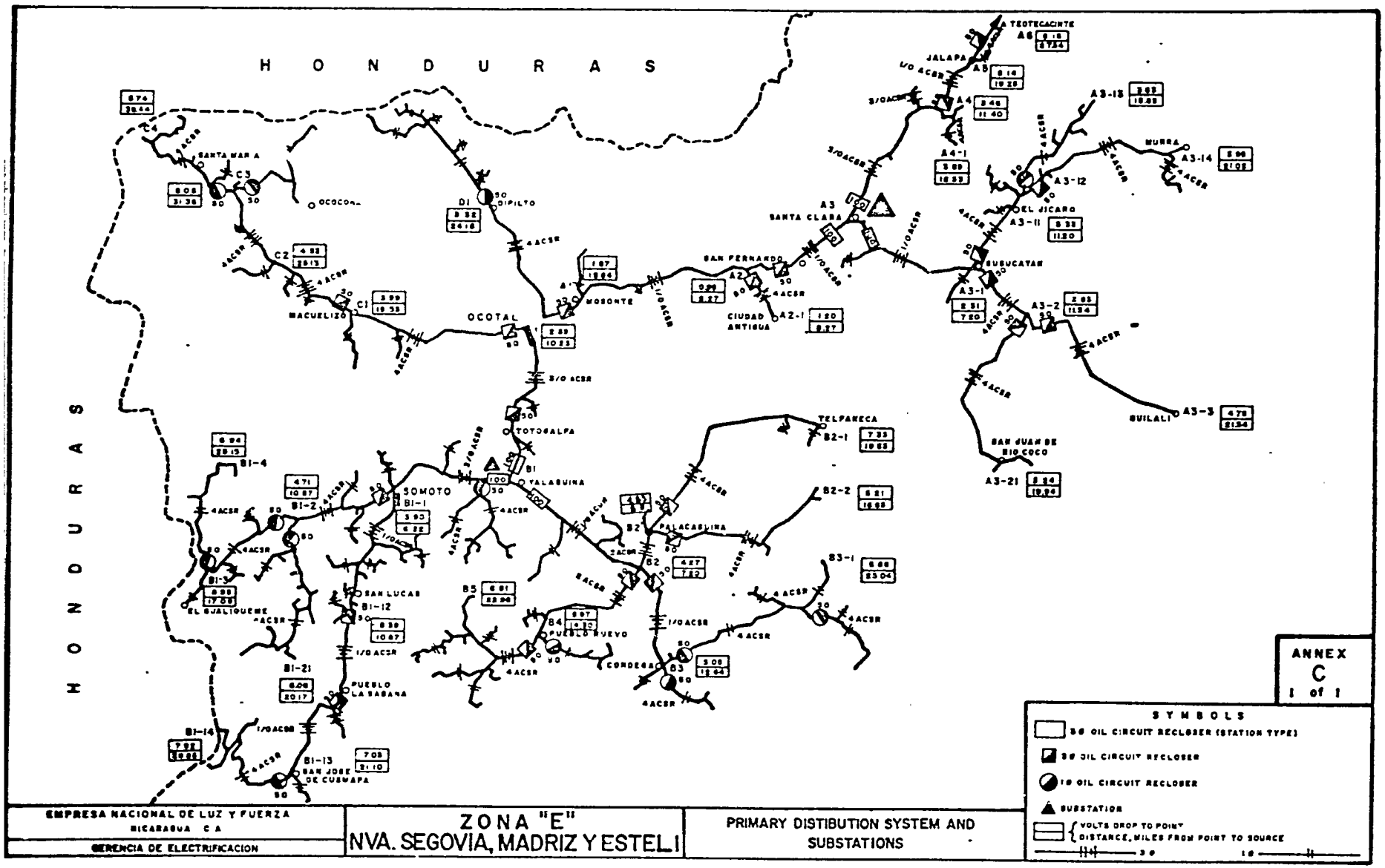
We extend this note in response to a request made in this respect by the Rural Electrification Department of ENALUF, to which we have agreed because we consider it to be within our attributions and because in this way the Institute fulfills the ends which are imposed by the enabling legislation and the Law on Electrical Industry.

I take this opportunity to extend my greetings.-

Jesus Castillo Alvarado
President
National Electric Institute

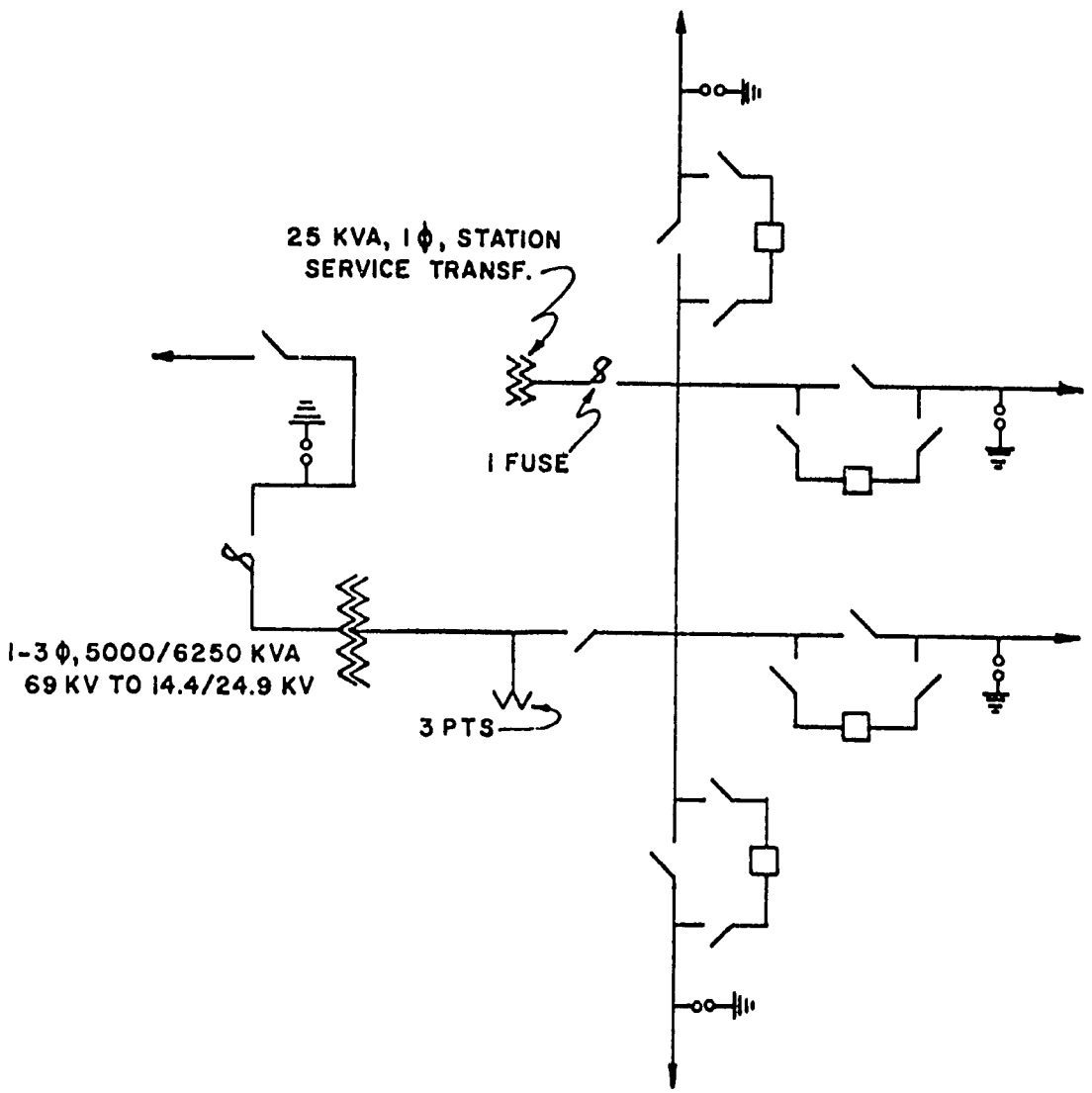

OCEANO ATLATICO
HONDURAS
COSTA RICA
OCEANO PACIFICO
Simbología
ZONA "E"
ZONA "B,C,D"
ZONA "A"
PROPOSED ZONE
ZONA PROPUESTA
COOPERATIVE E
ANNEX A
1 of 1
EMPRESA NACIONAL DE LUZ Y FUERZA (en liquidación)
GERENCIA DE ELECTRIFICACION


SIMBOLOS
MAIN CITIES — CIUDADES PRINCIPALES
TOWNS — PUEBLOS
FIRST CLASS ROADS — VIAS DE PRIMERA CLASE
SECOND CLASS ROADS — VIAS DE SEGUNDA CLASE
INTERNATIONAL BOUNDARIES — LIMITE INTERNACIONAL
DEPARTAMENT BOUNDARIES — LIMITE DEPARTAMENTAL
COOP BOUNDARIES — LIMITE DE COOPERATIVA
RIVERS — RIOS
HONDURAS
NUEVA SEGOVIA
MADRIZ
RIO COCO O SEGOVIA
Teotecacinte
RIO LIMON
JALAPA
RIO POTECA
RIO ARENAL DE YALI
RIO SOLORLI (JALAPA)
Los Manos
Los Planes
SANTA MARIA
DIPILTO
RIO DIPILTO
RIO MOZONTE
RIO ACHUAPA
RIO CIUDAD ANTIGUA
RIO SANTA CLARA
Santa Clara
MURRA
EL JICARO
RIO COMBOJAS
RIO MURRA
RIO EL JICARO
Susucayán
RIO SUSUCAYAN
RIO CHACHAGUA
SAN FERNANDO
MOZONTE
CIUDAD ANTIGUA
MACUELIZO
RIO MACUELIZO
OCOTAL
Wiwilí
TOTOGALPA
San Juan de Telpaneca
TELPANECA
QUILALI
YALAGUINA
SOMOTO
El Espino
PALACAGUINA
La Vigía
RIO INALI
RIO TAPACALI
SAN LUCAS
PUEBLO NUEVO
RIO YALI
RIO NEGRO
RIO MONTE CRISTO
RIO PANTASMA
LAS SABANAS
RIO PUEBLO NUEVO
CONDEGA
Valle Ducuali
SAN SEBASTIAN DE YALI
SAN JOSE DE CUSMAPA
SCALE ESCALA
KM 0 5 10
MILES 0 5
EMPRESA NACIONAL DE LUZ Y FUERZA
NICARAGUA C A
GERENCIA DE ELECTRIFICACION
ZONA "E"
NUEVA SEGOVIA
MADRIZ Y ESTELI
AREA COVERAGE
AREA CUBIERTA POR LA COOPERATIVA
ELABORADO
DIBUJADO Gustavo Davila
FECHA 25 DE MARZO 1971
HOJA No ANNEX B
1 of 1

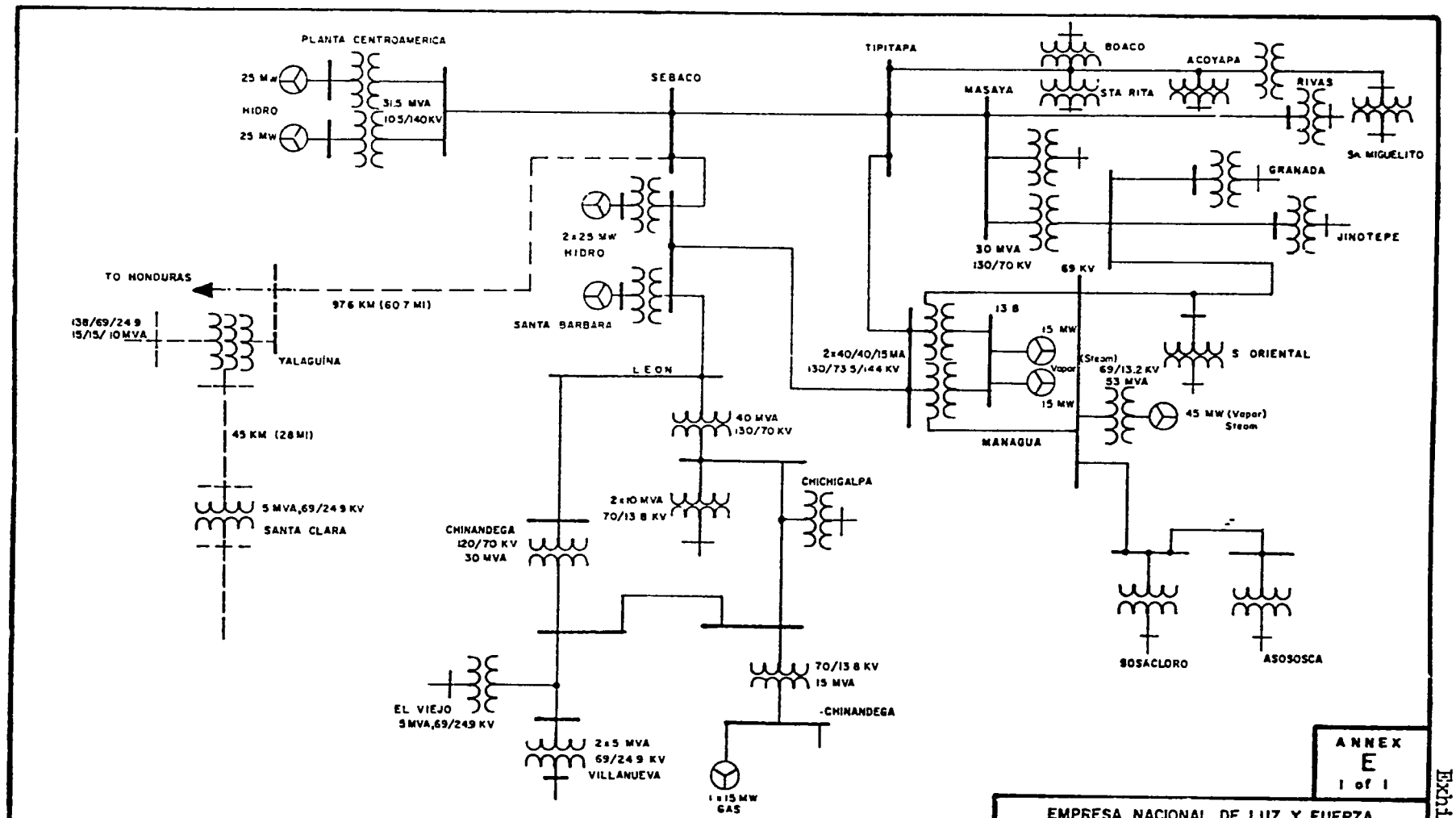

H O N D U R A S
HONDURAS
SANTA MARIA
OCOCONA
DIPILTO
OCOTAL
MACUELIZO
MOSONTE
SAN FERNANDO
CIUDAD ANTIGUA
SANTA CLARA
JALAPA
TEOTECACINTE
EL JICARO
MURRA
SUBUCAYAN
BUILALI
SAN JUAN DE RIO COCO
TELPANECA
PALACAGUINA
CORDOBA
PUEBLO NUEVO
TOTOGALPA
YALAGUINA
SOMOTO
SAN LUCAS
EL GUALTOQUEME
PUEBLO LA SABANA
SAN JOSE DE CUSMAPA
ANNEX C 1 of 1
SYMBOLS
30 OIL CIRCUIT RECLOSER (STATION TYPE)
30 OIL CIRCUIT RECLOSER
10 OIL CIRCUIT RECLOSER
SUBSTATION
VOLTS DROP TO POINT
DISTANCE, MILES FROM POINT TO SOURCE
EMPRESA NACIONAL DE LUZ Y FUERZA
NICARAGUA C A
GERENCIA DE ELECTRIFICACION
ZONA "E"
NVA. SEGOVIA, MADRIZ Y ESTELI
PRIMARY DISTIBUTION SYSTEM AND SUBSTATIONS

STA. CLARA SUBSTATION

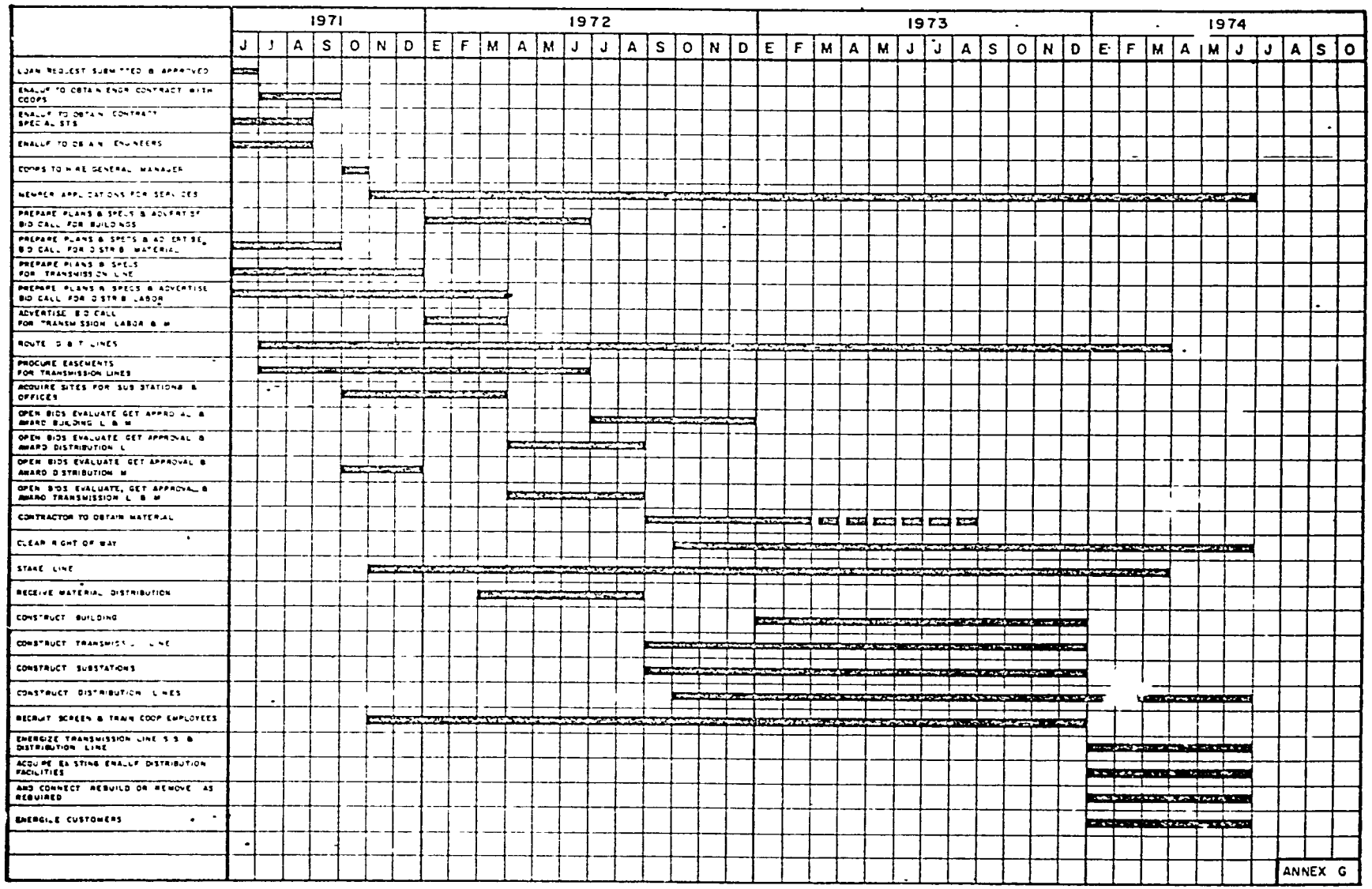
ONE LINE DIAGRAM



ANNEX
D
1 of 1


PLANTA CENTROAMERICA
25 MW
HIDRO
25 MW
31.5 MVA
105/140KV
SEBACO
TIPITAPA
BOACO
STA RITA
ACOYAPA
RIVAS
SAN MIGUELITO
MASAYA
GRANADA
JINOTEPE
30 MVA
130/70 KV
69 KV
2x25 MW
HIDRO
SANTA BARBARA
TO HONDURAS
97.6 KM (60.7 MI)
138/69/24.9
15/15/10 MVA
YALAGUINA
45 KM (28 MI)
5 MVA,69/24.9 KV
SANTA CLARA
LEON
40 MVA
130/70 KV
2x10 MVA
70/13.8 KV
CHINANDEGA
120/70 KV
30 MVA
CHICHIGALPA
EL VIEJO
5MVA,69/24.9 KV
2x5 MVA
69/24.9 KV
VILLANUEVA
70/13.8 KV
15 MVA
-CHINANDEGA
1x15 MW
GAS
2x40/40/15 MA
130/73.5/14.4 KV
13.8
15 MW
Vapor
15 MW
(Steam)
69/13.2 KV
53 MVA
MANAGUA
S. ORIENTAL
45 MW (Vapor)
Steam
SOSACLORO
ASOSOSCA
ANNEX
E
1 of 1
EMPRESA NACIONAL DE LUZ Y FUERZA
NICARAGUA C.A.
ONE LINE DIAGRAM OF THE NATIONAL INTERCONECTED
SYSTEM AND COOP SUBSTATIONS-TRANSMISSION LINES
TRACED BY
ING OSCAR GALLO
DWN BY:
G. SEQUEIRA C.
DATE:
22/2/71

ENGINEERING & CONSTRUCTION SCHEDULE



CAPITAL COST AND INVESTMENT

No.	CONCEPT	DESCRIPTION	L/C ($)	F/C ($)	TOTAL $
I	GENERAL				
		a) Land Acquisition	50 000.00		50 000.00
		b) Administrative Building and warehouse	440 000.00		440 000.00
		c) Furniture and Equipment	65 000.00	35 000.00	100 000.00
		d) Transportation (Vehículos)	12 000.00	300 000.00	312 000.00
		e) Workshop	18 000.00	12 000.00	30 000.00
		f) Laboratory Equipment		40 000.00	40 000.00
		g) Tools and working Equipment	7 000.00	25 000.00	32 000.00
		h) Communication Equipment	7 000.00	80 000.00	87 000.00
	SUB-TOTAL $		599 000.00	492 000.00	1 091 000.00
II	TRANSMISSION SYSTEM				
		a) 69 KV Line (Yalagüina Sta. Clara)	521 360.00	1 040 760.00	1 562 120.00
		b) Santa Clara Substation	40 600.00	410 900.00	451 500.00
	SUB-TOTAL $		561 960.00	1 451 660.00	2 013 620.00
III	DISTRIBUTION SYSTEM				
		a) Clearing and right of way	200 000.00		200 000.00
		b) Poles and Hardware		5 882 187.00	5 882 187.00
		c) Conductors		2 008 363.00	2 008 363.00
		d) Labor (b+c)	4 063 439.00		4 063 439.00
		e) Transformers	408 753.00	4 005 885.00	4 414 638.00
		f) Services	427 482.00	1 632 032.00	2 059 514.00
		g) Meters	225 291.00	2 454 286.00	2 679 577.00
		h) Reclosers	10 062.00	284 975.00	295 037.00
		i) Inside House wiring	382 107.00	891 583.00	1 273 690.00
		j) Street lighting	34 939.00	95 335.00	130 274.00
	SUB-TOTAL $		5 752 073.00	17 254 646.00	23 006 719.00

CAPITAL COST AND INVESTMENT

No.	CONCEPT	DESCRIPTION	L/C ($)	F/C ($)	TOTAL $
IV	MATERIALS FOR COOPS ABC Y D			7 000 000.00	7 000 000.00
V	ENGINEERING		1 827 794.00		1 827 794.00
VI	ADMINISTRATION (3.5%)		977 870.00		977 870.00
VII	CONTINGENCY (15%)		1 457 805.00	2 879 745.00	4 337 550.00
VIII	ORGANIZING THE COOPS.		200 000.00		200 000.00
IX	NRECA			700 000.00	700 000.00
	TOTAL $		11 376 502.00	29 778 051.00	41 154 553.00

UNCLASSIFIED
Annex III
Exhibit 7, Page 2 of 2

COOPERATIVE " E "

ESTIMATED UNITS REQUIRE-COST IN CORDOBAS

PRIMARY

MILES	Ø	SIZE	SEC.	SPAN	MATER	COND.	LABOR	TOTAL
14.51	3	3/0	No	500	163 049	154 169	114 005	431 223
48.96	3	1/0	No	500	550 163	332 389	339 587	1 222 139
68.32	3	4	No	500	724 465	224 226	381 840	1 330 531
43.15	3	4	Sí	300	704 337	141 618	357 584	1 203 539
19.53	1	4	No3	500	137 237	32 049	80 991	250 277
59.12	1	4	Sí	300	714 465	97 015	383 866	1 195 346
74.41	1	4	No	500	522 879	122 107	308 578	953 564
74.00	1	4	Sí	300	894 290	121 434	480 482	1 496 206
8.00	1	4	Sí	150	193 352	26 256	103 896	323 504
410					4 604 237	1 251 263	2 550 829	8 406 329

SECONDARY

30	3 Wires	1/0	150		252 750	166 830	300 030	719 610
40	3 Wires	2	150		337 000	147 440	352 000	836 440
60	3 Wires	4	150		505 500	147 720	462 000	1 115 220
90	V-2Wires	4	300		109 620	147 690	226 980	484 290
60	V-2Wires	2	300		73 080	147 420	171 600	392 100
280					1 277 950	757 100	1 512 610	3 547 660

COOPERATIVE " E "

ESTIMATED UNITS REQUIRED - COST IN CORDOBAS

TRANSFORMERS		MATER	LABOR	TOTAL
2000	5 KVA-CSP	2 384 000	234 000	2 618 000
100	5 KVA-CNV	108 600	19 500	128 100
300	10KVA-CSP	398 100	38 100	436 200
120	10KVA-CNV	151 440	25 080	176 520
100	15KVA-CSP	166 000	13 600	179 600
40	15KVA-CNV	65 640	8 800	74 440
60	25KVA-CSP	120 780	9 360	130 140
25	25KVA-CNV	50 100	5 775	55 875
100	37.5KVA-CNV	263 700	26 400	290 100
76	50KVA-CNV	222 984	21 736	244 720
6	100KVA-CNV	28 338	2 904	31 242
3	167KVA-CNV	19 611	1 551	21 162
3	250KVA-CNV	26 592	1 947	28 539
		4 005 885	408 753	4 414 638

COOPERATIVE "E"

ESTIMATED UNITS REQUIRED-COST IN CORDOBAS

S E R V I C E S	MATERIAL	LABOR	TOTAL
17594 2 wires - Residential	1 284 362	387 068	1 671 430
1487 3 wires - Residential	163 570	32 714	196 284
140 3 Ø - Industrial	184 100	7 700	191 800
	1 632 032	427 482	2 059 514
M E T E R S			
17594 2 wires - Residential	2 164 062	193 534	2 357 596
1487 3 wires - Residential	196 284	16 357	212 641
140 3 Ø - Industrial	93 940	15 400	109 340
	2 454 286	225 291	2 679 577
R E C L O S E R S			
3 3Ø 100 Amps	47 547	1 053	48 600
19 3Ø 50 Amps	197 828	6 669	204 497
15 1Ø 50 Amps	39 600	2 340	41 940
	284 975	10 062	295 037
11579 Inside house wiring	891 583	382 107	1 273 690
14.91 Street lighting	95 335	34 939	130 274

COOPERATIVE BASE

BASE COST PER MILE - LABOR

PRIMARY

SPAN	Ø	SIZE	¢
500'	3	3/OACSR	7 143.00
500'	3	1/OACSR	6 305.00
500'	3	2 ACSR	6 000.00
500'	3	4 ACSR	5 081.00
300'	3	3/OACSR	9 145.00
300'	3	1/OACSR	8 758.00
300'	3	2 ACSR	8 000.00
300'	3	4 ACSR	7 534.00
500'	1	1/OACSR	4 283.00
500'	1	2 ACSR	4 000.00
500'	1	4 ACSR	3 770.00
300'	1	1/OACSR	6 375.00
300'	1	2 ACSR	6 200.00
300'	1	4 ACSR	5 903.00

SECUNDARY

150'	3h	1/OACSR	9 092.00
300'	2h	1/OACSR	3 046.00
300'	2h	4 ACSR	2 293.00
300'	3h	1/OACSR	6 278.00
300'	3h	4 ACSR	5 149.00

COSTOS UNITARIOS BASE

PRIMARIO	MATER	COND.	M.de O.	TOTAL
14.4/24.9KV				
500' Claro-1/OACSR-3Ø - No.Sec.	10 215	6 172	6 305	22 692
500' Claro-2ACSR-3Ø - No.Sec.	9 640	4 097	6 000	19 737
500' Claro-4ACSR-3Ø - No.Sec.	9 640	2 984	5 081	17 705
300' Claro-1/OACSR-3Ø No.Sec.	15 206	6 172	8 758	30 136
300' Claro-2ACSR-3Ø No. Sec.	14 839	4 097	8 000	26 936
300' Claro-4ACSR-3Ø No. Sec.	14 839	2 984	7 534	25 357
500' Claro-1/OACSR-1Ø No.Sec.	6 388	3 370	4 283	14 041
500' Claro-2ACSR-1Ø No.Sec.	6 388	2 234	4 000	12 622
500' Claro-4ACSR-1Ø No.Sec.	6 388	1 492	3 770	11 650
300' Claro-1/OACSR-1Ø No.Sec.	10 986	3 370	6 375	20 731
300' Claro-2/ACSR-1Ø No.SEc.	10 986	2 234	6 200	19 420
300' Claro-4ACSR-1Ø No.Sec.	10 986	1 492	5 903	18 381
SECUNDUARIO				
300' Claro-1/OACSR-3hilos-Post.	4 240	5 055	6 278	15 574
300' Claro-2ACSR-3 hilos-Post.	4 240	3 351	5 800	13 391
300' Claro-4ACSR-3 hilos-Post.	4 240	2 238	5 149	11 628
150' Claro-1/OACSR 3hilos-Post.	7 659	5 055	9 092	21 806
150' Claro-2ACSR 3 hilos Post.	7 659	3 351	8 000	19 010
150' Claro-4ACSR 3 hilos-Post.	7 659	2 238	7 000	16 897
UNDERBUILD				
300' Claro 1/OACSR 2 hilos	1 107	3 370	3 046	7 523
300' Claro 2 ACSR 2 hilos	1 107	2 234	2 600	5 941
300' Claro 4 ACSR 2 hilos	1 107	1 492	2 293	4 892

COOPERATIVE "E"

UNIT COST OF LINES AND EQUIPMENT

PRIMARY 14.4/24.9KV	110% MAT.	110% COND.	110% LABOR	TOTAL
500' span 3/0ACSR 3Ø	11 237	10 625	7 857	29 719
" " 1/0 " "	11 237	6 789	6 936	24 962
" " 2 " "	10 604	4 507	6 600	21 711
" " 4 " "	10 604	3 282	5 589	19 475
300' span 1/0ACSR 3Ø	16 727	6 789	9 634	33 150
" " 2 " "	16 322	4 507	8 800	29 630
" " 4 " "	16 323	3 282	8 287	27 892
500' span 1/0ACSR 1Ø	7 027	3 707	4 711	15 445
" " 2 " "	7 027	2 457	4 400	13 884
" " 4 " "	7 027	1 641	4 147	12 815
300' span 1/0ACSR 1Ø	12 085	3 707	7 013	22 805
" " 2 " "	12 085	2 457	6 820	21 362
" " 4 " "	12 085	1 641	6 493	20 219
SECUNDARY				
(Including Poles)				
300' span 1/0ACSR 3 wires	4 664	5 561	5 906	17 131
" " 2 " "	4 664	3 686	6 380	14 730
" " 4 " "	4 664	2 362	5 664	12 790
150' span 1/0ACSR 3 wires	8 425	5 561	10 001	23 987
" " 2 " "	8 425	3 686	8 800	20 911
" " 4 " "	8 425	2 462	7 700	18 587
UNDERBUILD				
300' span 1/0ACSR 2 wires	1 218	3 707	3 351	8 276
" " 2 " "	1 218	2 457	2 860	6 535
" " 4 " "	1 218	1 641	2 522	5 381

COOPERATIVE "E"

UNIT COST OF LINES AND EQUIPMET

PRIMARY	110% MATERIAL	110% CONDUC.	110% LABOR	TOTAL
150' span 1/OACSR 3Ø	33 453	13 622	19 268	66 343
150' span 2ACSR 3Ø	32 646	9 013	17 600	59 259
150' span 4ACSR 3Ø	32 646	6 565	16 575	55 786
150' span 1/OACSR 1Ø	24 169	7 414	15 125	46 708
150' span 2ACSR 1Ø	24 169	4 915	13 640	42 724
150' span 4ACSR 1Ø	24 169	3 282	12 987	40 438

BASE COST UNIT COST OF LINES

PRIMARY	MATERIAL	CONDUC.	LABOR	TOTAL
150' span 1/O ACSR 3Ø	30 412	12 384	17 516	60 312
150' span 2 ACSR 3Ø	29 678	8 194	16 000	53 872
150' span 4 ACSR 3Ø	29 678	5 968	15 068	50 714
150' span 1/OACSR 1Ø	21 972	6 740	13 750	42 462
150' span 2 ACSR 1Ø	21 972	4 468	12 400	38 840
150' span 4 ACSR 1Ø	21 972	2 984	11 806	36 762

COOPERATIVE BASE

COST OF TRANSFORMERS WITH LIGHTNING ARRESTER & CUTOUT

1 Ø KVA	$/UNIT	$/UNIT	$/TRANSFORMER
5CSP	150.32	1075 + 9	1084
5CONV.	109.37	782 + 205	987
10CSP	167.41	1197 + 9	1206
10CONV.	131.63	942 + 205	1147
15CSP	209.72	1500 + 9	1509
15CONV.	179.93	1287 + 205	1492
25CSP	254.69	1821 + 9	1830
25CONV.	226.16	1617 + 2053	1822
37CONV.	306.56	2192 + 205	2397
50CONV.	344.35	2462 + 205	2667
100CONV.	571.90	4089 + 205	4294
164CONV.	802.57	5738 + 205	5943
250CONV.	1098.3	7853 + 205	8058
FUSE	1.23	8.80 9	
Cutout and arrester	27.40	196 + 9	205.

Combinat

COOPERATIVE "BASE"

UNIT COST

TRANSFORMERS - CSP AND CONVENTIONALS WITH EXTERNAL LIGHTNING

ARRESTER & CUTOUT

	MATERIAL	LABOR	TOTAL
1Ø 5KVA CSP	1 084	106	1 190
1Ø 5KVA CONV.	987	177	1 164
1Ø 10KVA CSP	1 206	115	1 321
1Ø 10KVA CONV.	1 147	190	1 337
1Ø 15KVA CSP	1 509	124	1 633
1Ø 15KVA CONV.	1 492	200	1 692
1Ø 25KVA CSP	1 830	142	1 972
1Ø 25KVA CONV.	1 822	210	2 032
1Ø 37.5KVA CONV.	2 397	240	2 637
1Ø 50KVA CONV.	2 667	260	2 927
1Ø 100KVA CONV.	4 294	440	4 734
1Ø 167KVA CONV.	5 943	470	6 413
1Ø 250KVA CONV.	8 058	590	8 648

COOPERATIVE BASE

COST OF TRANSFORMERS WITH LIGHTNING ARRESTER & CUTOUT

1 Ø KVA	$/UNIT	$/UNIT	$/TRANSFORMER
5CSP	150.32	1075 + 9	1084
5CONV.	109.37	782 + 205	987
10CSP	167.41	1197 + 9	1206
10CONV.	131.63	942 + 205	1147
15CSP	209.72	1500 + 9	1509
15CONV.	179.93	1287 + 205	1492
25CSP	254.69	1821 + 9	1830
25CONV.	226.16	1617 + 2053	1822
37CONV.	306.56	2192 + 205	2397
50CONV.	344.35	2462 + 205	2667
100CONV.	571.90	4089 + 205	4294
164CONV.	802.57	5738 + 205	5943
250CONV.	1098.3	7853 + 205	8058
FUSE	1.23	8.80 9	
Cutout and arrester	27.40	196 + 9	205.
Combinat			

COOPERATIVE "BASE"

UNIT COST

TRANSFORMERS - CSP AND CONVENTIONALS WITH EXTERNAL LIGHTNING

ARRESTER & CUTOUT

	MATERIAL	ABOR	TOTAL
1Ø 5KVA CSP	1 084	106	1 190
1Ø 5KVA CONV.	987	177	1 164
1Ø 10KVA CSP	1 206	115	1 321
1Ø 10KVA CONV.	1 147	190	1 337
1Ø 15KVA CSP	1 509	124	1 633
1Ø 15KVA CONV.	1 492	200	1 692
1Ø 25KVA CSP	1 830	142	1 972
1Ø 25KVA CONV.	1 822	210	2 032
1Ø 37.5KVA CONV.	2 397	240	2 637
1Ø 50KVA CONV.	2 667	260	2 927
1Ø 100KVA CONV.	4 294	440	4 734
1Ø 167KVA CONV.	5 943	470	6 413
1Ø 250KVA CONV.	8 058	590	8 648

COOPERATIVE " E "

UNIT COST OF LINES AND EQUIPMENT

Transformadores (Including external lighting arrester & cutout)

DESCRIPCION	110% MATERIAL	110% LABOR	TOTAL
1Ø 5 KVA CSP	1 192	117	1 309
1Ø 5KVA CONV.	1 086	195	1 281
1Ø 10KVA CSP	1 327	127	1 454
1Ø 10KVA CONV.	1 262	209	1 471
1Ø 15KVA CSP	1 660	136	1 796
1Ø 15KVA CONV.	1 641	220	1 861
1Ø 25KVA CSP	2 013	156	2 169
1Ø 25KVA CONV.	2 004	231	2 235
1Ø 37.5 CONV	2 637	264	2 901
1Ø 50KVA CONV.	2 934	286	3 220
1Ø 100KVA CONV.	4 723	484	5 207
1Ø 167KVA CONV.	6 537	517	7 054
1Ø 250KVA CONV.	8 864	649	9 513

COOPERATIVE BASE

CONSTRUCTION UNIT BASE PRICE

REA UNIT		MATERIAL	(CIFx7.08)
POSTES	U.S.$ CIF-P.SOMOZA	¢	
25-7	21.80	154.00	
30-6	33.16	235.00	
35-5	56.32	399.00	
40-5	79.41	562.00	
CONDUCTORES		¢/MILLA	(+ 5% Sag-CIFx7.15)
3/0 ACSR	220.2/Klm.	2 658.00	
1/0 ACSR	139.6/Klm.	1 685.00	
2 ACSR	92.5/Klm.	1 117.00	
4 ACSR	61.8/Klm.	746.00	
UNIDADES			(CIFx7.15)
VA1	6.30	45.00	
VA2	12.33	88.00	
VA3	13.60	98.00	
VA4	23.72	170.00	
VA5	11.52	82.00	
VA6	20.92	150.00	
VC1	24.81	178.00	
VC2	48.57	347.00	
VC3	37.20	266.00	
VC4	69.78	499.00	
VC7	50.71	363.00	
VC8	84.70	606.00	

COOPERATIVE BASE
CONSTRUCTION UNIT BASE PRICE

REA UNIT		MATERIAL ¢
VE1-2	5.66	41.00
VE6-2x	10.93	78.00
VE7-2LX	14.30	102.00
VE8x2LX	18.61	133.00
VE12X	12.18	87.00
VE12-XX	18.08	129.00
VE2-2	5.39	39.00
F1-2	3.61	26.00
VF1-3	4.66	33.00
VF1-4	4.66	33.00
VM2-11	3.18	23.00
M2-12	5.86	42.00
j5	1.00	7.15
j6	1.30	9.30
j10	1.04	7.45
K15C	1.05	7.50

BASE COST PER MILE 14.4/24.9 KV - 3Ø 4 WIRE - 500' SPAN

QTY	DESC.	¢/UNIT	MATERIAL
4	35-5	335	1340
6	40-5	399	2394
1	45-4	562	562
5	VC1	178	890
3	VC2	347	1041
1	VC3	266	266
1	VC4-1	499	499
1	VC8	606	606
11	VM2-12	42	462
11	VM10-15	10	110
4	VE1-2	41	164
11	VE7-21x-	102	102
1	VE12xx	129	129
47	F1-4	33	1551
27	Bv	3	81
9	bv	2	18
	SUB-TOTAL		10,215.00

CONDUCTOR

3.0 1/0 - 1685 - 5.055		3.0 3/0 - 2658 - 7.974	
1.0 2 - 1117 - 1.117		1.0 1/0 - 1685 - 1.685	
SUB-TOTAL	6.172	SUB-TOTAL	9.659
LABOR	6.305	LABOR	7.143
TOTAL	22.692		27.017

BASE COST PER MILE 14.4/24.9 KV - 3Ø 4 WIRE - 500' SPAN

QTY	DESC.	¢/UNIT	MATERIAL
4	35-5	335	1340
6	40-5	399	2394
1	45-4	562	562
6	VC1	178	1068
2	VC2	347	694
1	VC3	266	266
1	VC4-1	499	499
11	VM2-12	42	462
11	VM10-15	10	110
4	VE1-2	41	164
1	VE6-2x	78	78
1	VE12xx	129	129
46	F1-2	26	1196
27	bv	2	54
9	bv	2	18
SUB-TOTAL			9,640.00

CONDUCTOR			CONDUCTOR		
3 M. 2 ACSR - 1117 -	3.351.00		4 M. - 4 ACSR -	746.00	2.984.00
1 M. 4 ACSR - 746 -	746.00		LABOR		5.081.00
SUB-TOTAL		4.097.00	TOTAL		17.705.00
LABOR		6.000.00			
TOTAL		19.737.00			

COSTO BASE POR MILLA - 14.41CV - 1Ø - 500% SPAN

CANTIDAD	DESCRIPCION	$/UNIDAD	1/0 ACSR $
4	35-5	335	1340
6	40-5	399	2394
1	45-4	562	562
5	VA1	45	225
3	VA2	88	264
1	VA3	98	98
1	VA4	170	170
1	VAG	150	150
11	VM2-12	42	462
11	VM10-14	6	66
9	VE 1-2	41	369
9	VF1-2	26	234
18	bv	3	54
SUB-TOTAL			6.388

CONDUCTORES

2M 1 1/0 ACSR - 1685 ±	3 370.00
Mano de Obra	4 283.00
TOTAL	14.041.00
2 M-2ACSR - 1117 -	2 234.00
Mano de Obra	4 000.00
TOTAL	12 622.00
2 M - 4 ACSR - 746	1 492.00
Mano de Obra	3 770.00
TOTAL	11 650.00

COSTO BASE POR MILLA - 3 ø - 4 HILOS-300'SPAN

CANT.	DESC.	$/UNIDAD	MATER		$/UNIDAD	MATER
4	35-5	335	1340	4 35-5	-	1340
8	40-5	399	3192	8 40-5	-	3192
6	45-4	562	3372	6 45-4	-	3372
10	VC1	178	1780	10 VC1	-	1780
4	VC2	347	1388	4 VC2	-	1388
2	VC3	266	532	2 VC3	-	532
1	VC4-1	499	499	1 VC4-1	-	499
1	VC8	606	606	1 VC8	-	606
18	VM2-12	42	756	18 VM2-12	-	756
18	VM10-15	10	180	18 VM10-15	-	180
7	VE1-2	41	287	7 VE1-2	-	287
4	VE7-2LX	102	408	4 VE6-2x	78	312
1	VE12xx	129	129	1 VE 12xx	-	129
17	F1-4	33	561	13 F1-2	26	338
48	bv	3	144	48 bv	2	96
16	bv	2	32	16 bv	2	32
SUB-TOTAL			15.206	SUB-TOTAL		14.839

CONDUCTORES

3 Millas - 1/0 ACSR	1685	- 5 055		3 M. 2 ACSR - 1117	- 3 351	
1 Milla - 2 ACSR	1117	1 117		1 M. 4 ACSR - 746	746	
SUB-TOTAL		6 172		SUB-TOTAL	4 097	
MANO DE OBRA		8 758		MANO DE OBRA	8 000	
TOTAL		30 136		TOTAL	26 936	

CONDUCTOR

4 Millas - 4 ACSR - 746	2 984
MANO DE OBRA	7 534
TOTAL	25 357.00

COSTO BASE POR MILLA - 14.4 2 HILOS 300' SPAN

CANTIDAD	DESCRIPCION	¢/UNIDAD	MATERIALES
4	35-5	335	1340
8	40-5	399	3192
6	45-4	562	3372
10	VA1	45	450
4	VA2	88	352
2	VA3	98	196
1	VA4	170	170
1	VA6	150	150
18	Vm2-12	42	756
18	VM10-14	6	108
12	VE1-2	41	492
12	VF1-2	26	312
32	bv	3	96
SUB-TOTAL			10.986

2 M - 1/0 ACSR - 1685 - 3 370

Mano de Obra	6 375
TOTAL	20 731

2 M 2 ACSR - 1117 - 2 234

Mano de Obra	6 200
TOTAL	19 420

2 M - 4 ACSR - 746 1 492

Mano de Obra	5 903
TOTAL	18 381

COSTO BASE POR MILLA SECUNDARIA -300' CLARO - 3 HILOS

CANTIDAD	DESCRIPCION	$/UNIDAD	MATERIALES
18	30-6	154	2.772.00
36	j5	7.15	257.40
9	j6	9.30	83.70
18	j10	7.45	134.10
6	P	1.57	9.42
54	65	3	162.00
6	VE1-2	41	246.00
6	F1-2	26	156.00
6	VM2-12	42	252.00
12	ex	14	168.00
	SUB-TOTAL		4 240.62

3 M 1/0 ACSR	1685	5 055.00
Mano de Obra	6278	6 278.00
TOTAL		15 574.00
3 M 2 ACSR	1117	3 351.00
Mano de Obra	5800*	5 800.00
TOTAL		13 392.00
3 M 4 ACSR	746	2 238.00
Mano de Obra	5149	5 149.00
TOTAL		11 628.00

* Costo Estimado

COSTO BASE POR MILLA SECUNDARIA 300' CLARO - 2 HILOS

"UNDERBUILD"

CANTIDAD	DESCRIPCION	$/UNIDAD	MATERIALES	
18	j10	7.45	134.10	
36	j5	7.15	257.40	
9	j6	0.30	83.70	
6	p	1.57	9.42	
54	bv	3	162.00	
3	VE1-2	41	123.00*	
3	F1-2	26	78.00	
2	VM2-12	42	84	
12	ex	14.60	175.20	
	SUB-TOTAL		1.106.82	1.107.00

2 M 1/0 ACSR 1685 - 3 370

Mano de Obra 3046 - 3 046

TOTAL 7 523.00

2 M 2 ACSR 1117 - 2 234

Mano de Obra 2600 - 2 600

TOTAL 5 941.00

2 M 4 ACSR 746 - 1 492

Mano de Obra 2293 - 2 293

TOTAL 4 892.00

COSTO BASE POR MILLA SECUNDARIO 150' CLARO 3 HILOS

CANTIDAD	DESCRIPCION	$/UNIDAD	MATERIALES
36	30-6	154	5544
72	j5	7.15	514.8
18	j6	9.30	167.4
36	j10	7.45	268.2
12	p	1.57	18.84
108	bv	3	324
6	VE1-2	41	246
6	F1-2	26	156
6	VM2-12	42	252
12	ex	14	168
			7 659.24

3 M. 1/0 ACSR	1685	5 055.00
Mano de Obra		9 092.00
TOTAL		21 806.00

3 M. 2 ACSR	1117	3 351.00
Mano de Obra		8 000.00
TOTAL		19 010.00

3 M. 4 ACSR	746	2 238.00
Mano de Obra		7 000.00
TOTAL		16 897.00

COSTO BASE POR MILLA - ALUMBRADO PUBLICO

CANTIDAD	DESCRIPCION	¢/UNIDAD	TOTAL
18	Lumin.175W	262.	4 716
23	j5	7.15	164.45
8	j6	9.30	74.40
6	j10	7.45	44.70
1M	4ACSR	746	746
42	Conectores	1.57	65.94
			5 811.49

Materiales - 5 812
Mano de Obra 2 130
7 942

NOTA: Se suponen luminarias instaladas a 300' con el conductor piloto apoyado cada 150'.

COSTO BASE POR MILLA SECUNDARIO 150' CLARO 3 HILOS

CANTIDAD	DESCRIPCION	$/UNIDAD	MATERIALES
36	30-6	154	5544
72	j5	7.15	514.8
18	j6	9.30	167.4
36	j10	7.45	268.2
12	P	1.57	18.84
108	bv	3	324
6	VE1-2	41	246
6	F1-2	26	156
6	VM2-12	42	252
12	ex	14	168
			7 659.24

3 M. 1/0 ACSR	1685	5 055.00
Mano de Obra		9 092.00
TOTAL		21 806.00

3 M. 2 ACSR	1117	3 351.00
Mano de Obra		8 000.00
TOTAL		19 010.00

3 M. 4 ACSR	746	2 238.00
Mano de Obra		7 000.00
TOTAL		16 897.00

COSTO BASE POR MILLA - ALUMBRADO PUBLICO

CANTIDAD	DESCRIPCION	$/UNIDAD	TOTAL
18	Lumin.175W	262.-	4 716
23	j5	7.15	164.45
8	j6	9.30	74.40
6	j10	7.45	44.70
1M	4ACSR	746	746
42	Conectores	1.57	65.94
			5 811.49

Materiales - 5 812
Mano de Obra 2 130
7 942

NOTA: Se suponen luminarias instaladas a 300' con el conductor piloto apoyado cada 150'.

COSTO BASE DE MEDIDORES Y SERVICIOS

	MEDIDORES
1Ø - 120 V	
15 A	112
1Ø - 120 V	
30 A	120
3Ø - 240 V	
2.5A - D.M.	610

	S.W.	T.C.	CABLE ACOMET	CABLE CONCENT	TOTALES
1Ø - 120 V			Duplex #6		
15 A	31	----	34	2	66.00
1Ø - 120/240V			Triplex #6		
30 A	45	----	50	5	100.00
	3Ø-240V-4h				
	30-400A	400y600/5A	Cuad. 3/0A		
3Ø - 240 V					
2.5A - D.M.	712	155	328	-	1 195.00

COSTO BASE DE MEDIDORES Y SERVICIOS

SERVICIOS:	MAT.	M.de O.	TOTAL $
1 Ø - Residencial 2 hilos	66.00	20.00	86.00
1 Ø - Residencial 3 hilos	100.00	20.00	120.00
3 Ø - Industrial 4 hilos	1 195.00	50.00	1 245.00
MEDIDORES:			
1 Ø - 120V-15A - 2 hilos	112.00	10.00	122.00
1 Ø - 120/240-30A 3 hilos	120.00	10.00	130.00
3 Ø - 120/240V-2.5A 4 hilos	610.00	100.00	710.00

COOPERATIVE BASE

UNIT COST

SERVICES	MATER	M.de O.	TOTAL
1 Ø 2 hilos Residential	66	20	86
1 Ø 3 hilos Residential	100	20	120
3 Ø 4 hilos Industrial	1195	50	1245
METERS			
1 Ø 2 hilos 15 A 120 V.	112	10	122
1 Ø 3 hilos 30A 120/240V.	120	10	130
3 Ø 4 hilos 2.5A 120/240V.	610	100	710
RECLOSERS			
3 Ø 100 Amps. Tipo	14 449	319	14 768
3 Ø 50 Amps. Tipo Hr-3	9 465	319	9 784
3 Ø 25 Amps. Tipo Hr-3	9 465	319	9 784
1 Ø 50 Amps.	2 400	142	2 542
1 Ø 25 Amps.	2 400	142	2 542
Inside house wiring	70	30	100
Street light	5 812	2 130	7 942

COOPERATIVE " E "

UNIT COST OF LINES AND EQUIPMENT

SERVICES	110% MATERIALS	110% LABOR	TOTAL
1Ø 2 wires Residential	73	22	95
1Ø 3 wires Residential	110	22	132
3Ø 4 wires Industrial	1315	55	1370
METERS			
1Ø 2 wires 15A-120V	123	11	134
1Ø 3 wires 30A 120/240V.	132	11	143
3Ø 4 wires 2.5A 120/240V.	671	110	781
RECLOSERS			
3Ø 100 Amps.	15849	351	16200
3Ø 50 Amps.	10412	351	10763
3Ø 25 Amps.	10412	351	1076
1Ø 50 Amps.	2640	156	2796
1Ø 25 Amps.	2640	156	2796
Inside house wining	77	33	110
Street lighting 240V. #4	6393	2343	8736

INSTALACIONES INTERNAS	CANTIDAD	$/UNIDAD	
Sockets de cadena	2	5.20	10.40
Tomacorrientes dobles	2	3.10	6.20
Grapas	50	1.4/100P.	0.70
Conductor de cobre 2x10 TW	60'	0.6	36.00
Conductor de cobre 2x14 TW	30'	0.31	9.30
Cinta aislante	½R	2.60	1.30
OTROS			6.10
			70.00

INSTALACIONES INTERNAS	MATERIALES	MANO DE OBRA	
	70	30	100

ENALUF RATES TO COOPS

a) General Rates

ENALUF will charge actual generation, transmission, accounting and amortization costs plus 20% for reserves. (rate of return, amortization etc.). The costs will be based on yearly audit figures of ENALUF with revisions if costs increase. The estimated rate for generation in 1971 is higher than the actual 1967 rate due to the necessity of ENALUF's relying more feavily on turbine generation in the next several years with the proportionate higher fuel costs. After 1971 with the addition of a new hydroelectric system; the generation costs should drop lower than the 1971 estimated costs thus lowering the power cost to the - coops. KWH rate estimate for 1971 is as follows:

Generation	.0556
Transmission	.0023
Amortization	.0450
Accounting & Collect.	.0014
20% Reserve	.0207
TOTAL	.1250 per KWH

This will also be the formula for revising rates to the coops.

b) Irrigation

ENALUF will change actual generation, transmission and general administration costs plus 45% for reserves for irrigation energy sold to the coops. The costs will be revised yearly based on previous years auditor figures. KWH rate estimate for 1971 is as - follows:

Generation	.0556
Transmission	.0023
Accounting & Collect.	.0014
45% Reserve	.0257
TOTAL	.0850

This will also be the formula for revising rates to the Coops.

Changes to the wholesale rates will be established by yearly independent audit of the costs to ENALUF of the factors making up the rates, as based upon the National Integrated System.

Arbitration between ENALUF and any coop will be by one person appointed by ENALUF, one person appointed by the COOP and one person appointed by mutual agreement of the two -- parties or, in absence of such agreement, by a person appointed by the SUPREME COURT.

TENTATIVE
PROPOSED COOPERATIVE RATE
GENERAL RATES

DOMESTIC (Residential)

First	50 KWH		¢0.48
Next	200 KWH		¢0.43
Next	300 KWH		¢0.33
Over	550 KWH		¢0.28
Minimum		18 KWH	¢8.40

SMALL COMMERCIAL AND INDUSTRIAL

First	50 KWH	¢0.48
Next	200 KWH	¢0.43
Next	300 KWH	¢0.33
Over	550 KWH	¢0.28
Minimum	18 KWH	¢8.40

GOVERNMENT

Each KWH — ¢0.48
No Minimum

PUBLIC LIGHTING

Each KWH — ¢0.28
No minimum

PUMPING

Each KWH — ¢0.20
No minimum

LARGE COMMERCIAL AND INDUSTRIAL

First	210 hours per KW of Maximum demand	¢0.28
Over	210 hours per KW of Maximum demand	¢0.16
Minimum charge	1000 KWH	¢288.00

TENTATIVE
PROPOSED COOPERATIVE RATE
IRRIGATION RATES

AREA OF APPLICATION

This rate will be applied to all Cooperative service area.

RATES

First	1000 KWH	¢0.16 KWH
Next	9000 KWH	¢0.15 KWH
Next	15000 KWH	¢0.14 KWH
Next	25000 KWH	¢0.13 KWH
Next	50000 KWH	¢0.12 KWH

MINIMUM

¢33.60 for 200 KWH/month.
In the case of new services whose first bill covers an incomplete billing period, the consumer shall pay the minimum.
In the same way when a service is terminated before the billing period is completed, and the registered KWH consumption is less than the minimum at the moment the service is terminated, the consumer shall pay the minimum.

APPLICATION

This rate is applicable only to energy consumption for irrigation purposes and to any other type of additional consumption derived from irrigation purposes in the rural area requiring an installation not less than 5 KW and not more than 30 KW as long as the Cooperative does not have to make extra disbursements resulting from the service connection.
Any other service within the irrigation area such as farm residential lighting, refrigeration - heating and the use of electric appliances and motor other than irrigation pumps, shall be - billed under the corresponding rates.

DEPOSITS

To guarantee payment for consumption

Each consumer shall maintain in the Cooperative a deposit in cash.

METERING EQUIPMENT INSTALLATION EXPENSES

For each new service the Cooperative will install, on consumer's account, the service drop and the meter. It will be the consumer's responsibility to have an adequate service entrance. Also, the consumer shall install an appropiate switch to be used with the meter on the consumer's interior distribution panel.

POWER FACTOR

The consumer commits himself to maintain at all times a power factor greater than 85%. If the Cooperative determines that the Consumer's power factor is less than 85%, the Cooperative will readjust the monthly bill multiplying it by a factor determined as follows:

$$FR = 1 + (0.85 - FPR)$$

Where

FR = Readjustment factor
FPR = Registered power factor

This clause referring to the power factor shall be enforced one year after this date.

SPECIAL DISPOSITIONS

This service will be available only during 20 hours a day. According to Cooperative's time regulations the service could be controlled by an automatic interrupting device which will be installed at the consumer's expense.

RECONNECTION

When the Cooperative discontinues the service for any reason, the consumer shall pay ¢50.00 in order to have his service reconnected. The amount specified is only for urban consumer's; rural consumers shall pay, in addition, the base amount of ¢1.00 for each kilometer or fraction of a kilometer away from the urban service area.

TENTATIVE
PROPOSED COOPERATIVE RATE
LARGE INDUSTRIAL

APPLICATION

Applicable in all areas being served by ENALUF National Interconnected System.

MAXIMUM DEMAND CHARGE

First 25 KW registered maximum demand at ¢20 per KW of registered maximum demand.

Next 50 KW registered maximum demand at ¢19 per KW of registered maximum demand.

Next 225 KW registered maximum demand at ¢16 per KW of registered maximum demand.

Next 200 KW registered maximum demand at ¢14 per KW of registered maximum demand.

Over 500 KW registered maximum demand at ¢12 per KW of registered maximum demand.

ENERGY CONSUMPTION CHARGE

All KWH at ¢0.14.

The bill is equal to the maximum demand charge plus the energy consumption charge.-

If the average price is greater than ¢0.28, the consumption will be billed at ¢0.28 KWH unless, the minimum is billed.

MINIMUM

The minimum is the charge for maximum demand or 50% of the registered maximum demand during the last 12 months in the event that the first is less than the second.

In the case of new consumers when the bill for the first month covers the incomplete billing period, the billing shall be made in such a way as to correct the minimum demand being considered for billing according to the following formula:

$$FR = \frac{730 - HRSN}{730}$$

Where
730 = utilization hours
HRSN = Number of hours not served during the billing period
FR = Readjustment factor for maximum demand

DETERMINATION OF MAXIMUM DEMAND

The maximum demand which will be used as a base for billing shall be determined by a demand meter with 15 minute period.

APPLICATION

This rate is applicable to power services with or without incidental lighting for industrial purposes as long as the monthly maximum demand registered be equal or greater than 25 KW and that the industry is not of the seasonal type.

DEPOSITS

TO GUARANTEE PAYMENT FOR ENERGY CONSUMPTION

First	25 KW	at	₡25.00/KW	installed
Next	50 KW	at	₡20.00/KW	installed
Next	225 KW	at	₡15.00/KW	installed
Next	200 KW	at	₡10.00/KW	installed
Over	500 KW	at	₡ 5.00/KW	installed

Minimum deposit 25 KW at ₡ 25.00/KW = ₡625.00

In the event that the consumer under this rate increases his installed capacity, the deposit shall be increased according to the precedent rate.

METERING EQUIPMENT

The consumers under this rate shall deposit with the cooperative a sum of money equal to the price of the metering equipment

POWER FACTOR

The consumer commits himself to maintain at all time a power factor greater than 85%. If the Cooperative determines that the consumer's power factor is less than 85%, the Cooperative will readjust the monthly bill multiplying it by a factor determined as follows:

FR = (+ (0.85 - FPR) where
FR = Readjustment factor
FPR = Registered power factor

RECONNEC...

When the Cooperative discontinues any service for the customers convenience or non payment of the bill, the consumer shall pay ₡50.00 in order to have his service reconnected. The amount specified is only for urban consumers; rural consumers shall pay in addition, the base amount of ₡1.00 for each kilometer or fraction of a kilometer - away from the urban service area

DURATION OF CONTRACT

The duration period contracted for application of this rate is a year beginning with the first bill and will be yearly renewed if the consumer does not notify the cooperative that he wishes to terminate it

In any case if the consumer requests service disconnection either on temporary or permanent basis, the Cooperative will issue bills with corresponding minimums for the remaining months to complete a year

COST BREAKDOWN FOR COOPERATIVES "B", "C", and "D"

Single-Phase distribution lines at $1600/mile (65% Material - 25% Labor)

Three-Phase distribution lines at $2400/mile (65% Material - 25% Labor)

112.5 KW Transformer banks at $1000/installation (90% Material - 10% Labor)

30 KW Transformer banks at $600/installation (90% Material - 10% Labor)

$ 250/consumer which includes primary, secondary and services requirements (65% Material - 25% Labor)

1. 60 miles of three-phase serving three-phase loads where single-phase was contemplated in the original study. at $800/mile = $48,000
2. 95 miles of three-phase serving three-phase loads not contemplated in the original study at $2400/mile = $228,000
3. 30 miles of three-phase to serve additional irrigation loads within the next 2 to 3 year period at $2400/mile = $72,000
4. 50 - 112.5 KW Transformer banks serving irrigation loads in Coop. "B" not contemplated in the original study. at $1000/each = $50,000
5. 20 - 112.5 KW Transformer banks to serve irrigation loads in Coop. "D" not contemplated in the original study. at $1000/each = $20,000
6. 50 - 112.5 KW Transformer banks to serve additional irrigation loads in Coop. "B" within the next two to three year period. at $1000/each = $50,000
7. 25 - 30 KW Transformer banks to serve a salt industry in Coop. "C" not contemplated in the original study. at $600/each = $15,000
8. 3500 Residential and Small Commercial Consumers in areas not contemplated in the original study. at $250/each = $875,000

COST BREAKDOWN FOR COOP "A" (CAEER No. 1)

$200/consumer in the rural areas which includes, secondary and service requirements (65% Material - 25% Labor)

$100/consumer in the rural-urban housing developments which includes primary, secondary and service requirements (65% Material - 25% Labor)

1.	200 Residential and Small Commercial rural consumers	at $200/each	= $ 40,000
2.	1000 Residential and Small Commercial urban consumers	at $100/each	= $100,000
3.	2 Pick-ups at $4000 each		= $ 8,000
4.	Tools and Work Equipment		= $ 5,000

Material and Equipment Requirements

1.	$40,000	x	0.65	=	$ 26,000
2.	$100,000	x	0.65	=	$ 65,000
3.	Pick-ups			=	$ 8,000
4.	Tools and Equipment			=	$ 5,000
	TOTAL				$104,000

Summary:

Coops. "B", "C" and "D"	$916,250
Coop. "A"	$104,000
	$ 1,020,000

On the assumption that non AID authorized expenditures associated with these purchases, will not exceed 2%, the $1,000,000 will meet the next three year requirements of Coops, "A", "B", "C" and "D".

DEMANDAS MAXIMAS PARA LA COOPERATIVA "A"

PROJECTED PEAK DEMANDS

AÑO (YEAR)	ENERGIA (ENERGY) KWH	DEM.MAX. TOTAL(KW) (PEAK)	DEM.MAX. YALAGUINA (KW) (PEAK)	DEM.MAX. SANTA CLARA(KW)
1974	14 659 260	4 650	3 370	2 030
1975	17 505 310	5 400	3 910	2 350
1976	20 549 079	6 173	4 470	2 690
1977	23 356 614	6 837	4 950	3 000
1978	26 490 709	7 560	5 470	3 300
1979	29 336 823	8 170	5 915	3 560
1980	32 517 772	8 840	6 400	3 850
1981	35 429 089	9 406	6 810	4 100
1982	38 798 365	10 066	7 290	4 390
1983	41 958 512	10 644	7 710	4 640

PROFIT AND LOSS PROJECTIONS

(COOPERATIVE "B")

Construction Ends 4o.

REVENUE ELECTRICITY SALES	1o.	2o.	3o.	4o.	5o.	6o.	7o.	8o.	9o.	10o.
Residential	3 328 090	3 159	4 003 163	4 838 521	[illegible] 577	6 496 66[illegible]	7 275 124	8 059 358	8 800 695	9 529 395
Commercial	66 780	77 13[illegible]	88 379	100 531	15 040	130 745	149 206	169 213	190 822	214 166
Industrial	1 076 447	1 118 [illegible]	1 149 686	1 194 [illegible]	[illegible]	1 26[illegible] 329	1 298 154	1 341 912	1 396 167	1 425 560
Irrigation	[illegible] 356	26[illegible] 178	29[illegible]	115 78	[illegible]	39[illegible] 047	435 729	479 427	528 105	579 346
Pumping	121 550	125 800	146 964	160 289	172 039	177 820	198 306	209 530	233 177	244 800
Government	52 272	5[illegible] 628	67 [illegible]	72 673	86 370	93 654	110 328	118 290	135 762	143 167
TOTAL REVENUE ELECTRICITY SALES	3 864 [illegible]	[illegible] 799 627	5 748 [illegible]	6 685 083	7 640 811	8 557 256	9 466 847	10 377 730	11 284 728	12 136 384
OTHER REVENUE	46 374	57 596	68 983	80 22	91 690	102 687	113 602	124 533	135 417	145 637
TOTAL REVENUE	3 910 869	4 857 223	5 817 595	6 765 304	7 732 501	8 659 943	[illegible] 580 449	10 377 730	11 420 145	12 282 021
EXPENDITURES										
Energy Purchased	1 753 295	2 093 607	2 461 853	2 805 560	3 181 539	3 522 036	3 903 287	4 251 012	4 652 406	5 026 372
Transmission	270 515	270 515	270 515	270 515	270 515	270 515	270 515	270 515	270 515	270 515
Distribution	231 870	240 681	249 827	259 320	269 175	279 403	290 020	301 041	312 481	324 355
Consumer Accounts	309 160	324 618	340 849	357 891	375 786	394 575	414 304	435 019	456 770	479 609
Sales Promotion	77 290	81 309	85 537	89 985	94 664	99 587	104 765	110 213	115 944	121 973
Admin. & General	347 805	365 195	383 455	402 627	422 759	443 897	466 091	489 396	513 867	539 559
Rentals	57 967	55 069	52 316	50 694	49 122	47 600	46 124	44 694	43 309	[illegible] 966
TOTAL OPERATIONS & MAINTENANCE	3 047 902	3 430 994	3 844 352	4 236 592	4 663 560	5 057 613	5 495 106	5 901 894	6 365 292	6 804 349
Depreciation	1 045 129	1 054 129	1 063 129	1 069 129	1 075 129	[illegible] 078 129	1 084 299	1 090 129	1 093 129	1 102 129
TOTAL INCLUDING DEPRECIATION										
A) Net Income before Depreciation	862 967	1 426 229	1 973 243	2 528 712	[illegible] 068 941	[illegible] 602 330	4 085 343	4 475 836	5 054 553	5 477 672
B) Net Income after Depreciation	(182 162)	372 100	910 114	1 459 583	1 993 812	2 524 201	3 001 044	3 385 707	3 961 724	4 375 543
C) Interests	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092
A-e Net Profits before Depreciation	179 875	743 137	1 290 151	1 845 620	2 385 949	2 919 238	3 402 251	3 792 744	4 [illegible] 761	4 794 580
B-e Net Profits after Depreciation	(865 254)	(310 992)	227 022	[illegible] 491	1 310 720	[illegible] 841 109	2 317 952	2 702 615	3 278 632	3 692 451
B-e Cumulatives	(865 254)	(1 176 246)	(949 224)	([illegible] 733)	1 137 987	[illegible] 979 096	[illegible] 297 048	7 999 663	11 278 295	14 970 746

FLUJO DE FONDOS
(FLOW OF FUNDS)
COOPERATIVE "E"

	1o.	2o.	3o.	4o.	5o.	6o.	7o.	8o.	9o.	10o.
ORIGEN DE FONDOS (Sources of Funds)										
GEN. INTERNA DE EFECTIVOS (INTERNAL CASH GENERATION)										
INGRESO NETO ANTES DE INTERESES Y DEPRECIACION (Net Income before Interest and Depreciation)				862 967	1 426 229	1 973 243	2 528 712	3 068 941	3 602 330	4 085 343
PRESTAMOS (Borrowings)										
COSTOS LOCALES (Local Costs)	450 000	5 175 000	6 451 498	-	-	-	-	-	-	-
COSTOS DOLARES	140 000	15 280 000	7 358 055	-	-	-	-	-	-	-
TOTAL PRESTAMOS	590 000	20 105 000	13 459 553							
CONTRIBUC. DE COOPERADOS (Coop. Members Contribut.)	172 170	172 170	172 170	172 170	86 340	72 540	69 600	65 160	60 540	55 680
DEPOSITOS DE COOPERADOS (Coop. Members Deposit)	154 953	154 953	154 953	154 953	77 706	65 286	62 640	58 644	54 486	50 112
OTROAS CONTRIBUCIONES (Other Contributions)	50 000	50 000	50 000	-	-	-	-	-	-	-
MENOS (AUMENTO) O DISMINUCION EN RECIBIBLES (Less (Increase) Decrease in Receivables)	-	-	-	(322 041)	(77 928)	(79 082)	(84 724)	(80 600)	(77 287)	(76 709)
TOTAL ORIGEN DE FONDOS (Total Suorces of Funds)	967 123	20 832 123	14 186 676	863 049	1 512 347	2 031 987	2 576 228	3 112 145	3 640 069	4 114 426

FLUJOS DE FONDOS
(FLOW OF FUNDS)
COOPERATIVE "B"

APLICACION DE FONDOS (Application of Funds)		1o.	2o.	3o.	4o.	5o.	6o.	7o.	8o.	9o.	10o.
1 GASTOS DE CONSTRUCCION (Construction Expenditures)											
LINEAS TRANSMISION (Transmission Lines)	L/C	100 681	240 000	469 213							
	F/C	-	1 451 660	-							
LINEAS DISTRIBUCION (Distrib. Lines)	L/C	199 319	3 660 000	4 463 885	-	90 000	90 000	60 000	60 000	30 000	-
	F/C		13 548 340	6 512 255	-	210 000	210 000	140 000	140 000	70 000	-
EDIFICIO, MUEBLES, TERRENOS, VEHICULOS, Y EQUIPO (Building, Furnitures, Vehicles equipment)	L/C		425 000	493 850	-	-	-	-	-	30 000	30 000
	F/C		-	-	-	-	-	-	-	-	-
ORGANIZAC.ADMON. PROMOCION (Organization, administration and Promotion)	L/C	150 000	500 000	565 800 574 550	- -	- -	-	-	-	70 000	70 000
	F/C	140 000	280 000	280 000	-	-					
SUB-TOTAL (Sub-Total)	L/C	450 000	4 825 000	6 101 498							
	F/C	140 000	15 280 000	7 358 055							
TOTAL (1)		590 000	20 105 000	13 459 553							
2 SERVICIO DE LA DEUDA (Debt Service)											
INTERESES (Interest)	L/C	113 766	234 531	241 531	241 531	241 531	241 531	241 531	241 531	241 531	241 531
	F/C	227 780	455 561	455 561	455 561	455 561	455 561	455 561	455 561	455 561	455 561
AMORTIZACIONES (Amortization)	L/C	-	-	-	-	-	-	-	-	-	-
	F/C	-	-	-	-	-	-	-	-	-	-
TOTAL (2)		341 546	690 092	697 092	697 092	697 092	697 092	697 092	697 092	697 092	697 092
TOTAL APLIC. FONDOS (Total Aplic. of Funds	L/C	563 765	5 059 531	6 343 029	241 531	331 531	331 531	301 531	301 531	301 531	271 531
	F/C	367 781	15 735 561	7 813 616	455 561	665 561	665 561	595 561	595 561	595 561	525 561
GRAN TOTAL		931 546	20 795 092	14 156 645	697 092	997 092	997 092	897 092	897 092	897 092	797 092
EFECTIVO AL PRINCIPIO DEL PERIODO (Cash at beginning of year)		-	35 577	72 618	102 649	273 600	788 857	1 [illegible] 752	3 502 888	5 717 941	8 460 918

FLUJOS DE FONDOS
(FLOW OF FUNDS)
COOPERATIVE "E"

	1o.	2o.	3o.	4o.	5o.	6o.	7o.	8o.	9o.	10o.
EFECTIVO AL FINAL PERIODO (Cash at end of year)	35 577	72 618	102 649	273 606	788 857	1 823 752	3 502 888	5 717 941	8 460 918	11 778 252
EFECTIVO ACUMULADO	35 577	72 618	102 649	273 606	788 857	1 823 752	3 502 888	5 717 941	8 460 918	11 778 252

BALANCE

(BALANCE SHEET)

ACTIVO Y OTROS DEBITOS (Assets and Other Debits)	4o.	5o.	6o.	7o.	8o.	9o.	10o.	11o.	12o.	13o.
A - ACTIVO FIJO (Fixed Assets)										
1 LINEAS TRANSMISION (Transm. Lines)	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054	1 810 054
2 SUB-ESTACIONES (Sub-Stations)	451 500	451 500	451 500	451 500	451 500	451 500	451 500	451 500	451 500	451 500
3 LINEAS DISTRIBUCION (Distrib.Lines)	28 383 799	28 683 799	28 983 799	29 183 799	29 383 799	29 483 799	29 483 799	29 683 799	29 783 799	30 083 799
4 PLANTA GENERAL (General Plant)	3 509 200	3 509 200	3 509 200	3 509 200	3 509 200	3 609 200	3 709 200	3 709 200	3 709 200	3 709 200
5 INT. DUR. CONSTRUCC. (Int. During Const)	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092	683 092
6 TRABAJO EN PROGRESO (Const. in Progress)	-	-	-	-	-	-	-	-	-	-
7 INTANGIBLES (Organization and (Intangibles) other intangible included in general plant)	-	-	-	-	-	-	-	-	-	-
TOTAL	34 837 645	35 137 645	35 437 645	35 637 645	35 837 645	36 037 645	36 137 645	36 337 645	36 437 645	36 737 645
MENOS: Less:										
RESERV. DEPREC. Y AMORT. (Provision for Deprec.)	1 045 129	2 099 258	3 162 387	4 231 516	5 306 646	6 384 775	7 468 904	8 559 033	9 652 162	10 754 291
TOTAL ACTIVO FIJO NETO (Net Fixed Assets)	33 792 516	33 038 387	32 275 258	31 406 129	30 530 999	29 652 870	28 668 741	27 778 612	26 785 483	25 983 354

BALANCE

(BALANCE SHEET)

		4o.	5o.	6o.	7o.	8o.	9o.	10o.	11o.	12o.	13o.
B -	ACTIVO CIRCULANTE Y ACUMULADO (Current and Accrued Assets)										
1	CAJA Y BANCOS (Cash)	273 606	788 657	1 823 752	3 502 858	5 717 944	8 460 918	11 778 252	15 135 190	19 048 321	22 976 498
2	CTAS. RECIB. CONSUM. (Customers Accoun. Rec.)	322 041	399 969	479 051	563 775	644 375	721 662	798 371	864 810	951 679	1 023 502
3	INVENTARIO: MAT Y SUM. (Inventary: Materials y Supplies)	1 059 628	1 073 632	1 087 632	1 301 632	1 122 149	1 242 203	1 161 601	1 434 024	1 796 073	2 374 443
	TOTAL ACTIVO CORRIENTE (Total Current Assets)	1 655 275	2 262 458	3 390 435	5 368 295	7 484 465	10 424 783	13 738 224	17 434 024	21 796 073	26 374 443
	TOTAL ACTIVO (Total Assets)	35 447 791	35 300 845	35 665 693	36 574 424	38 015 464	39 977 653	42 406 965	45 212 636	48 581 556	52 357 797

BALANCE

(BALANCE SHEET)

PASIVO Y OTROS CREDITOS (Liabilities and Other Credits)	4o.	5o.	6o.	7o.	8o.	9o.	10o.	11o.	12o.	13o.
A - CAPITAL (Capital)										
1 CAP. APORT. P. COOP. (Paid in Patronage Capital)	688 680	775 020	847 560	917 160	982 320	1 042 860	1 098 540	1 152 780	1 200 300	1 244 400
2 DONACIONES (Donations)	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000
3 SUPERAVIT O (DEFICIT) DESPUES DE DEPRECIACION (Earned surplus or deficit after Depr.)	(865 254)	(1 176 246)	(949 224)	(172 733)	1 137 987	2 979 096	5 297 048	7 999 663	11 278 295	14 970 746
TOTAL										
B - DEUDAS A LARGO PLAZO (Long Term Debt)	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553	34 854 553
C - PASIVO CIRCULANTE Y ACUMULADO (Current and Accrued Liabilities)										
DEPOSITO CONSUMIDORES (Consumer Deposits)	619 812	697 518	762 604	825 444	890 604	951 144	1 006 824	1 055 640	1 098 408	1 138 098
TOTAL PASIVO CIRCULANTE (Total Currents Liabilities)										
TOTAL PASIVO Y OTROS CREDITOS (Total Liabilities y other Credits)	35 447 791	35 300 845	35 665 693	36 874 424	38 015 464	39 977 653	42 406 965	45 912 636	48 581 556	52 357 797

Annex IV
Exhibit 1, Page 7 of 7

PROYECCIONES DE VENTAS
(SALES PROJECTION)

A Ñ O (Year)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VENTAS EN KWH (Sales In KWH)										
RESIDENCIAL (Residential)										
Total KWH	5 516 800	7 486 070	9 486 168	11 465 690	13 480 040	15 394 932	17 239 630	19 098 005	20 854 728	22 581 504
No. de Clientes	9 304	10 538	11 725	12 841	13 915	14 949	15 929	16 912	17 811	18 657
KWH/Clientes	593	706	809	893	969	1 030	1 082	1 129	1 171	1 210
Sub-Total Ventas $(0.42.2/KWH)	2 328 090	3 159 122	4 003 163	4 838 521	5 688 577	6 496 661	7 275 124	8 059 358	8 800 695	9 529 395
COMERCIAL (Commercial)										
Total KWH	210 000	242 550	277 920	316 134	361 760	411 148	469 200	532 116	600 068	673 320
No. de Clientes	60	66	72	78	85	92	100	108	116	124
KWH/Clientes	3 500	3 675	3 860	4 053	4 256	4 469	4 692	4 927	5 173	5 430
Sub-Total Ventas $(0.318$/KWH)	66 780	77 131	88 379	100 531	115 040	130 745	149 206	169 213	190 822	214 116
INDUSTRIAL										
Total KWH	4 870 800	5 062 300	5 262 200	5 404 000	5 544 400	5 716 420	5 874 000	6 072 000	6 317 500	6 450 500
No. de Clientes	66	71	76	80	83	86	89	92	95	97
KWH/Clientes	73 800	71 300	68 450	67 550	66 800	66 470	66 000	66 000	66 500	66 500
Sub-Total Ventas $(0.221$/KWH)	1 076 447	1 118 768	1 149 686	1 194 284	1 225 312	1 263 329	1 298 154	1 341 912	1 396 167	1 425 560
GOBIERNO (Government)										
Total KWH	216 000	234 000	276 900	300 300	356 900	287 000	455 900	488 800	561 000	591 600
No. de Clientes	36	36	39	39	43	43	47	47	51	51
KWH/Clientes	6 000	6 500	7 100	7 700	8 300	9 000	9 700	10 400	11 000	11 600
Sub-Total Ventas $(0.242$/KWH)	52 272	56 628	67 010	72 673	86 370	93 654	110 328	118 290	135 762	143 167
BOMBEO (Pumping)										
Total KWH	715 000	739 998	864 496	942 876	1 011 997	1 046 000	1 166 508	1 232 520	1 371 628	1 440 000
No. de Clientes	13	14	16	18	19	20	21	22	23	24
KWH/Clientes	55 000	52 857	54 031	52 382	53 263	52 300	55 548	56 024	59 636	60 000
Sub-Total Ventas $(0.170$/KWH)	121 550	125 800	146 964	160 289	172 039	177 820	198 306	209 530	233 177	24 800
IRRIGACION (Irrigation)										
Total KWH	1 798 000	2 149 000	2 405 000	2 612 995	2 897 322	3 238 092	3 571 551	3 929 727	4 320 730	4 748 739
No. de Clientes	21	28	33	35	37	39	41	43	45	47
KWH/Clientes	85 619	76 750	72 879	74 657	78 306	83 028	87 111	91 389	96 194	101 037
Sub-Total Ventas $(0.122$/KWH)	219 356	262 178	293 410	318 785	353 473	395 047	435 729	479 427	528 105	579 346
TOTALES (Totals)										
TOTAL KWH	13 326 600	15 913 918	18 512 684	21 041 995	23 652 419	26 193 592	28 776 789	31 353 176	34 033 654	36 485 663
TOTAL No. DE CLIENTES	9 500	10 813	11 961	13 091	14 182	15 229	16 227	17 224	18 141	19 000
TOTAL KWH/CLIENTES	1 403	1 472	1 548	1 607	1 668	1 720	1 773	1 820	1 876	1 920
TOTAL DE VENTAS $(Total Sales)	3 864 495	4 799 627	5 748 612	6 685 083	7 640 811	8 557 256	9 466 847	10 377 730	11 284 728	12 136 384

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Exhibit 2, Pg 1 of 1

PROGRAMA DE DESEMBOLSOS ANUALES PARA LA COOPERATIVA B"

(Draw Down Schedule)

No.	C O N C E P T O (Concept)	1 9 7 1 L/C ($)	1 9 7 1 F/C ($)	1 9 7 2 L/C ($)	1 9 7 2 F/C ($)	1 9 7 3 L/C ($)	1 9 7 3 F/C ($)
I	Administración (Administration)	150 000.00		500 000.00		674 550.00	
II	Ingeniería (Engineering)	300 000.00		900 000.00		901 960.00	
III	Materiales (Materials)				15 000 000.00		6 512 255.00
IV	Construcción (Construction)			3 000 000.00		4 031 138.00	
V	Vehículos y Equipo (Transportation & Equipment)					50 600.00	565 800.00
VI	Edificio, Muebles y Terreno (Buildings, Furniture & Lands)			425 000.00		443 250.00	
VII	NRECA		140 000.00		280 000.00		280 000.00
VIII	Materiales para las Coops. B,C Y D. (Material for Coops B,C & D)				7 000 000.00		
	TOTALES	450 000.00	140 000.00	4 825 000.00	22 280 000.00	6 101 498.00	7 358 055.00

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Annex IV, Exhibit 4

ENALUF
NICARAGUA.-

EMPRESA NACIONAL DE LUZ Y FUERZA

BALANCE CONSOLIDADO AL 31 DE DICIEMBRE DE 1970

(En Córdobas)

A C T I V O S			P A S I V O S		
PROPIEDAD PLANTA Y EQUIPO	383 945 074	374 022 497	CAPITALIZACION		
Menos: Reserva para Depreciación	75 658 782	66 058 166	Capital Aportado Gobierno de Nicaragua	62 789 865	62 789 865
	308 286 292	307 964 331	Reservas Acumuladas para Desarrollo	195 473 237	162 616 861
Construcciones en Proceso	128 357 236	50 342 741	Contribuciones de clientes para construcciones	258 263 102 13 629 460	225 406 726 11 685 808
Intereses durante la construcción	3 988 407	1 476 748		271 892 562	237 092 534
	440 671 935	359 783 820	Deuda a Largo Plazo	212 890 192	143 429 566
			Anticipo del Gobierno de Nicaragua para préstamo de Cooperativas Electrificación Rural	4 000 000	1 000 000
INVERSIONES			-TOTAL CAPITALIZACION	488 782 754	381 522 100
Cía Eléctrica de León (Liquidación y Cooperativa de Electrificación Rural	46 339 686	5 824 245	CIRCULANTE		
CIRCULANTE			Porción de la deuda a largo plazo	11 360 268	11 882 874
Caja y Bancos	2 908 767	14 676 242	Documentos a pagar	292 268	1 463 471
Depósitos Especiales		3 047	Cuentas a Pagar 1/	20 312 822	8 257 568
Documentos a cobrar (Menos Descuentos)	1 050 622	1 147 919	Depósitos de Consumidores	11 097 672	9 631 142
Cuentas a Cobrar (Menos Reserva)	15 274 439	15 400 338	Intereses Acumulados	2 656 009	2 106 919
Otros Recibibles y Pagos Anticipados		453 268	Otras Obligaciones	189 669	179 168
Materiales y Suministros (Menos Reserva)	23 395 011	18 291 302		45 928 708	33 521 162
	42 628 839	49 972 116	DIFERIDOS		
DIFERIDOS			Anticipos de clientes para construcción	861 236	648 271
Estudios Preliminares y Otros	6 308 078	676 577	Otros	116 247	320 846
				977.483	969 117
			RESERVAS		
			Daños y Perjuicios	259 593	244 379
	535 948 538	416 256 758		535 948 538	416 256 758

1/ Incluye en Pasivo Circulante -Cuentas a Pagar $11.680.420, que corresponde a moneda Extranjera que reembolsará el BIRF de Ptmo disponible 543-NI que esta financiando construcción Proyecto Santa Bárbara TMV-2 y Planta Vapor Managua No.3.

Pedro Sú Olivas
Contador General

Octavio Salinas M.
GERENTE GENERAL

Federico Kelly Jr.
Auditor Interno.

Annex IV
Exhibit 4, Page 1 of 1

LISTA DE PRESTAMOS INTERNACIONALES CONCEDIDOS A

EMPRESA NACIONAL DE LUZ Y FUERZA

NOMBRE DEL PRESTATARIO	NUM. DEL PRESTAMO	FECHA DE CONTRATO	VALOR DEL PRESTAMO EN U.S. $	TIPO DE INTERES	AÑOS DE GRACIA-	PERIODO DE AMORTIZAC.	VENCIMIENTO DEL PRESTAMO	FECHA Y NUMERO. GACETA	UTILIZACION DEL PRESTAMO
Export-Import Bank of Washington	496	Jul 16,1951	600.000	4 %		10 años	1962	173 del 20/8/51	Compra Unidad diesel Nordberg y Accesorios
Banco Internacional de Reconstruc. y Fomento	82-NI	Sep 4,1953	450.000	4 3/4%	1 año		1963	209 del 7/9/53	Adquisición Motor Nordberg 3000 Kw's
Banco Internacional de Reconstruc. y Fomento	121-NI	Jul 8,1955	7.100.000	4-3/4% 3/4 del 1% c. por Compr.	1 año	20 años	1975	215 del 22/9/55	Electrificación del Pacífico de Nic.
Banco Internacional de Reconstruc. y Fomento	154-NI	Nov 15,1956	1.600.000	4-3/4% 3/4 del 1% c. por Compr.		15 años	1971		Electrificación del Pacífico de Nic.
Export Import Bank of Washington	1074	Ago 14,1959	475.000	5-3/4%		10 años	1969		Compra materiales, equipo y servicios relacionados con expansión de líneas de distribución.
Development Loan Fund 1/	DLF-132	Jun 30,1960	2.500.000	3-1/2%	1 año	25 años	1986	229 del 7/10/60	Costos en córdobas del Proyecto Río Tuma I Aprovechamiento.-
Banco Internacional de Reconstruc. y Fomento	259-NI	Jun 22,1960	12.500.000	6 % 3/8 del 1% c. por Compr.	1 año	20 años	1985	229 del 7/10/60	Construcción Proyecto Hidroeléctrico Ríos Tuma-Matagalpa-Viejo y Planta Diesel en Chinandega.-
Bank of America, S. F.	1	Ene 9,1963	500.000	6-1/2%		3 años	1964		Compra Materiales y equipos Distrib.
Bank of America, S. F.	2	Nov 7,1963	700.000	6-1/2%		3 años	1966	277 del 3/12/63	Idem. anterior.
Bank of America, S. F.	3	Mar 1, 1966	752.500	6-1/2%		Rotativo	Prorrogado en Feb/66		Compra materiales y Combustibles
Banco Internacional de Reconstruc. y Fomento	470-NI	Oct 20, 1966	5.000.000	6 % 3/8 del 1% c.por Compr.		20 años	1986	203 del 5/ 9/66	Turbina de Gas, Transmisión y Distrib. de líneas y Subestaciones incluyendo equipo de mantenim., Edif.Administ. Ingeniería
Bco.Centroamericano de Integración Económica		Feb 17, 1967	481.000	6 %	1 año	10 años	1978		Equipo Distribución y Transporte
Banco Internacional de Reconstrucción y Fomento	543-NI	Jun 21, 1968	15.250.000	6 1/4%	5 años	20 años	1988	127 del 7/16/68	Construcción Pta. térmica #3 y Planta hidroeléctrica Santa Bárbara.
Agencia Internacional para el Desarrollo (A.I.D.)	524-L-021	Ago.17, 1968	10.200.000	2 1/2%	10 años	35 años	2004	190 del 21/8/68	Electrificación Rural.

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Annex IV, Exhibit 6

ALTERNATIVA "C"

Página 1 de 5

MOVIMIENTO DE FONDOS PROYECTADO

Cash Flow

1971 - 1975

	1971	1972	1973	1974	1975
Ingreso Neto antes de Intereses	42 715 097	50 550 000	54 846 900	61 569 200	64 105 800
Depreciación	11 718 996	14 709 100	16 123 900	16 267 900	19 953 700
Total Generación Interna de Efectivo	54 434 093	65 264 100	70 970 800	77 837 100	84 059 500
Préstamos					
IBRD 543-NI	35 778 971	2 247 049	906 269	-	-
A. I. D.	27 872 040	-	-	-	-
Bank of America S. F.	7 350 000	-	-	-	-
Ptmo. para futuros desarrollos.-	2 500 000	12 300 000	29 120 000	40 820 000	22 680 000
Total Préstamos	73 501 011	14 547 049	30. 026 269	40 820 000	22 680 000
Contribución de Consumidores	1 910 089	2 000 000	2 100 000	2 200 000	2 300 000
Gobierno de Nicaragua (Electrificación Rural)	12 000 000	6 000 000	-	-	-
Depósito de Consumidores	1 437 869	1 500 000	1 600 000	1 700 000	1 800 000
Retenciones a Contratos	974 736	(974 736)	-	-	-
Intereses provenientes de Cooperativas de Elec trificación Rural.-	-	-	1 608 698	1 608 698	1 608 698
Devolución Estudio Geotérmico	429 667	-	-	-	-
(Aumento) Disminución en Recibibles	(1 311 971)	(1 300 000)	(1 300 000)	(1 400 000)	(1 400.000)
Sub- Total	15 440 390	7 225 264	4 008 698	4 108 698	4 308 698
TOTAL ORIGEN DE FONDOS	143 375 494	87 036 413	105 005 767	122 765 798	111 048 198

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E N A L U F
NICARAGUA.-

MOVIMIENTO DE FONDOS PROYECTADO

1971 - 1975

ALTERNATIVA "C"

Página 2 de 5

APLICACION DE FONDOS		1971	1972	1973	1974	1975
Edificio Administrativo	ML	4 086 492	-	-	-	-
Ingeniería y Supervis.	ML	51 950	-	-	-	-
Total	ML	4 138 442	-	-	-	-
Programa Ptmo. 543-NI						
Planta Térmica	ME	9 599 604	-	-	-	-
	ML	461 958	-	-	-	-
Ingeniería y Supervisión.-	ME	355 471	-	-	-	-
Administración	ML	60 000	-	-	-	-
Sub-Total Térmica	ME	9 955 075	-	-	-	-
	ML	521 958	-	-	-	-
Total ME + ML		10 477 033	-	-	-	-
Proyecto Sta. Bárbara						
Obras Civiles	ME	8 526 000	336 000	-	-	-
	ML	5 684 000	224 000	-	-	-
Obras Electromecánicas	ME	11 460 015	-	-	-	-
	ML	1 243 198	-	-	-	-
Líneas de Transmisión y Subestaciones	ME	4 600 302	1 639 099	906 269	-	-
	ML	1 996 077	402 881	-	-	-
Ingeniería Líneas y Subestaciones (ELC)	ME	1 237 579	271 950	-	-	-
Administración	ML	824 088	275 000	-	-	-
Sub-Total Sta. Bárbara	ME	25 823 896	2 247 049	906 269	-	-
	ML	9 747 363	901 881	-	-	-
Total ME + ML		35 571 259	3 148 930	906 269	-	-

ENALUF
NICARAGUA.-

MOVIMIENTO DE FONDOS PROYECTADO

1971 - 1975

ALTERNATIVA "C"

Página 3 de 5

		1971	1972	1973	1974	1975
Térmica I 60 MW	ME	2 500 000	12 000 000	21 000 000	21 000 000	6 290 000
	ML	500 000	5 000 000	6 500 000	6 500 000	1 010 000
Total Pta. Térmica	ME + ML	3 000 000	17 000 000	27 500 000	27 500 000	7 300 000
Térmica II 60 MW	ME	-	-	-	1 500 000	14 250 000
	ML	-	-	-	500 000	4 750 000
Sub-Total ME + ML		-	-	-	2 000 000	19 000 000
Turbina de Gas	ME	-	-	4 000 000	8 200 000	1 600 000
	ML	-	-	-	800 000	400 000
Sub-Total ME + ML		-	-	4 000 000	9 000 000	2 000 000
Líneas de 138 KV Managua-León	ME	-	-	1 820 000	3 320 000	540 000
	ML	-	-	140 000	1 870 000	480 000
Interconexión SIN-SIRN	ME	-	300 000	2 300 000	6 800 000	-
	ML	-	170 000	1 260 000	3 200 000	-
Expansión Normal	ML	10 668 700	12 000 000	13 000 000	14 000 000	15 000 000
Programa Electrif.Rural						
Ptmos. a Cooperativas	ME	27 872 040	-	-	-	-
	ML	18 351 027	6 000 000	-	-	-
Total Electrif.Rural	ME+ML	46 223 067	6 000 000	-	-	-
Otras Inversiones	ML	-	8 000 000	10 000 000	10 000 000	15 000 000
Planta General	ML	1 200 000	1 300 000	1 400 000	1 500 000	1 600 000
Estudio Geotérmico	ML	429 667	-	-	-	-
Sub-Total Inversiones	ME	66 151 011	11 547 049	30 026 269	40 820 000	22 680 000
	ML	45 557 157	33 771 881	37 300 000	43 370 000	43 240 000
Total Inversiones ME + ML		111 708 168	47 318 930	67 326 269	84 190 000	65 920 000

E N A L U F
NICARAGUA.-

ALTERNATIVA "C"

MOVIMIENTO DE FONDOS PROYECTADO

1971 - 1975

Servicio de la Deuda	1971	1972	1973	1974	1975
Amortizaciones					
BIRF 121-NI	3 514 000	3 682 000	3 864 000	4 053 000	2 100 000
BIRF 154-NI	602 000	-	-	-	-
BIRF 259-NI	3 255 000	3 465 000	3 668 000	3 892 000	4 130 000
BIRF 470-NI	1 330 000	1 400 000	1 505 000	1 575 000	1 645 000
BIRF 543-NI	-	-	4 270 000	4 550 000	4 830 000
B C I E	374 108	374 108	374 109	374 109	374 109
Futuros Préstamos	-	-	-	-	-
Bank of America S.F.	3 937 500	3 062 500	3 062 500	437 500	-
Cogelex	-	242 545	485 089	485 089	485 089
Mitsubishi	1 228 107	1 163 166	1 098 226	559 682	-
Lincas	-	194 956	389 912	389 912	389 912
Blackstone	446 655	119 665	-	-	-
Siemens	-	51 093	102 185	102 185	102 185
Infonac-Managua	7 564	7 564	7 564	7 564	3 782
Infonac-Masatepe	9 048	9 048	9 048	9 048	4 524
Infonac-Granada	7 564	7 564	7 564	7 564	3 782
Infonac-León	69 814	69 814	69 814	69 814	34 907
Banco Nac. de Nic . (Bodega)	126 600	-	-	-	-
Sub-Total Amortizaciones Deudas a Largo Plazo	15 187 960	13 849 027	18 913 010	16 512 467	14 103 290

E N A L U F
NICARAGUA.-

ALTERNATIVA "C"

MOVIMIENTO DE FONDOS PROYECTADO

1971 - 1975

	1971	1972	1973	1974	1975
Intereses					
BIRF 543-NI	5 343 611	6 491 716	6 681 152	6 422 792	6 130 019
BIRF 121-NI	776 275	609 142	430 297	244 590	49 738
BIRF 154-NI	14 258	-	-	-	-
BIRF 259-NI	4 309 700	4 122 646	3 900 393	3 676 944	3 438 444
BIRF 470-NI	1 961 972	1 885 204	1 793 760	1 701 139	1 604 259
Préstamo Propuesto	-	100 000	680 000	2 273 000	5 293 000
B C I E	140 046	117 906	95 154	72 707	50 260
Bank of America S. F.	-	351 117	464 804	125 798	31 450
A I D	1 225 770	1 611 648	1 608 698	1 608 698	1 608 698
Infonac-Nandaime	2 280	1 749	1 207	670	133
Infonac-Masatepe	2 728	2 086	1 307	801	159
Infonac-Granada	2 281	1 749	1 207	670	133
Infonac-León	20 759	15 919	10 986	6 099	1 212
Banco Nac. de Nic. (Bodega)	7 630	-	-	-	-
Sub-Total Intereses	14 144 427	15 543 284	15 731 864	16 133 908	18 207 505
Total Servicio deuda L.P.	29 332 387	29 392 307	32 790 070	32 470 077	32 386 345
Otras Obligaciones Corrientes y Acumuladas, incluyendo intereses de Suplidores.					
Cogelex	-	297 998	134 006	102 475	70 944
I G E	446 127	-	-	-	-
Lincas	-	82 856	140 856	107 713	74 571
Siemens C. A.	182 655	-	-	-	-
Siemens A. G.	-	21 714	36 914	28 229	19 543
Arthur Andersen & Co.	112 000	112 000	114 000	116 000	118 000
Financiera de Inversiones	433 240	-	-	-	-
Cardenal Lacayo Fiallos	6 465	-	-	-	-
Banco de la Vivienda	10 247	-	-	-	-
Reparto San Juan	17 219	-	-	-	-
A I S A	219 325	-	-	-	-
Bienes Raíces, S. A.	57 566	-	-	-	-
BIRSA (Altamira D'Este)	49 787	-	-	-	-
Varias Obligaciones	-	600 000	700 000	800 000	900 000
Sub-Total Otras Obligac.	1 534 631	1 114 568	1 125 776	1 154 417	1 183 058
Total Servicio de la Deuda.-	30 867 018	30 506 875	35 770 650	33 800 792	33 493 853
TOTAL ORIGEN DE FONDOS	143 375 494	87 036 413	105 005 767	122 765 798	111 048 198
TOTAL APLICACION DE FONDOS	142 575 186	78 425 805	103 296 919	117 990 792	99 413 853
Exceso o (Deficiencia)	800 308	8 610 608	1 708 848	4 775 006	11 634 345
Efectivo al Princip.período	2 895 667	3 695 975	12 306 583	14 215 431	18 990 437
Efectivo al Final período	3 695 975	12 306 583	14 215 431	18 990 437	30 624 782

ER/Evd.
Febrero 10, 1971