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**VOLUME I  
MAIN REPORT  
FINAL**

**MID-TERM EVALUATION  
RURAL ELECTRIFICATION PROJECT (#492-0429)  
IQC Contract No. PDC-0249-I-00-0091-00**

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BASIC PROJECT IDENTIFICATION DATA

1. Country:
2. Project Title:
3. Project Number:
4. Project Dates:
  - a. First Project Agreement:
  - b. Final Obligation Date:
  - c. Most Recent Project Assistance Completion Date (PACD):
5. Project Funding: (amounts obligated to date in dollars or dollar equivalents from the following sources)
  - a. A.I.D. Bilateral Funding (grant and/or loan)
  - b. Other Major Donors
  - c. Host Country Counterpart Funds

TOTAL
6. Mode of Implementation: (host country or A.I.D. direct contractor? Include name of contractor.)
7. Project Designers:
8. Responsible Mission Officials: (for the full life of the project)
  - a. Mission Director(s):
  - b. Project Officer(s):
9. Previous Evaluations:

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## List of Abbreviations

ADB	Asian Development Bank
AM/FM	Automated Mapping/Facilities Management
AMG	Account Management Group of NEA
AWIA	Adrian Wilson International, Inc.
BAPA	Barangay Power Associations
BOI	Board of Investment
BTr	Bureau of Treasury
CAD	Computer Aided Drafting
COMPAC	Commodities Package
CORPLAN	Corporate Planning Office of NEA
dLA	de Lucia and Associates, Inc.
DOE	Department of Energy
EBS	Electronic Billing System
ECC	Energy Coordinating Council
EDP	Electronic Data Processing
ERB	Energy Regulatory Board
ERI	Energy Resource International, Inc.
GcMcc	Government Corporate Monitoring and Coordinating Committee
GOP	Government of the Philippines
HCGR	House Committee on Government Reorganization
JPIL	Joint Project Implementation Letter
KK	Kislap Kuryente
kV	Kilovolts
KWh	Kilowatt hour
Logframe	Logical Framework
LOP	Life of Project
LRMC	Long Run Marginal Cost
LRP	Long Range Plan
MFSR	Monthly Financial and Statistical Report
MIS	Management Information System
MSD	Member Services Department
MTIP	Medium Term Investment Plan
NEA	National Electrification Administration
NEDA	National Economic Development Authority
NPC	National Power Corporation
NRECA	National Rural Electric Cooperative Association International, Ltd.
O & M	Operation and Maintenance
OEA	Office of Energy Affairs
OECF	Overseas Economic Cooperation Fund
P	Philippine pesos
PC	Personal Computer
PIP	Performance Improvement Program
PROC	Peoples Republic of China
PW	Price Waterhouse

RE Rural Electrification  
REA Rural Electrification Administration (USA)  
REC Rural Electric Cooperative  
REMP Rural Electric Master Plan  
RMA Resource Management Associates  
SOP Statement of Operating Policy for NEA  
TA Technical Assistance  
UICI Urban Integrated Consolidated, Inc.  
US United States of America  
USAID United States Agency for International Development  
WB World Bank

## EXECUTIVE SUMMARY

The USAID Rural Electrification (RE) Project has been in full operation now for over two years. This Mid-Term Evaluation is designed to assess the project progress to date, and make recommendations for further implementation. Background information on the project can be found in the body of the report, and in numerous other published sources. This Executive Summary will focus only on the findings and recommendations of the evaluation.

### PROJECT PROGRESS - FINDINGS/RECOMMENDATIONS

#### Commitment and Involvement of the GOP, NEA and the RECs

The Government of the Philippines (GOP) and the National Electrification Administration (NEA) have maintained their commitment to the revitalization of the RE program, and are making significant progress in implementing institutional, financial, and technical reforms. Essential legislation has been drafted and introduced including a revised NEA charter, consideration of outstanding loan obligations, and strengthening of penalties for power thievery. The National Power Corporation (NPC) has been gradually restructuring its rates toward long run marginal cost (LRMC), and various house bills have been introduced to streamline NPC's rate setting procedures. Unfortunately, little progress has been made on transferring direct connect industries to the Rural Electric Cooperatives (REC). No industries have actually been transferred.

NEA has made substantial progress in positioning itself as an "interested lender" and in revamping its internal operations. NEA is adopting a number of major internal changes, including: policy guidelines, debt restructuring, rate increases, performance improvement programs, reporting, and organizational structure. NEA and the REC are taking action to terminate or transfer all uneconomical activities, such as alternative power generation and certain social programs.

The Evaluation Team recommends the following actions:

- Key legislation needs to be diligently pursued and passed -- of critical importance is the proposed NEA Charter, the coordination of loans bill, the recapitalization of NEA bill, and proposed anti-pilferage legislation.
- NEA needs to fully implement policies and changes currently in draft form.
- Direct connect NPC customers need to be transferred to the RECs.

#### Technical Assistance

Technical Assistance (TA) has been provided primarily through the long-term TA contractor, the National Rural Electric Cooperative Association, International (NRECA).

The Evaluation Team has found this assistance to be generally satisfactory. Although a firm qualitative assessment is not possible, the institutional TA actions have generally supported the positive managerial and institutional changes at NEA. Appropriate financial policies, guidelines, and manuals have been prepared. The engineering effort has generally proceeded in the right direction, however, several areas were found lacking: REC involvement in planning, economic evaluation, simulated load flow analysis, alternate construction techniques, and engineering methods. The computerization activity is behind schedule, although NRECA has assembled a sound implementation plan. Consistent with the project designs, only a limited amount of training support has been provided to date.

The Evaluation Team recommends the following actions:

- Effective implementation and consistent enforcement of the policy guidelines and manuals.
- Engineering deficiencies identified in this report should be addressed in Phase II of the project.
- The computerization efforts need timely completion.
- The training component should be expanded under the redesigned project.

#### Commodity Procurement

The commodity procurement effort is generally being completed in a timely manner, considering the late start of the project. Purchasing associated with COMPAC 1, 2a and 3 are complete with delivery in progress. Procurement of computers is behind schedule, but NRECA has established an adequate plan to complete this activity within the next 9 months. The team did not make an in-depth evaluation of problems and solutions to past commodity performance, since the project redesign calls for the parallel financing partners to absorb this activity. However, the following general observations are noted:

- The material handling system needs improvement to eliminate bottlenecks, improve tracking, and reduce costs. NRECA should proceed with their study to refine this process, as soon as possible.
- The cost of material handling (CIF and domestic) should be passed on to the RECs as a part of material costs under the parallel financing arrangement. USAID should eliminate technical loss commodity procurement (i.e. COMPAC 2b and 4) from Phase II of the project.
- Computer equipment procurement should consider the ability of NEA and the RECs to support and maintain the equipment in the future and ensure that

adequate systems are being procured within budget limitations. Under Phase II, additional procurement should be considered.

- Vehicle procurement is essential for the RECs; however, the specific needs should be systematically evaluated and justified and past deficiencies should be resolved before proceeding with additional procurement.
- The timely procurement, delivery, and installation of commodities under the broad WB/OECF program is likely to be a major potential bottleneck. The problems experienced to date will only be magnified unless an efficient procurement program is put in place with NEA and WB/OECF.

### Conclusions of the Mid-Term Project Evaluation

- The project is well conceived and designed and is on target with respect to the needs of the Philippines. The project's late start has not affected the viability of the program. The USAID project deserves much of the credit for the major positive changes underway at NEA and the RECs.
- The GOP has demonstrated continuing commitment to establishing a commercially viable RE program. Pending legislation needs to be pursued and passed, policies and operating procedure manuals adopted, and direct connect customers by NPC transferred to the RECs.
- The NEA has also demonstrated similar commitment. New operational and policy changes need to be pursued, adopted, and fully implemented.
- Technical Assistance is proceeding well, but several changes need to be accomplished:
  - Greater effort should be expended to involve the RECs in the planning process.
  - The distribution planning process needs to be enhanced to include economic evaluation of alternatives and the use of modern load flow simulation models.
  - There is a need to investigate alternative construction techniques and/or materials.
  - The training budget needs to be increased to meet the needs of the NEA and the RECs.

- Commodity procurement has also proceeded well. The following recommendations are noted within the context of the upcoming parallel financing arrangement:
  - The materials handling process needs to be improved, automated, and modernized.
  - Communication between NRECA and NEA needs to be improved.
  - Computerization is essential to the development of RE programs and be given priority.
  - Vehicles are needed at all RECs, and USAID should join with the other lenders to establish and provide adequate vehicles for all RECs.
- Procurement of computers has been delayed to permit completion of the computerization survey and the evaluation of NEA and RECs' requirements. The NRECA computer work plan appears to be on target to accomplish the objectives of the RE Project, albeit at a later date.
- It is too early in the project to establish the progress of the RECs in meeting performance targets. Most commodities are not installed and operating yet. However, the Evaluation Team concurs with the selection of commodities and feels that substantial progress toward performance targets will be achieved.

### PHASE II - PROJECT REDESIGN

The Evaluation Team's findings support continuation of the REC project. In addition, the parallel financing concept is judged to be sound and an effective blending of resources. This will necessitate the reallocation of USAID grant funds from technical loss commodity procurement, to increased Technical Assistance and limited REC commodity procurement in support of REC maintenance and operations.

#### Extension of PACD

The Project Assistance Completion Date (PACD) should be extended by approximately two years to coincide with the current World Bank (WB) and Overseas Economic Cooperation Fund (OECF) projects. The new PACD would be December 31, 1995. This extension will not require any additional funding.

## Technical Assistance

Increased Technical Assistance would be provided to support the NEA and RECs in absorbing the WB/OECF commodity procurement, and in accelerating the pace of revitalizing these institutions. The following components would be included:

- Expand engineering services for distribution long range plans, O&M surveys, sectionalizing studies, and mapping to all the RECs (approximately 106) covered by the USAID, WB and OECF projects. This would include continuation of a long-term technical advisor.
- Improve engineering methods including least cost analysis and computerized simulated load flow analysis.
- Introduce computer aided drafting (CAD) systems for automated mapping.
- Provide a long term advisor for development and implementation of training programs throughout the REC system.
- Provide a long-term advisor for development of a Rural Electrification Master Plan (REMP) that would address integrated development of rural electrification in the Philippines.
- Continue with a long-term advisor to provide overall project management and lead remaining institutional activities.

The Evaluation Team recommends a combination of limited extension of the NRECA contract, along with award of new contracts for the additional Technical Assistance. All of the enhanced Technical Assistance will be funded from unused commodity funds. Technical Assistance would therefore be funded at US \$13.8 million, compared to original funding of US \$4.97 million.

## Commodities

The Evaluation Team recommends that USAID drop the COMPAC-2b and 4 commodity procurement packages, funded at US \$17.81 million, and let the WB/OECF projects fund these commodities. USAID would retain a limited amount of commodity procurement. The exact allocation of funds will be determined by studies in the specific commodity areas. In general, the Evaluation Team identified the following critical commodities:

- Computers - Computerization has been identified as one of the most critical areas in need of improvement. Procurement of computers will be necessary to support this activity.

- Vehicles - Additional vehicles are necessary to support the commodity procurement under WB/OECF, and for ongoing O&M activities. It is recommended that a joint vehicle procurement program be initiated with WB/OECF.
- Kilowatt-Hour Meters - New meters will be necessary for both existing and expansion systems. USAID funding would ensure that quality meters are procured.
- Pole Treatment Chemicals - These chemicals can significantly extend the life of existing poles and offset high replacement costs. Under the commodity procurement program, the chemicals could be purchased for use by the REC O&M teams.
- COMPAC - 1, 2a, 3 - These are essentially complete and would be retained under the redesign.

In addition, it is recommended that USAID turn over all commodity procurement support activities to NEA and the WB/OECF project implementation unit. However, USAID should monitor their activities to ensure technical support of a viable program.

### Financial Plan

A summary comparison of the redesigned life-of-project budget is as follows:

<u>Category</u> (\$000)	<u>Original</u> (\$000)	<u>Redesign</u> (\$000)
1. Commodities	\$ 31,848	\$ 24,009
2. Technical Assistance	4,968	\$ 13,800
3. Training	320	1,020
4. Project Ops/Mgmt	900	400
5. Evaluation/Audit	150	400
6. Contingency	<u>1,814</u>	<u>371</u>
Total	\$ 40,000	\$ 40,000

## PHASE II CONTRACTING OPTIONS

The Evaluation Team has concluded that the performance of NRECA under the existing contract is satisfactory, and that a portion of their services should be extended for the PHASE II redesign and extended PACD, specifically:

- The current NRECA contract should be continued within the current scope of work, applicable under the redesign.
- The NRECA contract should be reviewed to determine the impact of deleting COMPAC 2b and 4. This should free up technical resources which could be spent on other phase II redesign Technical Assistance activities.
- The NRECA contract should be amended to include extension of Financial/Institutional activities through the new PACD of December 1995, and to include procurement of the modified commodity package.
- The NRECA contract should be amended to include the development of a Rural Electric Master Plan for the rural electrification program.
- USAID should let new contracts for the other Phase II Technical Assistance activities, specifically:
  - Training
  - Engineering
- It is recommended that USAID let this work either as separate contracts, or as one overall Technical Assistance support contract, to run concurrently with the existing NRECA contract.

## 1.0 INTRODUCTION

### 1.1 Background of the Rural Electrification Project

Rural Electrification (RE) in the Philippines has been well documented in numerous reports and publications and that history will not be repeated here. A short synopsis which is relevant to this evaluation report is presented.

#### 1.1.1 History of Rural Electrification in the Philippines

The Rural Electrification Program was first organized in 1969. Since then it has grown into a country wide distribution system serving over three million households and commercial customers. Over \$450 million in aid has been donated to the expansion of the system by the United States Agency for International Development (USAID) and other donors since 1964. Total electrification of the rural provincial areas remains a national rural development strategy. To support this goal, the National Electrification Administration (NEA) was created to plan, supervise, and fund the development of Rural Electric Cooperatives (RECs). These RECs are the distributors of electric power to rural areas. They serve as a catalyst to the growth of small and medium scale industries, and to the general improvement of socio-economic conditions in rural areas of the provinces. The RECs now account for approximately 12% of the power distributed in the country.

The struggle of developing the nation's electrification program had left NEA and the RECs with severe financial and operational problems. NEA was not effective in administering the RECs, many of which were characterized by poorly maintained equipment, unsatisfactory service performance, high technical losses, and unmanageable financial debt. Since the RECs and NEA were at odds on how to rectify the situation, little or no improvement was being made. The entire system retreated in terms of system performance while debt loads increased.

In December 1986, USAID contracted for a financial, management, and technical assessment of NEA and selected RECs. The result of the study clearly illustrated the major deficiencies throughout the entire RE Program. These findings were presented to the Government of the Philippines (GOP) which received the results favorably and responded by committing itself to reform and rehabilitation. USAID and the GOP agreed on certain performance targets in this reform effort and linked future assistance to satisfactory progress. Based on USAID's assessment of NEA and the REC's performance, the current RE Project was developed and launched in 1988. This project concentrates on the rehabilitation of REC distribution systems, and on institutional strengthening at both the NEA and REC levels. It is a broadly based project which seeks to restore financial viability and technical performance for the entire rural electrification system.

### 1.1.2 Problems in the Rural Electrification Sector

In December 1986, USAID contracted with Price Waterhouse (PW) to perform a financial, management, and technical assessment of NEA and selected RECs. The 1987 assessment identified inter alia the following deficiencies:

- NEA and the RECs had become involved in projects unrelated to rural electrification that were a drain on scarce resources.
- NEA had failed to provide adequate supervision of and technical guidance to RECs.
- Many of the original RECs' coverage areas had been subdivided into much smaller units and had become economically non-viable.
- The REC distribution network was in dire need of rehabilitation.
- NEA was not viable without continued subsidy and could not repay existing foreign borrowings.
- The rural electrification program suffered as a result of mismanagement, politicalization, and responsibility for unrelated activities.
- There was minimal member understanding, participation or involvement in REC affairs.

These findings pointed to lack of direction from NEA as the national administrator of the RECs. Also evident was the absence of commitment on the part of individual RECs, and the severe lack of training in all phases of administering the program at both the national and REC levels. Based on these findings, the PW study made inter alia the following recommendations:<sup>1</sup>

#### GOP POLICY RECOMMENDATIONS

- Turn over all National Power Corporation (NPC) direct connection non-utility customers to the distribution utility holding the area coverage franchise. To the extent possible, eliminate intra-government competition in distribution of electricity.

1

Source: Project Paper Rural Electrification Project. Project No. 492-0429, dated September 1988.

- The GOP should assume foreign exchange exposure on all present and future foreign currency loans of NEA.
- NEA and the RECs should cease all activities unrelated to rural electrification (BLISS program, TANGLAW, LIVELIHOOD projects, etc.)
- Transfer ownership and operation of REC generation and transmission assets and associated debt to NPC on a case by case basis. To the extent possible, eliminate intra-government competition in the generation and transmission of electricity.
- Design a rural electrification NPC tariff which is consistent with GOP rural electrification.

#### NEA RECOMMENDATIONS

- Prepare a plan to consolidate existing REC coverage areas into units of commercially viable size and customer mix.
- If external assistance is provided, establish a revolving loan fund for future REC system needs.
- Conduct member referendums at all RECs, documenting member acceptance of individual REC financial and operating targets as a condition of receiving external assistance. If agreed-upon targets are not met, NEA will take swift action to reorganize, merge or sell the REC.
- RECs (post-consolidation) should undertake a rate study based upon the principles of marginal cost pricing.
- NEA should re-establish its REC supervisory and monitoring function.

#### REC RECOMMENDATIONS

- Study alternatives to improve repair facilities for REC equipment.
- Undertake both System and Operation and Maintenance Studies at all RECs to determine system operating requirements, system improvements and rehabilitation needs.
- Redirect the activities of the member services department to emphasize member communication, education and involvement in REC affairs.

- Design and implement a micro-computer-based billing and customer accounting system.

### 1.1.3 Corrective Actions Taken To-Date

As a result of these findings, and the offer of USAID for further assistance linked to specific actions to correct deficiencies, significant progress has been made by the new leadership of NEA. The USAID Project Paper cites a number of specific reforms which had been accomplished as of September 1988. These accomplishments are summarized in Appendix A. In addition, the current RE Project has advanced further reforms which are described in Section 2.0 of this report.

## 1.2 The USAID Rural Electrification Project

### 1.2.1 Description

The RE Project contributes to the general goal of increasing reliability of electric power service in the rural areas of the Philippines. The purpose of the project, as noted in the Project Paper, is the following:

"The purpose of the project is to achieve the commercial viability of selected RECs by addressing institutional, policy and technical weaknesses of the REC system."

The project contains two main components: 1) Institutional Development and 2) System Loss Reduction. It is anticipated that the following specific results will be realized:

- An increase in REC collection efficiency of participating RECs to an average of 95% of total accounts receivable (not of monthly billings, as was previously computed).
- A decrease in operating expenses per kilowatt hour (KWh) and accordingly in rates of participating RECs.
- Significant technical improvements and sharply reduced power outages of participating RECs.
- Introduction of computerized billing and management information systems at both the NEA and participating REC levels.
- Maintenance of power factor efficiencies on participating systems of not less than 95%.

- A reduction in participating RECs system losses from up to 50% to an average below 15%.

The Project Logical Framework (Logframe) included as Appendix B, further defines the expected project outputs.

### 1.2.2 Project Components

#### **- Institutional -**

The institutional objective of the project is targeted at managerial improvements within NEA, including the development of an improved Management Information System (MIS) and transfer of the system elements to the RECs. Institutional development will also be undertaken at the REC level. Technical Assistance, training and procurement of computer equipment and software make up the development program elements. These are administered under the auspices of a long term Technical Assistance contractor working closely with NEA and the RECs.

#### **- System Loss Reduction Program -**

This component concentrates on financing the procurement of commodity packages (COMPAC) for selected RECs to reduce system losses, and a commodity package for NEA to enhance its ability to service the RECs. The RECs have been grouped into categories as specific "COMPACs" as defined in Appendix C. Each COMPAC had specific eligibility requirements, performance benchmarks, and associated funding limitations.

### 1.2.3 Funding/Schedule

The project was estimated to cost \$40 million and be implemented over a five year period. Funding would be incremental, with an initial obligation (Phase 1) of \$14 million. Pending a favorable Mid-Term Evaluation, subsequent funds would be obligated and the project continued. The two main elements of the project funding are: 1) Technical Assistance and 2) Commodities procurement. Table 1-1 illustrates the current budget of the project while Table 1-2 shows the status of RE project funds as of September 30, 1991.

For the purpose of this report, the Evaluation Team has defined the project in two distinct phases:

- **Phase I** - Those project activities initiated and funded under the original project agreement: COMPAC -1, 2a, 3; institutional commodity procurement, NRECA contract, and miscellaneous training and project support activities up to the point of the Mid-Term evaluation.

- **Phase II** - Those post-Mid-Term Evaluation project activities, continuing Phase I activities. COMPAC-2b and 4, NRECA contract through September 1993, etc. The proposed parallel financing arrangement with WB/OECF is assumed to coincide with Phase II. Therefore, Phase II consists of the continuation of Phase I activities and Phase II activities as modified by the recommended project redesign under the parallel financing arrangement.

Those activities completed under Phase I are:

1. Specification and procurement of COMPAC-1, 2a, and 3 commodities and disaster relief commodities.
2. Institutional activities including preparation of draft policies, manuals and guidelines.
3. Initial engineering activities including preparation of O&M surveys, etc.
4. Procurement of boom trucks.
5. Initial training activities.

Those activities scheduled (pre-project redesign) for completion under Phase II are:

1. COMPAC-2b,4 and institutional commodities.
2. Institutional training activities.
3. Continuing institutional, training and project management activities.

Figure 1-1 illustrates the project activities and their relation to Phase I, Phase II, and the Mid-Term Evaluation.

### 1.3 Scope of the Mid-Term Evaluation

The Mid-Term Evaluation is a critical milestone incorporated in the Project Paper. Continuance of the project and the Phase II project design are dependent on the findings and recommendations of the evaluation.

**TABLE 1-1**  
**CURRENT BUDGET PER PILS AND JPILS**  
**(\$000)**

Project Input	AID	GOP	TOTAL
1. Commodities:			
COMPACs 1 and 2a	\$12,256		\$12,256
COMPAC 3	\$839		\$839
Computer Equipment for NEA	\$368		\$368
Computer Equipment for the RECs	\$1,080		\$1,080
Disaster Assistance *1	\$582		\$582
COMPAC 2b and 4	\$16,723		\$16,723
Subtotal	\$31,848	\$8,000	\$39,848
2. Technical Assistance *2	\$6,800	\$2,000	\$8,800
3. Training	\$400	\$400	\$800
4. Project Operations	\$400	\$3,128	\$3,528
5. Audit/Evaluation	\$150	\$0	\$150
6. Contingency	\$402	\$0	\$402
<b>TOTAL</b>	<b>\$40,000</b>	<b>\$13,528</b>	<b>\$53,528</b>

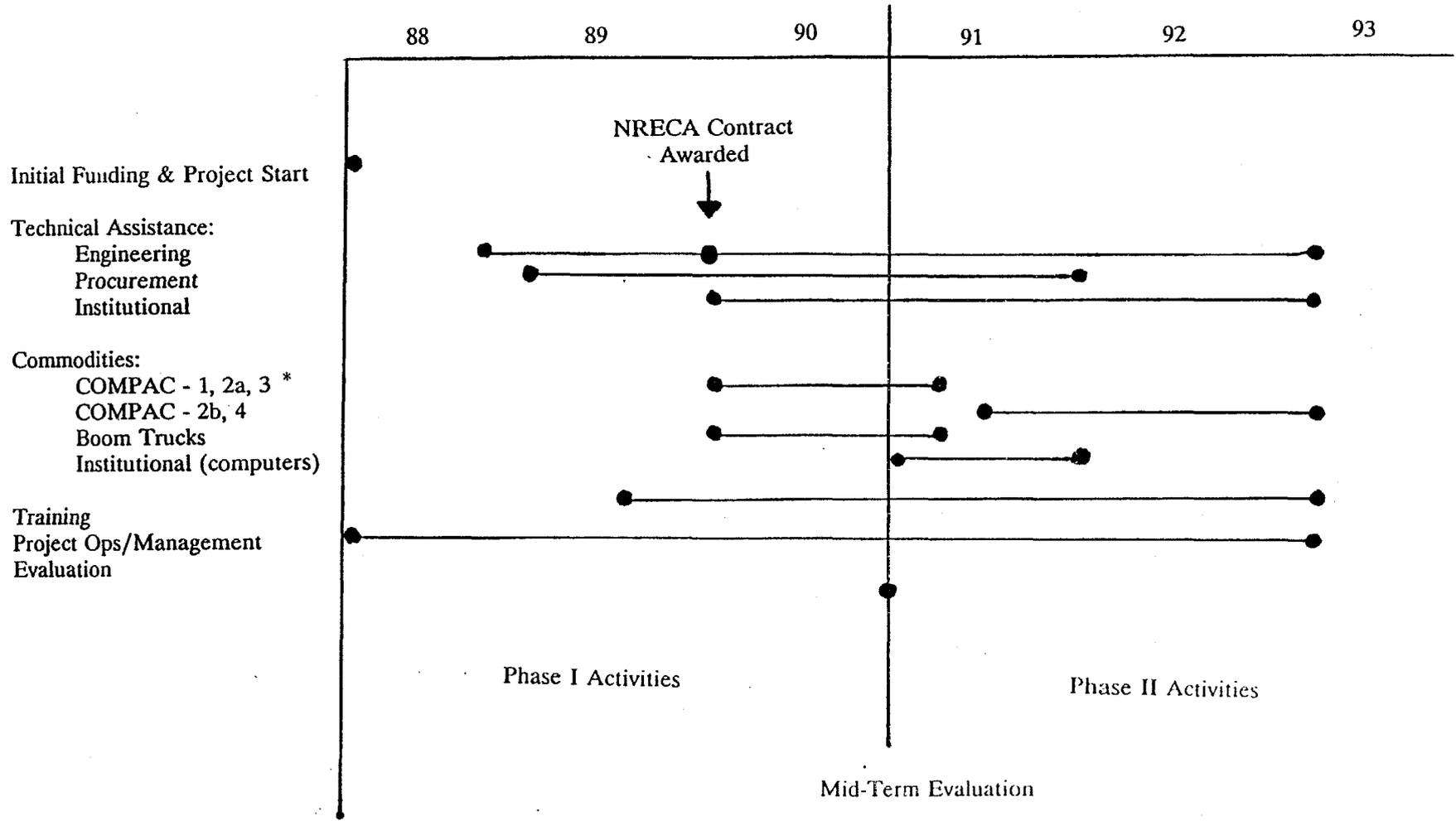
\* 1 Includes \$400,000 for July 1990 earthquake and \$182,000 for November 1990 Typhoon Ruping.

\* 2 Includes NRECA contract and other TA contracts.

**TABLE 1-2**  
**STATUS OF RE FUNDS AS OF SEPTEMBER 30, 1991**

ELEMENT	CURRENT AID PROJ. OBLIGATION	COMMITTED	ESTIMATED EXPENDITURE
Commodities	\$18,317,411.00	\$13,595,256.00	\$11,357,006.00
Technical Assistance:			
A) NRECA	\$4,684,627.00	\$4,684,627.00	\$2,265,543.00
B) Others	\$283,373.00	\$153,118.00	\$148,797.00
Technical Assistance Total	\$4,968,000.00	\$4,837,745.00	\$2,414,340.00
Training	\$320,000.00	\$232,493.00	\$55,190.00
Project Operations	\$900,000.00	\$237,310.00	\$237,310.00
Evaluation/Audit	\$262,440.00	\$195,062.00	\$77,312.00
Contingency	\$1,015,262.00	\$0.00	\$0.00
<b>TOTAL</b>	<b>\$25,783,113.00</b>	<b>\$19,097,866.00</b>	<b>\$14,141,158.00</b>

Figure 1-1. Phase I and Phase II Project Activities



\* Includes Disaster Relief Commodities

The scope of the Mid-Term Evaluation consists of two major components:

- Review and Evaluation of Phase I -- The first component of the Mid-Term Evaluation is a review and evaluation of the progress to date of Phase I. This includes the review and evaluation of:
  - Continuing commitment of the GOP/NEA to the commercial viability of the RECs;
  - Status and effectiveness of all activities, contracts and staffing for meeting project objectives;
  - Progress of the RECs toward solving managerial, operational and technical deficiencies;
  - Measures taken by NEA to improve its managerial and administrative effectiveness;
  - Status and effectiveness of commodity procurement activities;
  - Progress and potential of participating RECs to meet agreed-upon performance targets;
  - Status of host country contributions;
  - Progress in attracting additional donor financing;
  - Plans for a USAID Phase II and World Bank (WB)/Overseas economic Cooperation Fund (OECF) parallel financing management.<sup>2</sup>
- Redesign of Phase II - Assuming that the review and evaluation of Phase I results in a recommendation to continue with the project and to participate in a parallel financing arrangement with the World Bank and the OECF, this component provides for the development of a detailed redesign of Phase II to implement the parallel financing scheme.

Appendix Y provides a copy of the complete Statement of Work for the Mid-Term Evaluation Team.

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<sup>2</sup>

While not specifically mentioned in the Statement of Work, the proposed OECF loan is also to be considered in the parallel financing agreement.

#### 1.4 Project Team and Evaluation Methodology

The Resource Management Associates (RMA) Evaluation Team concentrated their activities on reviewing project documents, interviewing key personnel, and visiting representative RECs. The team gathered project performance information and validated the findings of prior evaluations. Exceptions are noted in the body of the report.

Project redesign activities included similar activities, as well as interviews with USAID personnel. The Evaluation Team developed recommendations and budget projections for the redesigned project.

A list of documents and personnel interviewed is contained in Appendices E and F, respectively.

The Project Team consisted of the following members:

Team Leader and Financial Analyst	Mr. Dennis Eicher Vice President Power System Engineering
Power Utilization Specialist	Mr. Merlin Lebakken President Power System Engineering
Energy Utilization Specialist	Mr. Michael Ellis Senior Consultant Resource Management Associates
Policy Analyst	Mr. Carlton Bartels Consultant The Tellus Institute
Utility Specialist	Dr. Francisco Viray Dean, University of the Philippines College of Engineering
Financial Analyst	Ms. Sonia De Guzman Consultant Private Development Corporation of the Philippines

Energy Economist U.S.

Dr. Mark Hanson  
Senior Consultant  
Resource Management Associates

Additional short term consultants also participated in the project as required. Appendix W contains the comments of NEA to a draft of this report dated September 24, 1991.

## 2.0 ASSESSMENT OF PROJECT STATUS

### 2.1 Commitment of GOP/NEA to the Commercial Viability of the RECs

#### 2.1.1 General

The problems which continue to plague the RE program in the Philippines are substantial. (Refer to Section 1.1.2). Many of these problems may be traced to GOP/NEA policies and/or directives or lack thereof. Solving these problems, therefore, requires substantial commitment on the part of the GOP/NEA to institutionalize reforms.

The USAID Project Paper identified a number of steps which the GOP/NEA had taken as of September 1988 to implement many of the recommendations of the Price Waterhouse study. (See Appendix A). These reform activities were accomplished as a result of the confluence of a number of positive events occurring at NEA during 1988 including 1) the installation of a new Board of Administrators in the second quarter of 1988; 2) the appointment of a new Administrator of NEA in August 1988; and 3) the development of a new management team in late 1988 and early 1989. The vision and commitment of the Board, Administrator, and management team is clearly evident in the significant progress which had been made in reforming the RE sector.

Against this backdrop, the World Bank commenced a rural electrification sector study in November 1988 which picked up from the PW paper resulting in a report entitled Philippines Rural Electrification Sector Study: An Integrated Program to Revitalize the Sector, dated March 1989. This study was followed by a WB sector loan to the GOP which included a provision for an equity transfer to NEA of US \$22.2 million. A US \$91 million follow through loan from the WB called for a thorough and meaningful reform which centered around the recommendations of the Sector Study. This effort has been assisted to a significant degree by the USAID project consultants. A summary of the current status of major policy initiatives undertaken as part of the reaffirmation of the RE sector is provided in Table 2-1.

As discussed in the next several sections, the GOP and NEA have maintained their commitment to the revitalization of the RE program and are making significant progress in implementing institutional, financial, and technical reforms.

TABLE 2-1 PHILIPPINES RURAL ELECTRIFICATION MAJOR POLICY INITIATIVES

Policy Proposed	World Bank	USAID	Status *	Recommendations
Define Policies for the RECs with regard to their commercial activities (including accounting, billing, collection, arrearses, metering, pilferage, etc.)	Recommended by WB	Supported by AID T.A.	Policies and instruction manuals have been drafted and are undergoing review and finalization (Ref: 2.1.3 and 2.2.3)	Continue Support as Planned
Rate re-structuring based on Long-Run Marginal Cost (LRMC) principles.	Required for WB Project	Supported by AID T.A.	Pending implementation LRMC by NPC. USAID (NRECA) charged with review duties.	Continue Support as Planned
Establish basic 12% interest Rate for REC Loans, and develop interest rate pegged at cost of money plus operation and FX risk cost.	Required for WB Project	AID RE Loans pegged at 12	Review on-going WB expects action (Ref: 2.1.3)	Continue Support as Planned
Conditionality on NEA Loan Contracts with RECs for improvements.	Required for WB Project	Required under RE Project.	NEA has established a Performance Improvement Program which includes performance targets as a conditionality of new loans (Ref: 2.1.3)	Continue Requirement as Planned
Turn over direct NPC connections to REC/Private Franchises in respective areas.	Required for WB Project	Supported by AID TA	Pending implementation. Delay due to delay in restructuring NPC rates. (Ref: 2.1.2)	Require as Conditionality of Phase II
GOP Assumption of FX cost on NEA loans and conversion into equity of advances from the gov't.	Required for WB Project	Supported by AID TA	Legislation pending in Congress (Ref: 2.1.7)	Require as Conditionality of Phase II
NEA & RECs cease activities unrelated to distribution, including transfer of generation to NPC on case by case basis.	Required for WB Project	Supported by AID TA	NEA & RECs have ceased activities unrelated to distribution. Transfer of generation to NPC is pending (Ref: 2.1.4)	Continue Support as Planned
NEA focus a finance and tech support agency instead of utility management.	Supported by WB	Supported by AID TA	NEA's new Statement of Operating Policy and the proposed NEA Charter revision refocuses NEA as an "interested lender". (Ref: 2.1.3)	Continue Support as Planned
Establish revolving loan fund for REC loans.	Supported by WB	Supported by AID TA	Debt service payments will represent one component of NEA's source of loan funds.	Continue Support as Planned
Establish procedures to govern the election of REC Boards.	Recommended by WB	Supported by AID TA	The proposed NEA Charter revision reforms the election procedures for REC Boards (Ref: 2.1.2)	Continue Support as Planned
Need to consider adopting special policies for supporting RECs which have severely limited chances of becoming viable such as island RECs or sparsely populated mountainous areas.	Recommended by WB	N/A	"Non-viable" RECs will be provided with loan funds only on a GOP/donor subsidize basis per the proposed NEA Charter, Loans Policy Manual, Etc. (Ref: 2.1.2)	Support Approach in Proposed NEA Charter
Computerization of RECs billings/collection	Supported by WB	Included in USAID Project	Computerization of REC billings/collection procedures is being implemented as part of USAID project (Ref: 2.2.5)	Continue Assistance as Planned
REC consolidation where economies of scale evident	Supported by WB	Included in USAID Project	NEA is testing implementation of "province wide" RECs and NRECA is monitoring. Since mergers are subject to vote of consumer-members, solutions may only be pursued where local conditions permit.	Continue Support as Planned

Notes: \* While the Final Report for the Republic of the Philippines Special Assistance for Project Formation on NEA Rural Electrification Project, prepared for the OECF by the SAPROP Team, dated February 1991 discusses the status of many of these policy initiatives, the position of the OECF is unknown. The numbers in parentheses refer to Section Numbers in this report.

- Bail-Out plan -

A Bail-out Plan of NEA has been approved by the Office of the President.<sup>3</sup> The Bail-out Plan includes the following actions:

- Turn over of all operational generation equipment of the RECs to the NPC.
- Sale by NEA of all uninstalled generation equipment with proceeds turned over to the GOP.
- GOP assumption of NEA's foreign loans associated with generation equipment.
- Conversion into subsidy (equity) of advances by the Bureau of Treasury (BTr) for servicing of NEA's foreign loans.
- Write off of receivables from the RECs of loans associated with alternative generation and social programs not related to rural electrification.

There are a number of conditionalities attached to the Bail-out Plan as follows:

- A proper inventory control system must be installed at NEA.
- A proper accounting system must be installed at NEA.
- Development of NEA representation on REC Boards
  - Increase in contribution of REC members;
  - Appointment of NEA representation on REC Boards;
  - Establishment of tenure limits for Board members; and
  - Reorganization of NEA to reflect NEA's primary function as an interested lender.
- Development of proposed legislation for write-off of receivables of RECs.
- Enforcement by the Government Corporate Monitoring and Coordinating Committee (GCMCC) of a corporate plan and performance evaluation.
- Work for the passage of House Bill No. 2887 increasing NEA's capitalization.
- Merger and consolidation of RECs.

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<sup>3</sup> Reference: Letter from the GCMCC to the NEA, dated January 14, 1991.

### 2.1.2 GOP Action

#### **- Legislation -**

A number of pieces of legislation have been introduced which are directed at removing some of the barriers which stand in the way of commercial viability of the RECs including:

- A revised NEA Charter known as the Rural Electrification Act of 1991 has been drafted. This proposed act:
  - Defines NEA's role as that of an interested lender;
  - Reorganizes the board of NEA to include the Secretary of the department to which NEA is attached, the NEA Administrator, the President of the National Power Corporation (NPC), and two other senior officials of the Department of Finance, National Economic Development Authority (NEDA), or leading private or government bank;
  - Provides for the reorganization of the RECs' boards such that the majority of the members will be appointed by NEA with the remainder elected by the membership. The intention of this change is to remove the directorships of the RECs from the undue influence of local politics;
  - Provides for the tax exempt status of NEA and the RECs. In particular, this provision will eliminate the 35% income tax and 9% Ad Valorem tax requirements currently being charged NEA;<sup>4</sup>
  - Stipulates that services provided by NEA to the RECs such as engineering assistance, training, etc. will be provided on a fee basis;
  - Strengthens the enforcement powers of NEA. In particular, the new charter authorizes NEA to appoint a receiver if necessary in the case of a defaulting REC;
  - Modifies the loan approval requirements. The new charter stipulates that loans are to be authorized only for projects which are financially

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<sup>4</sup>

The Ad Valorem tax has been reduced to 5% for materials delivered after August 1991.

feasible. Under the current charter, NEA is directed to approve loans which "would result in area coverage in the area or areas to be affected," even though such loans may or may not represent financially feasible projects;

- Prohibits members of an REC Board of Directors from obtaining special privileges or interfering with the day to day operations of the REC or other perogatives of management;
  - Empowers NEA to consolidate and/or merge individual RECs if in NEA's judgement it is in the best interest of the electric systems concerned;
  - Provides for the conversion of electric cooperatives from non-stock ownership to stock ownership and service oriented cooperatives while maintaining the concept of one member/one vote.
- A proposed bill has been drafted which provides for the condonation of outstanding loan obligations of the RECs which are related to 1) alternative generation projects such as mini-hydro, dendro thermal and Pielstick projects, 2) systems located on islands and/or in remote areas, 3) social programs such as the BLISS, TANGLAW, and LIVELIHOOD which are not related to rural electrification. This bill will relieve the RECs of approximately P4.4 billion in debt obligations, or approximately \$167 million (U.S.) at current exchange rates.
  - House Bill No. 28877 proposes to increase the authorized capital stock of NEA. The additional capital stock will be created by converting into equity 1) advances from the National Treasury for matured portions of various foreign loans, 2) long-term liabilities outstanding at a time of approval of the act, 3) future government appropriations for rural electrification projects. This bill has already passed the House and awaits action by the Senate. As part of their negotiations on the pending US \$80 million loan, the World Bank has indicated that it intends to see a commitment by NEA and the GOP to use their combined best efforts to seek passage of this legislation.
  - House Bill No. 19008 provides for stiff penalties for tampering with meters and other forms of power thievery. This bill was passed by the House in May 1991 and awaits action by the Senate.

**It is important to emphasize that passage of this proposed legislation is critical to the revitalization of the RE sector. Without it, it is doubtful that the majority of the RECs will be able to achieve commercial viability. USAID should continue to join with others to press for its passage.**

In addition to legislative action designed to strengthen the RE program, there are a number of other governmental actions which will impact on the program, some perhaps with mixed results:

- NPC has been gradually restructuring its rates towards Long Run Marginal Cost (LRMC) principles. The Asian Development Bank (ADB) funded Power Sector Cost Structure and Transfer Pricing Strategy Study recommended that:
  - The energy and demand charge structure should be revised to 1) flatten or increase the demand rate for increased usage and 2) realign the demand/energy charge relationship to reflect economic costs;
  - Tariffs should take into account different voltage levels and time of use in pricing; and
  - LRMC should be implemented gradually by NPC and power distributors but not later than December 31, 1993.

The impact of this proposed rate structure on the RECs will likely be mixed with some RECs experiencing higher power costs and some lower. The NEA Tariff Manual has been based on LRMC principles and the resultant rates should provide incentive for improvement of load factor. While a public hearing has been held on the restructuring of NPC's wholesale rate based on LRMC principles, implementation has been deferred.

- A House Bill which seeks to place NPC's rate-setting powers under the Energy Regulatory Board (ERB), is expected to be reported in the second week of September 1991. A related House Bill No. 8483 has been referred to the House Committee on Government Reorganization (HCGR).
- Senate Bill No. 729, which seeks to authorize the NPC Board to fix rates and fees with prior approval from the ERB, is pending under the Senate Committee on Public Service.
- House Bill No. 31312, which creates a Department of Energy (DOE) and seeks to place NEA and NPC under the administrative supervision of the DOE, has been passed by the House and transmitted to the Senate. NPC's position on a single regulatory body is not one of objection but rather concern for the possible delay in implementing rate increases. NEA is opposed to the formation of a single regulatory body and has submitted position papers on the issue. NEA's position is supported by the World Bank.

**- Direct Connect Industries -**

Finally, on a more discouraging note, little progress has been made with respect to transferring industrial customers who, at present are served directly by NPC to the RECs who have been assigned territorial service rights. Under the terms of a Board of Investment (BOI)-NPC Memorandum of Understanding, dated January 12, 1981, direct connections of industrial customers to NPC was to continue only until such time as it was no longer necessary to ensure reliability of service at reasonable cost. In early 1990, the Office of Energy Affairs (OEA) chaired an inter-agency committee that recommended certain financial and technical indicators to the Energy Coordinating Council (ECC) which would be used to determine when a local utility/cooperative had the capability to adequately serve the industrial customer within its assigned franchise area. Although the ECC approved these indicators and directed NEA and the ERB to implement them, the ERB deferred implementation until such time as the NPC rate restructuring was approved. The rate restructuring will widen the differential between NPC's utility (wholesale) and non-utility (retail) rates, removing some of the pressure from industries to continue direct connection with NPC.

Consequently, at the present time, it appears that no industrial direct connect customer has actually been transferred to a REC. In fact, the number of direct connects has increased slightly since January 1989. In a few instances, RECs are being paid a "royalty" in lieu of the opportunity to serve the industry. A list of current industrial customers who are presently being served directly by NPC is provided in Appendix H. Large industrial customers presently served by RECs are also listed in this Appendix.

2.1.3 NEA Action

**- Statement of Operating Policy -**

NEA has made substantial progress in repositioning itself as an "interested lender" and in strengthening its internal operations and oversight of the RECs. A key component of this reformation is the NEA charter, discussed in the previous section. While the new charter awaits passage by Congress, the NEA Board has adopted a new Statement of Operating Policy (SOP) which was developed by a representative of the World Bank in consultation with NEA. The SOP formally establishes a number of important measures including:

- A clear statement that the "primary role of NEA is to serve as an interested lender providing financial and technical support to the electrical distribution utilities serving rural areas."
- Recognition that the "core business of NEA shall be conducted in accordance with sound banking principles."

- Recognition that some projects which are directed at extending electric services to unserved or undeserved areas can not be justified on economic grounds and that these projects will only be undertaken as subsidies are made available to NEA on project by project basis.
- Authorization for the administration to establish conditions related to performance standards and objectives, including specific action plans as a condition of approving loans. Attached to the SOP is a draft of a generic Performance Improvement Program (PIP) for this purpose. In practice, the PIPs will be customized for each REC as required.
- Adoption of various policies/guidelines including:
  - Financing Strategy
  - Loan Policy Manual
  - Investment Guidelines
  - Rate Manual
  - Fee Schedule.
- Recognition that services to the RECs which go beyond that associated with loan origination or administration will be provided on a fee basis.

According to the World Bank's Staff Appraisal Report Philippines Rural Electrification Project ("Yellow Paper"), NEA will be required to provide assurance that the SOP will not be amended, abridged, or repealed without obtaining the World Bank's prior consent.

**- Policies/Guidelines -**

NEA has also adopted or is in the process of reviewing/adopting a number of major policies/guidelines which are directed at strengthening the fiscal performance of NEA and the RECs. A brief synopsis of the policies/guidelines which have been developed in conjunction with the USAID assistance program is provided in Appendix I.

Ultimate success of these attempts to foster fiscal responsibility at both the NEA and REC levels will depend upon effective communication, training and consistent enforcement. However, if implemented properly and adequately enforced, these policies and guidelines will go a long way toward ensuring commercial viability of the RE program.

**- Debt Restructuring -**

Another action taken by NEA to put the RECs back on the path to commercial viability has been the restructuring of loans to RECs with substantial averages. This action was intended to give the RECs a clean slate and to provide some relief from overpowering debt service

obligations. With a fresh start it was hoped that the RECs would be able to promptly pay past due power bills to NPC and maintain currency with NEA.

As of August 31, 1991, thirty-eight RECs involving a total amount of P303.5 million (Appendix J) had been approved for restructuring. The remaining eligible RECs will be subsequently restructured. Of the 38, 12 are COMPAC 1 and 2 recipients with an aggregate restructured amount of P102.4 million. While the financial situation of each REC was taken into consideration at the time of restructuring, as of June 30, 1991, ten of these RECs had again fallen into arrears, amounting to P15.0 million. Of this amount, P8 million pertains to the COMPAC 1 and 2 RECs.

#### **- Rate Increases -**

The rate application process has also been streamlined. In the past, the approval process appeared to be too complex for the RECs to handle. The process could take up to one year before any adjustment could be obtained primarily due to the public hearing and negotiations that had to be conducted in order to obtain approval. In late 1990, NEA dispensed with the requirement of consumer group endorsement. A simple certification that a public hearing has been held is now sufficient, thereby eliminating much of the cause of delay.

Another welcome change to make the RECs financially viable is the proposed policy whereby the RECs will be allowed to make automatic adjustments in their rates to reflect 1) changes in the NPC tariff, and 2) wage increases. This provision will ensure that the RECs do not encounter financial problems due to delay in cost recovery for items over which they have no control.

Finally, the GOP/NEA removed the P2.5/kWh ceiling on average retail rates enabling many RECs to increase their rates to cover increasing costs. A summary of the REC rate increases which were approved between August 1990 and August 1991 is provided in Appendix K. The effect of the rate increases is most clearly reflected through the following statistics:

- All cost components as a percentage of operating revenue showed decreasing trends from 1987 to June 30, 1991 thereby increasing both the operating and the net margins (Appendix L).
- The number of RECs operating in the black rose by 10 from December 1990 to June 1991 (Appendix M).

#### **- Performance Improvement Program -**

As indicated above, the new SOP provides for the establishment of a Performance Improvement Program (PIP), which was developed by NEA under the guidance of the

World Bank RE Mission for individual RECs as a condition of obtaining a loan. The PIP program is intended to improve the RECs' overall operational efficiency and, thus, their credit worthiness. The PIP focuses on five major areas of improvement:

- Reduction of technical losses
- Reduction of non-technical losses
- Improvement of collection efficiency
- Better control of non-power cost
- Quality of service.

Because the satisfactory implementation of the PIP will become a conditionality of NEA's loans to the RECs, the RECs will be encouraged to improve their financial performance and sustain a profitable operating level.

#### **- Monthly Financial and Statistical Reports -**

Monitoring of the PIP is performed in part through the Monthly Financial and Statistical Report (MFSR) being prepared by the Budget Division of the Finance Department at NEA. The Team noted that at the present time, reports being submitted by the RECs are not uniform ranging from 3 to almost 20 pages per region. At the time of the evaluation, there were a number of regions who had not complied with the reporting requirements for the first 7 months of 1991. The Team also noted that the formula used to calculate collection efficiency differed from one REC to another. Uniformity in reporting format and formulas will hopefully be improved with the computerized MFSR template currently being developed.

#### **- NEA Organizational Structure -**

NEA has also made impressive progress in revising its organizational structure to more efficiently and effectively fulfill its role as an interested lender. The present and proposed NEA organizational charts along with a current functional organizational chart is provided in Appendix N.

The organizational restructuring of NEA targets two objectives vital to NEA's success as an interested lender. First, NEA is consolidating responsibility for loan appraisal and management under the newly formed Account Management Group (AMG). Until now, the various aspects of loan appraisal and management were dispersed so thinly through NEA's departments that the organization lacked an identifiable nexus of responsibility for performance, or more to the point non-performance, of REC loans.

The AMG will be organized after the manner of a financial lending institution. That is, staff members will operate as account managers, each responsible for the activities of a designated group of REC accounts. The familiarity of these account managers with their assigned RECs will help ensure that outstanding loans are kept current, provide early

warnings of REC financial difficulty, and enhance the evaluation of an RECs ability to repay any new loans. A banking consultancy will provide training for NEA personnel in the skills and methods required for the performance of this function.

The second objective of the restructuring is the introduction of an investment planning culture into both the lender (NEA) and the borrower's (RECs) organizations. The aim is to ensure that scarce capital is allocated to appropriate projects. Toward this end, NEA has strengthened its Corporate Planning Office (CORPLAN). Planning capability at NEA has been strengthened by CORPLAN's absorption of the project appraisal function for proposals submitted by the RECs for NEA funding. Project appraisal capabilities at NEA have benefitted from the Investment Guidelines and implementing software. The project appraisal function will be gradually transferred from CORPLAN to the AMG as the AMG becomes better established.

CORPLAN is facilitating the development of an investment planning culture at the REC level by participating in the development of the REC Investment Analysis Model along with the USAID consultant and by establishing a regular investment planning cycle. The investment planning cycle is designed to encourage REC involvement by having each REC develop a five year Medium Term Investment Plan (MTIP). The projects identified by the RECs are prioritized within each region at a workshop of the REC managers with CORPLAN.

The success of this process should greatly aid the RECs in becoming fiscally responsible organizations, that is, becoming "self-interested borrowers" in the same manner that NEA is becoming an "interested lender." Until now, the RECs had not been substantially involved in planning their own system projects. The investment planning cycle has the RECs develop their own plans identifying their own projects. This should increase each REC's sense of ownership in the projects, strengthening the likelihood for successful implementation and maintenance. Success of the investment planning cycle should also improve the efficiency and effectiveness of NEA by improving the quality of investment requests NEA must process, thereby decreasing the non-productive work load. The investment planning effort is in the midst of its third planning cycle, and has already resulted in reported improvements in the planning capability of the better managed RECs. However, because the RECs had not previously been responsible for their own planning, much work remains to develop planning skills at the REC level.

Under the reorganization, a Foreign Assistance Projects Office will be established. This office will coordinate NEA's involvement with all donors. Prior to reorganization, each donor had a different liaison committee; and consolidation of this function will help NEA coordinate its activities with the donor community.

To enhance the long-term viability of rural electrification, a Strategic Planning Department is being established under CORPLAN. This department will help establish the long-term goals, objectives, and implementation strategies of NEA.

#### 2.1.4 Actions Taken to Terminate Uneconomical Activities

Two activities of NEA and the RECs which were sponsored by the GOP and eventually resulted in an intolerable debt obligation threatening the commercial viability of many RECs are 1) alternative generation and 2) social programs unrelated to rural electrification. The progress which has been made to date in extracting the RECs from the obligation of these activities is discussed below.

##### **- Alternative Generation -**

Under the alternative generation program, many RECs purchased small generating units (i.e., dendro thermal, mini-hydro, Pielstick) with the intention of increasing reliability, decreasing costs and reducing dependency on foreign oil. Unfortunately, the program never lived up to its promise and the RECs were left with huge debts associated with inoperable or uneconomical equipment. Non-operating assets associated with the dendro thermal and mini-hydro units are to be transferred to the GOP. Units presently in operation are to be transferred to NPC. This equipment includes 43 mini-hydro, 1 dendro-thermal and 19 Pielstick generating sets. The total value of these assets will be chargeable against the GOP equity to NPC.<sup>5</sup> In addition, NEA will sell mini-hydro and dendro thermal equipment presently stored in NEA warehouses and turn over the proceeds to the GOP. The GOP will negotiate with Peoples Republic of China (PROC) for the replacement or swapping of mini-hydro stored in the PROC with a value of P184 million. As discussed previously, a bill is being drafted which would condone the debt obligation of the RECs associated with the alternative generating units.

##### **- Social Programs -**

The social programs (i.e., BLISS, TANGLAW and LIVELIHOOD) undertaken by the RECs at the direction of the GOP/NEA have also been a drain on the limited resources of the RECs. According to information provided in the interviews conducted by the Evaluation Team, the RECs are no longer involved in these activities. The debt obligations of the RECs associated with these programs are also part of the debt condonation legislation.

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<sup>5</sup>

To date, the NPC and the NEA have not reached an agreement on the valuation of some of these assets (specifically the 69 kV lines and 7 dendro thermal plants).

### 2.1.5 Additional Action Required

#### **- Findings -**

While substantial progress has been made by the GOP/NEA in revitalizing the RE sector, much work remains to be completed. Key legislation (see Section 2.1.2) is still in draft stage and awaits passage by Congress. Without this legislation, commercial viability cannot be achieved. In addition, many of NEA's new policies/guidelines, which are intended to foster fiscal responsibility in the sector, are still in draft form. These policies/guidelines need to be finalized and then implemented. It must be emphasized again that successful implementation of these policies/guidelines will depend on effective communication, systematic training and consistent enforcement.

Finally, a bill addressing the direct connection of industries has been introduced in Congress; and NEA's position on this issue has been submitted for consideration. Action needs to be taken by the GOP to pass this legislation and effect the transfer of direct connect customers to the RECs. The net revenue generated by these customers will become an important component in the progress of the RECs in their quest for commercial viability.

#### **- Recommendations -**

Much of the proposed legislation is critical to the successful achievement of the project purpose of achieving commercial viability of the RECs. Without such legislation many RECs will continue to flounder. Therefore, the Evaluation Team recommends that USAID consider the possibility of making passage of the following legislation a condition of proceeding with Phase II of the project:

- Rural Electrification Act of 1991 (NEA Charter).
- Loan Condonation Bill.
- Recapitalization of NEA (House Bill No. 2887).

While not quite as critical as the above pieces of legislation, the following legislation/activities are also important:

- Antipilferage legislation.
- Transfer of direct connect customers to the RECs.

## 2.2 Technical Assistance

### 2.2.1 General

Technical Assistance (TA) for the RE Project is provided primarily through a contract between USAID and the National Rural Electric Cooperative Association International, Ltd. (NRECA) dated May 21, 1990. NRECA, which is responsible for managing and implementing the USAID RE Project, has subcontracted with a number of organizations to provide assistance in selected areas including:

<u>Firm/Organization</u>	<u>Acronym</u>	<u>Area of Responsibility</u>
Price Waterhouse Philippines	PW	Project Management, Institutional, Financial
Adrian Wilson International, Inc.	AWIA	Engineering
de Lucia and Associates, Inc.	dLA	Rural Electric Master Plan, Financial

NRECA is conducting its operation in the Philippines through two experts along with various support staff:

<u>Name</u>	<u>Function</u>
William Lawrence	Field Team Coordinator/Institutional Advisor
Glen Benjamin	Engineering Advisor

NRECA was provided an office by NEA adjacent to an NEA office building in Quezon City. Additional short term consultancies have been scheduled throughout the project to address selected issues and components of the project.

The following sections discuss the status and effectiveness of the various TA activities in meeting project activities. For convenience, the discussion is organized functionally as follows:

- Management and Institutional
- Financial
- Engineering
- Computerization
- Training.

### 2.2.2 Managerial and Institutional

#### **- Description -**

The managerial and institutional component of TA consists inter alia of the following elements:

- Assist NEA and the RECs in the development of a comprehensive debt restructuring program.
- Conduct a comprehensive study of the operating systems of NEA and the RECs.
- Develop a Rural Electric Master Plan (REMP).

#### **- Findings -**

It is difficult to identify the various elements of managerial and institutional reform which may be directly attributable to the USAID RE Project. Many forces both inside and outside the GOP/NEA have contributed to the significant progress which has been made to date. Certainly the USAID RE Project may be credited with providing a major impetus in correcting the many institutional caused problems and/or barriers to reform which have plagued the RE sector. To a large extent the nature of the managerial and institution building components of the TA provided through the USAID RE Project has been catalytic rather than product oriented. That is, the results have been the induction of behavior in others rather than the production of reports or other hard outputs. Consequently, the Evaluation Teams assessment of project activities was drawn from the progress being made at NEA and the RECs since the project began as determined through numerous interviews of the personnel involved at NRECA, NEA, and REC.

Since the inception of the project, there has been considerable positive progress on the part of the NEA and the RECs toward the achievement of project goals. Significant credit should be given to the USAID RE project for contributing direction, motivation, and guidelines to NEA. In addition, certain of the specific tools and procedures developed by the project (e.g. computerized MFSR) will serve as significant motivating factors as they highlight the fundamental measures indicating progress in achieving commercial viability.

As discussed in greater detail below, the institutional changes in NEA have been very positive, and are moving at a very rapid rate. Furthermore, performance by the RECs has improved dramatically. This supports the proposition that the RE Project input is sufficient. In fact, it is likely that the RE Project might have suffered if it had been executed on a larger scale. The modest size of this Project has caused the NEA and RECs

to bear much of the burden in developing solutions. A significantly greater level of assistance might very well have had the perverse effect of dampening NEA involvement in developing solutions by providing overly developed suggestions. This could have diluted the institution building aspects of the RE Project.

The Evaluation Team also notes that there appears to be some confusion and/or controversy concerning the REMP component of TA. The contract between USAID and NRECA states that "the objective of the plan is to outline a management plan for integrated long-term development of rural electrification in the Philippines..." However, the contract then defines the REMP as a series of discrete policies/guidelines/manuals which address certain institutional and/or managerial deficiencies in the RE program. While these policies/guidelines/manuals are all needed, the end result is not a comprehensive strategic plan as appears to have been originally contemplated.

#### **- Recommendations -**

The managerial and institutional component of TA is progressing well, and no major changes in direction are warranted. However, the Evaluation Team does recommend that the redesigned Phase II include the development of a REMP which goes beyond the preparation of policies, guidelines and manuals, and will represent a true integrated strategic plan for the RE sector.

#### 2.2.3 Financial

#### **- Description -**

The financial component of TA includes the development and/or assistance to NEA in the development of a number of policies, guideline and manuals directed at improving the financial performance of NEA and the RECs. Subjects covered by this portion of the TA include inter alia following:

- Accounting standards
- Lending policies
- Collection techniques and policies
- Policies for costing material
- Financial reporting
- Financial strategy
- Investment guidelines

- Retail rates
- Budgeting
- Plans for dealing with financial non-viable RECs.

- Findings -

Major efforts to date have focused on the establishment of policies/guidelines and the development of manuals to explain and institutionalize the reforms. Appendix I provides a summary listing of the more significant manuals developed to date, either through the USAID RE Project or as a result of World Bank and/or NEA initiatives.

A review of the various policies, guidelines, and manuals indicates that they are on target and if followed, will go a long way toward encouraging NEA and the RECs to operate in a more fiscally responsible manner. For example:

1. The **Investment Guidelines**, which was developed by NEA's CORPLAN with the advice and supervision of the World Bank RE Mission, require responsible planning on the part of the RECs by stipulating that projects eligible for loan funds must reflect the results of least cost analysis and must meet certain financial and economic standards of performance.<sup>6</sup>
2. A computerized template using Lotus 123 is under development to automate and improve the **Monthly Financial and Statistical Reports** for the RECs while the MFSR has been a fixture at NEA for a number of years, computerization will facilitate the development of a Management Information System (MIS) and allow timely analysis of key operating and financial parameters at both the local and national level.
3. The **Budget Manual** sets forth a process whereby the RECs will be required to develop a work plan and budget for the coming year. The budget will then be used to control operating expenses and measure financial performance.
4. The **Financial Projection Models** developed for NEA and the RECs will enable NEA and the RECs to plan for the future and anticipate potential

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<sup>6</sup> The term "least cost analysis" as used in the **Investment Guidelines** and in this report refer to the process of evaluating alternative plans for solving a particular distribution system problem and identifying the plan that will result in the lowest total cost (i.e, operation, maintenance and investment related costs).

effects of alternative courses of action. These models were developed by the World Bank RE Mission with refinements provided by USAID's consultants.

5. The **Rate Manual** provides a framework under which retail rates of the RECs may be adjusted to reflect changing revenue requirements. The Rate Manual also provides a general framework for the development of retail rate tariffs.
6. The **Loan Policy Manual** and the **Loan Operations Manual** provide a framework for the loan program including the approval process, the terms of the loan and the administration of the loan.
7. The **Borrower's Guide** informs the RECs of the ground rules and procedures which must be followed in developing a successful loan application.
8. The **Accounting Manual** requires uniform accounting practices based on generally accepted accounting principles.

The above examples illustrate the positive contribution that the USAID RE Project and the World Bank RE Mission is making toward the goal of commercial viability of the RECs. Ultimate success, however, will depend on effective implementation and consistent enforcement.

#### - Recommendations -

The financial component of TA appears to be progressing well and no major changes are warranted. However, USAID should continue to monitor communications and training of NEA and REC personnel related to the new policies/guidelines to insure that they are understood by all concerned. The USAID contractor should also continue to monitor the implementation of the policies and guidelines to be sure that they are consistently and adequately enforced.

#### 2.2.4 Engineering

#### - Description -

Engineering assistance to the RECs consists primarily of the following components by AWIA under the direction of NRECA:

- Operation and Maintenance (O&M) Surveys
- 5 Year/10 Year Plan
- Sectionalizing Studies
- Mapping

## - Findings -

In general the work on the projects for the first 36 RECs (i.e., COMPACS 1 and 2 plus the pilot project, PENELCO) are proceeding according to schedule, given the late start of the project. The O&M Surveys are well along, with 33 of the 36 studies finished. The remaining three studies are near completion.

The 5 Year/10 Year Plans (Long Range Plan or LRP) are proceeding at a slower pace as NRECA, AWIA and NEA have agreed to spend additional time on the first plan (CASURECO IV) in an effort to develop a consensus model for the remaining RECs. Studies for several other RECs are near completion and will be finalized soon after the CASURECO IV study is approved. The Sectionalizing Studies are being prepared as part of the LRP planning process. Mapping of the 36 systems is approximately 50 percent complete.

Preparing engineering studies for systems lacking adequate information on existing load distribution, load growth trends, voltage measurements, phasing etc. is difficult at best; and NRECA/AWIA are to be commended for their efforts under difficult circumstances. Furthermore, when distribution systems require the level of rehabilitation as do those of the subject RECs, the use of sophisticated analytical techniques and approaches may seem like overkill. Nevertheless, based on our review, the Evaluation Team has a number of concerns:

1. The Team is very concerned that the RECs are not being adequately involved in the planning process (i.e., the development of the 5-year/10-year plans, sectionalizing studies etc.). Most of the RECs visited were generally unaware of the work being performed by NRECA/AWIA on their behalf. While it is possible that the NRECA/AWIA projects have simply not progressed to the point of appropriate involvement of the RECs, the Team is concerned that the RECs will eventually be presented with and asked to implement a long-range plan in which they have had no meaningful involvement. Asking the RECs to approve the LRPs after they have been completed and approved by NEA does not solve the problem. In fact, the Team attended a meeting to review the LRP for CASURECO IV and noted that no representative of the REC was in attendance. If this tendency is not corrected, the RECs will not feel ownership of the end product and will continue to be dependent on outside assistance. Furthermore, the quality of the work itself is likely to suffer without the insight that the RECs can offer on local conditions and needs.
2. The NRECA/AWIA approach to long-range planning does not appear to include any formal economic evaluation of alternatives. It is difficult to see how "the most economical system improvements required to carry the projected load," as claimed in NRECA's Monthly Progress Report, will result

without a structured approach of evaluating alternatives on an economic basis. In any event, the planning process being followed by NRECA/AWIA does not respond adequately to the least cost planning called for in the **Investment Guidelines**. Furthermore, there is no evaluation of system losses; and in fact, the Lotus 123 computer model being utilized by NRECA/AWIA does not at present even calculate losses. Consequently, the Evaluation Team is concerned that the 5-year and 10-year plans being prepared by NRECA/AWIA will be incompatible with (or at the least, not coordinated with) the Medium Term Investment Plans called for in the **Investment Guidelines**.

3. The 5-year/10-year plans being prepared by NRECA/AWIA do not consider the cost of transmission facilities since this is a cost borne by NPC. While this approach may be necessary due to the existence of separate organizational entities, the end result will inevitably be an uneconomical total system design for the country. Furthermore, it must be remembered that NPC's cost of operations will eventually find their way into the rates for power supply paid by the RECs.
4. NRECA/AWIA has chosen to utilize a simplified spread sheet computer program to calculate voltage drops and fault currents. In the opinion of the Evaluation Team, this does not correspond to the contractual requirement for the use of a "simulated load flow analysis of the REC distribution system." It is our understanding that AWIA was provided by NRECA with a modern distribution of circuit analysis program but chose instead to develop its own computerized spreadsheet program. This spreadsheet program simply reproduces a Rural Electrification Administration (REA) voltage drop/fault current format which is no longer in general use in the United States. The problem with NRECA/AWIA's approach is that it tends to be 1) inflexible, 2) difficult to use to calculate losses, 3) time consuming to evaluate contingency circuit arrangements, 4) time consuming to modify when the system changes, 5) prone to numerical errors, and 6) difficult to transfer to the RECs. A number of modern, commercially available distribution circuit analysis programs, which solve all these problems, are readily available at reasonable cost. In general, they are relatively easy to use (i.e., "user friendly") and should be easily transferable to the majority of the RECs. It seems unfortunate the NRECA/AWIA have chosen not to use current technology in developing the LRPs.
5. In interviews with NRECA/AWIA/NEA engineering personnel, the Evaluation Team sensed a reluctance to investigate alternative construction, techniques and/or approaches to solving system problems (i.e., underground construction, concrete poles, higher voltage, etc.). Suggestions that alternate approaches might improve reliability, extend life expectancy, and reduce costs

were not well received and were quickly dismissed. While an investigation of alternative materials/construction approaches is not required by the present contract, in view of 1) the relatively low life expectancy of new facilities, and 2) the large amount of construction work currently underway, new approaches should not be dismissed out of hand.

6. The Team also noted that the report for CASURECO IV did not include a discussion of planning criteria and techniques. In order to facilitate review and the transfer of technology to the RECs, this information should be provided in the report.
7. The maps being prepared by the RECs are being drawn manually. The Team questions why a Computer Aided Drafting (CAD) approach was not utilized. The Team also suggests that the possibility of a future fully integrated Automated Mapping/Facilities Management (AM/FM) system should be considered in designing the mapping system. The Phase II redesign includes recommendations along these lines.

**- Recommendations -**

As discussed above, the Evaluation Team noted a number of deficiencies in the engineering component of TA. To correct these deficiencies and to maximize the effectiveness of the USAID engineering assistance, the following recommendations are made:

1. NRECA should be directed to utilize a commercially available distribution load flow simulation model.
2. NRECA should be directed to include the economic evaluation of alternative plans in the development of the LRPs for the RECs. NRECA should work with NEA to insure that the development of the LRPs are compatible with the MTIPs called for in the investment guidelines. The end result should be a single consistent five year/ten year plan for each REC.
3. NRECA should take steps to insure that each REC is involved in the planning process for its own distribution system. Input from the RECs should be sought and carefully considered prior to finalizing the LRPs.
4. The redesign of Phase II should include a component to evaluate alternative construction materials and techniques in an effort to extend the life expectancy of distribution facilities.

### 2.2.5 Computerization

#### **- Description -**

An important component of the USAID RE project is to upgrade the computer capabilities of NEA and the RECs to facilitate more efficient operations. Efforts in this area are found in both the TA and commodity components. The computerization portion of the TA component includes inter alia following:

- Assistance to NEA and the RECs in developing a management information system (MIS).
- Assistance to NEA and the RECs in developing engineering, financial, and management software.
- Assistance to NEA and the RECs in developing a computerized customer billing and collection system.

#### **- Findings -**

As an initial step, a survey was conducted in the first quarter of 1991 to determine the present computer profile of the RECs. Approximately one-third of the RECs responded to the survey.

Using funds made available from the ADB, NEA has procured micro-computer based billing software from Questionix and 80286 type microcomputers from EESSCOM sufficient to automate the billing process at approximately 55 RECs. Currently, NEA is having difficulty implementing the billing system in 29 of the 55 RECs. The problems appear to be hardware related, and CORPLAN is working closely with the supplier towards its early solution.

An additional 64 Personal Computers of varying configurations, have been purchased directly by other RECs. Few of the existing PCs are 80386 microprocessor based. A World Bank study indicates that to run an efficient computer system, a REC needs 3 to 4 computer units, at least one of which should be 80386 based. World Bank has signified its willingness to provide each REC with an 80386 computer with the remaining required units to be furnished by other donor institutions.

The response of the participating RECs to computerization has been encouraging. Although lacking computer skills at the start of implementation, REC personnel have shown enthusiasm for this project and appear to be easily trained.

The representative sampling of the survey replies will be used by the NRECA consultant as basis for determining the hardware requirements of the RECs. NRECA's computer

consultant, who arrived during the last week of August is expected to suggest revisions, amendments, and/or clarification needed to ensure a smooth implementation of the Questionix Electronic Billing System (EBS). Specifically, the consultant is tasked to 1) assess the EBS and identify necessary modifications; 2) assess the suitability of the hardware procured to run the EBS and recommend modifications needed, if any, to optimize the operation of the EBS; 3) review the plan of implementation and address the identified needs of the users including the extent and type of training required; 4) assess the implementation plan for the computer based billing system at the remaining RECs not yet automated; and 5) recommend the role of the USAID in both the procurement of equipment and the provision of Technical Assistance to assist the system-wide implementation of an appropriate automated customer accounting and billing system.

A shortcoming observed in the procurement of the computers for the RECs was that there seemed to be no integrated approach in the computerization of the RECs. Had the procurement been deferred until the findings and recommendation of the consultant, problems that are being experienced would be avoided. Although funding for computers may be provided from different sources (e.g., USAID, ADB, World Bank), a working arrangement among the fund providers would have helped to maximize benefits, thereby preventing wasted resources.

#### - Recommendations -

In the near future, computers will become indispensable in the normal operations of the RECs; hence, there is a need to develop the capability to install, manage, modify and maintain both the hardware and software systems. Expanded assistance in this area should be given priority in developing the modified scope of the USAID Technical Assistance program.

#### 2.2.6 Training

#### - Description -

Many of the problems previously noted with respect to the RE sector may be traced to lack of management and/or job related skills. Budget allotments for NEA and the RECs have for many years been very limited so that training efforts at both the national and local levels have fallen far short of needs. The USAID RE Project includes a modest training component of \$320,000 in the Project Budget. This component is intended to fund training courses/costs (i.e., venues, per diem for NEA/REC participants, local speakers, etc.).

The training portion of the TA component includes inter alia following:

- Assistance to NEA and the RECs in developing and implementing a training program.

- Implementation of training courses when no local training institution or entity has the capability to accomplish the training requirement.

- Findings -

Project support for training to date has included: 1) providing advice to NEA in the development of its **1991 Training Program**; 2) preparation of the **Plan for Human Resources Development for National Electrification Administration** which is presently still in draft form; and 3) various courses approved under NEA's 1990 and 1991 training plans. Of the \$320,000, 72.7% has been obligated and 17.3% has been expended. NRECA's work program for 1991-1992 includes continuation of this effort.

In visiting the RECs, the Evaluation Team noted a genuine interest in and a recognition of the need for training on the part of the RECs. A recent nationwide 3 day training seminar for Member Services Department (MSD) personnel drew approximately 170 MSD personnel representing approximately 105 of the 117 RECs in the Philippines. In addition, a number of RECs have successfully initiated training efforts on their own. One complaint that was voiced by the RECs, however, was that training programs and curricula developed at the national level are sometimes not on target with local needs. This problem could easily be corrected by involving the RECs in an advisory or review capacity in designing training programs and curricula. The greater sense of ownership and responsibility on the part of the RECs would represent an important added benefit.

- Recommendations -

Lack of adequate training has been a major contributor to problems of NEA and the RECs; and outside assistance is clearly required if this need is to be met. Based on our observations, the Evaluation Team makes the following recommendations:

1. The redesign of Phase II should include a substantial expansion of the training component of TA.
2. Steps should be taken to involve the RECs in planning and development of the various curricula and course offerings.

### 2.3 Commodity Procurement

Commodity procurement has generally progressed satisfactorily. The procurement activities were delayed along with the overall project start, but are on track within the revised project implementation time-frame. Both NRECA and NEA have done a good job of procuring materials within a relatively short time-frame, and the discrepancies noted below are not unusual for a project of this size and structure.

### 2.3.1 Institutional Commodities

#### **- Description -**

This component covers computer hardware and software for NEA and the RECs to support efforts to improve management effectiveness and efficiency, specifically:

1. At least one 'stand alone' microcomputer package and associated software for each REC for the implementation of a MIS.
2. Microcomputers and software to facilitate the implementation of the planned Loan Administration and Inventory Control System for NEA.
3. A minicomputer package (including software) for the implementation of an Integrated General Ledger and a Financial MIS for NEA, and also for NEDA.

#### **- Findings -**

Results of the Evaluation Team's investigation of the status of this procurement activity are as follows:

1. The overall institutional commodity procurement is lagging behind the project schedule and will probably not be complete until June 30, 1992. See Figure 2.1 for the NRECA schedule of computer activities.
2. The reasons cited for the delay are the following:
  - The NRECA computer consultant is continuing to evaluate certain computer hardware and software procured for NEA under an ADB program.
  - Additional time is required for a thorough investigation into the MIS requirements of NEA and the RECs. This will include surveys and working groups assembled to define the requirements.
3. The NRECA consultant was present during the Evaluation Team's visit, both at NRECA and in the field. The consultant appeared to have a good understanding of the requirements for hardware and software, and was knowledgeable of the needs of NEA and the RECs.
4. The NRECA computer work plan appears satisfactory to accomplish objectives set forth in the Project Paper, albeit at a later completion date.

The need for a thorough analysis of computer requirements takes precedence over accelerating the completion date.

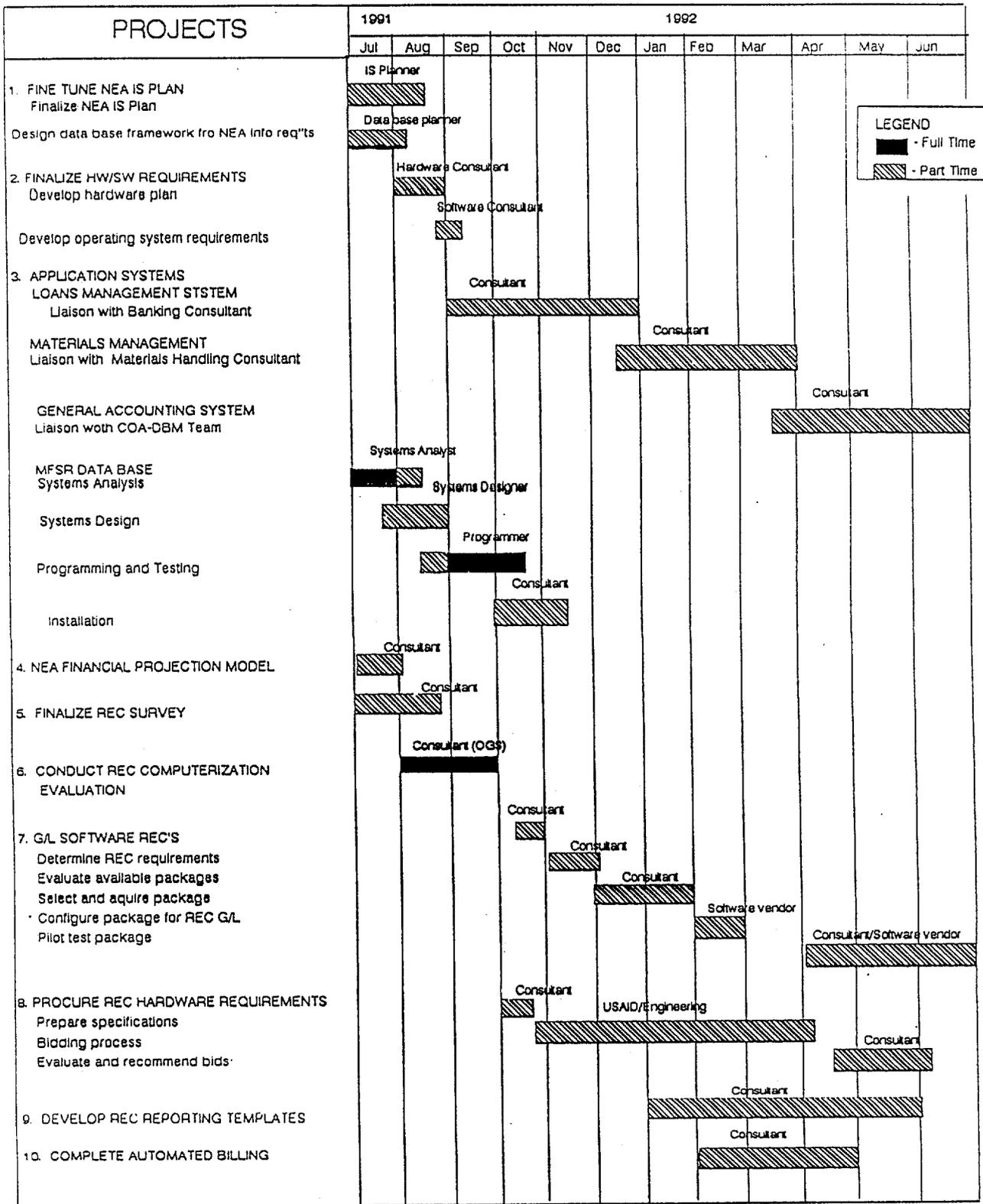
5. NRECA and NEA have conducted a survey of RECs to determine their requirements for computer systems. The response has been somewhat disappointing with only about one-third of RECs responding. NEA cited the lack of understanding of MIS systems as the primary cause.

**- Recommendations -**

NRECA appears to be taking a reasonable approach to the implementation of Electronic Data Processing (EDP) and other computer systems. The following general recommendations are offered to assist in monitoring this activity:

1. NRECA is aware of USAID procurement regulations regarding US source procurement of computer hardware and software. However, maintenance and software upgrade support will be very limited in the Philippines if procurement is accomplished directly from US suppliers. It is recommended that NRECA attempt to channel the procurement through Philippine suppliers of US equipment to ensure that maintenance and software support will be available to NEA and the RECs. The procurement will be large enough so that some Philippine suppliers may be interested in expanding their product line and support capability to win the award of this procurement; thus, potentially, private sector involvement will be enhanced by the project.
2. NRECA and NEA will need to make a concentrated effort to ensure consistency and compatibility among EDP systems, from both hardware and software standpoints. The RECs need to be closely involved in the project and a limited pilot/test program is recommended before full procurement and implementation.
3. NRECA will need to ensure that adequate documentation and training is provided to NEA and the RECs. For the RECs' MIS systems, it is recommended that some NEA personnel be trained as 'trainers' and system analysts in order to function as internal consultants to the RECs. However, NEA notes that additional qualified staff is required but salary limitations are a barrier to accomplishing this objective.
4. NRECA is attempting to work within a defined budget to cover all eligible RECs. Their approach is to procure the best system within this budget. However, if this budget proves too restrictive to procure an adequate system for all RECs, it is recommended that NRECA perform a cost/benefit analysis of a higher cost system, and investigate the possibility of servicing fewer RECs with a more advanced MIS system. Additional funding for other RECs could

**FIGURE 2-1 NRECA SCHEDULE OF COMPUTER ACTIVITIES**



**LEGEND**  
 ■ - Full Time  
 ▨ - Part Time

be pursued through additional USAID grant funds, or loan funds from the WB/OECF. Once the computer requirements have been defined, USAID should develop a complete procurement package and review with the other parallel financing participants. The prime consideration should be to implement an effective system, even if it exceeds the current budget.

5. The development of a MIS for NEA and the RECs should be given high priority.
6. Finally, it is further recommended that NEA perform an assessment of the institutional commodities program during the fourth quarter of 1992. This assessment will enable NEA to evaluate the effectiveness of the program and recommend any enhancements for funding under the WB/OECF loan package or donor country grant funding.

### 2.3.2 System Loss Reduction Program

#### **- Description -**

This component consists of commodities for selected RECs to reduce system losses, and a commodity package for NEA to enhance its ability to service the RECs.

1. **COMPAC-1** - Commodities for selected RECs that have adequate management systems and personnel in place, and do not require Technical Assistance prior to receiving materials. Funding is limited to \$410,000 each for the twenty-three RECs qualifying under this element.
2. **COMPAC-2a** - Commodities for selected RECs that have potential commercial viability but are in need of significant technical and managerial assistance. Funding is limited to \$120,000 for each of the twelve RECs qualified for this assistance. These RECs will be required to participate in institutional development activities and undertake a program to improve management efficiency and effectiveness.
3. **COMPAC-2b** - Commodities for COMPAC-2a RECs that have demonstrated satisfactory progress and have met the criteria for improving management efficiency and effectiveness. Funding is limited to \$290,000 each for qualifying RECs. COMPAC-2b is contingent upon a satisfactory Mid-Term Evaluation.
4. **COMPAC-3** - Commodities that will be used by NEA to enhance its ability to service the RECs, primarily substation mobile equipment. Estimated funding for Compac 3 is \$623,000.

5. **COMPAC-4** - This commodity procurement package was loosely defined in the Project Paper to enable up to 35 RECs who were unable to qualify for COMPACs 1 and 2 to qualify for some undetermined level of assistance.

**- Findings -**

The COMPAC commodity procurement has progressed well, with COMPAC-1, 2a, and 3 complete. All materials contained in these procurement packages have been ordered and delivery has begun. No action has been taken on Compac 2b and 4 pending the results of the Mid-Term Evaluation. Specific findings are noted as follows:

1. COMPAC-1, 2a, 3 specifications and ordering of materials is complete.
2. COMPAC-2b is ready to proceed pending a favorable Mid-Term Evaluation and REC satisfactory completion of project criteria.
3. COMPAC-4 remains mostly undefined.
4. NRECA has established a material tracking system to follow the flow of materials from the shipper to the receiving REC. While the system appears adequate for this purpose, it is not used or completely understood by the NEA materials management group. A more integrated material tracking system is necessary, particularly if the next phase of material procurement will be significantly larger. Appendix P provides a description of the materials, handling system and associated documents.
5. Some bottlenecks, primarily associated with limitations in the domestic transport sector, have restricted the timely movement of materials domestically. While these problems have not seriously impaired the USAID project, they will be magnified under the much larger World Bank and OECF programs. Unless the material handling and delivery problems are fully addressed and solutions reached, the system will be swamped and the project will suffer.
6. The paperwork process of receiving materials is cumbersome and detailed, requiring a great deal of expediting and follow-up.
7. Coordination between NRECA and NEA needs to be improved. NEA has largely divorced itself from the NRECA procurement, and NRECA makes only a minimal effort to keep NEA informed, primarily through official reports.
8. NEA is planning to initiate a study of materials handling and to implement procedures to streamline the system and provide better tracking. This activity

is being funded under the World Bank Energy Sector Loan. The Evaluation Team reviewed the scope of work and concurs with the study and implementation plan. However, improved coordination with NEA is necessary to ensure a sense of ownership and participation in the new system. Also, the proposed scope is orientated toward further participation of a long-term expat contractor in the procurement process. The Evaluation Team recommends that the question of using a long-term expat be revisited to fully consider the value of strengthening NEA as the prime material handling entity.

9. The Department of Finance has rejected a request to exempt the RECs from the Ad Valorem Tax, currently 5%. Many of the RECs have had difficulty paying this tax as it was unexpected and caught many RECs off guard. To NEA's credit, they have diligently pursued exemption for the RECs, albeit without success.
10. The shipment of materials in bulk quantities has caused some difficulties and delays in customs clearance and handling. In some instances shipments cover a number of RECs have been held up until all RECs have paid appropriate taxes. The result is that some RECs who are ready for equipment and have the ability to pay, cannot obtain it. Conversely, some RECs are pressured into making payments they cannot afford, and may end up receiving materials before they are ready. Warehousing capacity also has the potential of being exceeded.
11. The COMPAC-3 procurement of mobile substation equipment is the subject of some disagreement between USAID/NRECA/NEA. What was actually procured are spare substation transformers only, not entire mobile substations with ancillary equipment. NEA contends that the transformers are too large to be mounted on trailers and shipped via roads, due to overpass height restrictions. Some disassembly will be required, reducing their effectiveness as 'mobile'. Therefore, NEA intends to transfer ownership of the transformers directly to selected RECs, or to specific regions. Since this is outside the intended purpose of COMPAC-3, USAID is concerned about meeting the project requirements for mobile substations. NRECA contends that the transformers can meet the requirements for mobile substations. As of this report preparation, no agreement has been reached.

**- Recommendations -**

The procurement activities for this component are so far along that it is probably too late in the cycle to adopt any specific recommendations to assist the current effort. Furthermore, assuming COMPAC-2b and 4 are dropped in the redesign of Phase II, any comments on the existing procurement structure may no longer be applicable. Therefore, the following recommendations are structured to apply within the parallel financing arrangement and

project redesign elements described later in the report:

1. The proposed Materials Handling Study should be conducted with the enhanced program implemented as soon as possible. (It is not specifically clear to the Evaluation Team when this effort will be completed.) NEA will need to be actively involved both in the study and in the implementation of the recommendations of the study. It is further recommended that USAID review the implementation plan as a part of continued Technical Assistance.
2. NEA needs to thoroughly review the proposed centrally located materials receiving and distribution system. The Evaluation Team concurs with the concept, but many details need to be established, including:
  - Staffing
  - Materials handling equipment
  - Material tracking
  - Domestic transportation support
  - NEA management and REC participation
  - Coordination with zonal repair centers.
3. USAID should drop the materials procurement and handling from its Technical Assistance program for COMPAC 2b and 4. Instead, the cost of these activities should be included in the materials and covered under the WB/OECF loan program. Administration of the materials handling effort should come from NEA, possibly with the assistance of qualified contractors to the affected RECs.
4. USAID and NEA need to come to an agreement on the COMPAC-3 mobile substation equipment. Both for disposition of the existing transformers, and for specification of additional mobile substations under the WB/OECF projects. Whatever the outcome, it is important that the equipment be utilized for the intended purpose or an alternate function be defined.

### 2.3.3 Vehicles

#### **- Description -**

Vehicle procurement was not included in the original scope of work for the USAID RE Project. However, during the early stages of the project, the USAID Engineering Advisor assessed the need for vehicles at the REC level and proposed a procurement package. That program called for a minimum of three vehicles to be procured for each REC: a small to medium sized pick-up truck, a medium-sized utility vehicle with light duty boom, and a heavier duty truck equipped with heavy duty boom. It was later decided that only one vehicle could be procured, so the utility vehicle with light duty boom was selected.

**- Findings -**

USAID requires a very thorough analysis and sound justification for all vehicle procurement. For this project, the quantity of vehicles needed by the RECs far exceeds USAID's willingness to finance. In light of this, the Evaluation Team offers the following specific findings:

1. NEA and the RECs feel that a significant number of new vehicles will be necessary to facilitate the installation and maintenance of distribution facilities and equipment. These vehicles fall into three main categories - 1) general purpose utility vehicles, 2) boom trucks, and 3) bucket trucks.
2. The initial order of utility vehicles with light duty boom have some capacity limitations which restricts their usability. These vehicles were specified within the context of a concurrent procurement of heavy duty vehicles. RECs appear to be using these vehicles for other than the intended purpose, since the other vehicles were not yet procured. The limitations appear to be primarily in the boom capacity, and in operational problems with the winch assembly.
3. All of the RECs have some need for additional vehicles to facilitate the installation of the new distribution equipment, and to perform routine maintenance and equipment repair.
4. USAID has indicated that its unable to fund a broad program of vehicle procurement for all RECs, but is open to some sort of joint procurement with WB/OECF.
5. The original USAID vehicle specification needs to be updated to account for the limitations of the first vehicles procured, and to take into account the participation of WB/OECF in establishing a comprehensive procurement package.

**- Recommendations -**

Additional vehicle procurement is not possible under the Phase I program. Therefore, the following recommendations pertain to the project Phase II Redesign:

1. A study should be initiated to define the new vehicle requirements for the RECs. The study should be used to reach a final decision between USAID and the WB/OECF on vehicle procurement. The study should include a rigorous cost/benefit analysis of vehicle requirements and procurement options.

2. The existing operational and technical limitations of the 35 boom trucks should be investigated to explore corrective actions and avoid a repeat of the problems in future procurements. The findings should be used in conjunction with newly developed specifications to redefine a comprehensive vehicle specification and procurement package.

#### 2.4 NEA Commitment and Involvement

##### **- Findings -**

The purpose of the RE Project is to achieve the commercial viability of selected RECs by addressing institutional, policy and technical weaknesses of the REC system. However, while the USAID RE Project can provide needed assistance, ultimate achievement of objective will depend, among other things, on the commitment and involvement of NEA.

Evidence of the general commitment of NEA to the revitalization of the RE sector has been discussed in Section 2.1.3. NEA has also demonstrated its commitment to the USAID RE Project by establishing a Project Team to work with NRECA to implement the program. Members of the RMA Evaluation Team have met with most of the members of NEA's Project Team and have generally concluded that NEA has established sufficient capability to implement the USAID project.

The only area of concern for the Team is that, as noted in Section 2.2.4, the least cost planning requirements of the **Investment Guidelines** and other recently adopted policies/guidelines are not being adequately addressed in the engineering studies. Furthermore, it would appear that the "Medium Term Investment Plan" (i.e., 5 year distribution plan) called for by the **Investment Guidelines** administered by NEA's CORPLAN are completely divorced from the 5-year/10-year plans being developed by NRECA/AWIA and reviewed by the Engineering Department of NEA.

##### **- Recommendations -**

In order to assure the smooth operation of the remainder of the project and the implementation of the new planning guidelines, USAID should use its influence to encourage improved communication between NEA's CORPLAN and Engineering Departments.

#### 2.5 REC Commitment and Involvement

##### **- Findings -**

Ultimate success of the project objectives will also be determined by the commitment and involvement of the RECs in the revitalization efforts. Many of the problems which have been identified as contributing to the poor performance of the RECs may be traced to lack

of commitment, capability and involvement at the local REC level, namely:

- Politicized boards
- Lack of member-consumer interest/involvement
- Bad management
- Poor construction and O & M practices

Other problems may be traced to a heavy hand by the GOP/NEA which has saddled the RECs with burdens which were beyond their ability to carry:

- Alternative generation projects
- Social programs unrelated to rural electrification
- Restrictions on rates
- Equipment procurement policies

As a result of our review, the Evaluation Team is concerned that the RECs are not being adequately involved in the RE revitalization efforts. While all of the RECs visited were aware of the COMPAC portion of the Project and had been involved in obtaining data for the O & M surveys, most were not aware or, at best, only vaguely aware of the distribution planning studies and mapping being undertaken on their behalf. Few RECs seemed to be aware of the new policies and guidelines being developed at NEA or of NEA's effort to reposition itself as an interested lender.

While some of this lack of awareness and involvement at the REC level may be traced to the fact that many of the project components are still in their initial stages, our concern may not be so easily dismissed. Several of the engineering studies, for example, have progressed to the point where REC involvement is not only warranted, but essential. Yet the approach taken by NEA/NRECA/AWIA appears to be to seek input from the RECs only after the planning has been completed and approved by NEA.

#### **- Recommendations -**

USAID should use its influence to encourage NEA to improve communications with and involvement of the RECs in the revitalization process. Periodic communications through a regularly published newsletter etc. should be encouraged. Involvement of the RECs in the planning process, design of the training plan and curricula, development of vehicle requirements, etc. should be encouraged.

#### 2.6 REC Progress Toward Achieving Commercial Viability

#### **- Findings -**

As a result of the delayed start, this Mid-Term Evaluation review is actually being conducted too early in the project life to accurately assess the progress of the RECs toward

solving managerial, operational, and technical deficiencies and achieving commercial viability. To date, much of the TA component of the project has been directed at developing NEA guidelines/policies which have not yet worked their way down to the REC level. The engineering assistance being provided to the RECs is also in the early stages and the results of these efforts have not yet been translated into system design and operation. Finally, the commodities which have been purchased are still in the delivery stream and few commodities have actually been installed.

Nevertheless, there are a number of positive signs which indicate progress toward solving some of the problems which have heretofore prevented commercial viability:

- **Zonal Repair Facilities** - The USAID RE project funded a study to determine the feasibility of establishing equipment repair facilities on a regional basis. A draft of the Zonal Repair/Service Center Feasibility Study was completed by NRECA in October 1990. The study findings indicate a large amount of potentially repairable equipment sitting in warehouses; unusable due to a lack of spare parts or repair skills necessary to rehabilitate the equipment. The study also indicates that this equipment has a replacement cost of approximately \$6.45 million. Although the study favors the zonal repair facility concept, questions remain regarding location, organizational structure, long term sustainability on a zone by zone basis, etc. These questions need to be addressed in more detail through an implementation study.
- **System Studies** - As discussed in Section 2.2.4., the LRP's and Sectionalizing Studies for the RECs are proceeding. With the modifications previously noted, these studies should help to ensure the economical rehabilitation, upgrading and expansion of the distribution systems.
- **Computerization** - As discussed in Section 2.2.5, plans to implement a standardized microcomputer-based customer accounting systems at the RECs are still in the early stage. Some RECs have gone ahead and installed their own computer systems either with their own resources or through a grant from the ADB.
- **System Losses** - Significant steps are being taken to reduce technical and non-technical losses. While most of the commodities purchased as part of COMPAC 1 and 2a have not yet been installed, it is reasonable to expect that the installation of new transformers, capacitors, meters etc. will result in a reduction in technical losses. Balancing the loading on three phase lines and implementing other recommendations from the system studies should also help to reduce losses.

Effort is also being made to reduce non-technical losses through replacement of meters, member-consumer education, antipilferage legislation and enforcement. In some areas, Barangay Power Associations (BAPA) have also been revitalized to prevent power theft through installation of "mother" watt-hour meters in conspicuous places that keep track of electricity consumption of an entire barangay. The cooperation of local government officials and the media has also been sought. Incentives have been granted to barangays that achieve insure low system loss and come up with a high collection efficiency.

Kislap Kuryente (KK) is an anti-pilferage campaign conceived by the NEA administrator which is aimed at reducing non-technical systems losses which has generated the support of member-consumers who have formed their own organizations that remain vigilant against power theft in their respective communities. Through KK, NEA expects to generate additional savings as the program continues to make the general public aware of the menace that power thieves pose on the country's economy. While no statistics are available at the present time to judge the impact of these programs, the combined effort is bound to have a positive effect.

- **Rate Increases** - As of September 5, 1991, rate increases for 101 RECs had been approved. Of these, 88 represented rate increases while at 13 other RECs existing rates were retained since the margins developed as a result of the 1.4 multiplier in the purchased power adjustment clause was considered adequate. Of the remaining RECs, 13 are expected to submit the necessary endorsements in the near future while the remaining five are scheduled for final discussion. A listing of the RECs with rate increases approved between August 1990 and August 1991 is provided in Appendix K.
- **Restructuring of Debt** - As discussed in Section 2.1.3 there were 38 RECs who had availed of the loan restructuring program. Efforts to alleviate non-payment problems have been mixed, with approximately one-third of these RECs again falling into arrears. There is a clear need to closely monitor the implementation of the debt restructuring program to ensure achievement with its objective.

#### - Recommendations -

Based on our findings relative to the progress being made by the RECs toward achieving commercial viability, the Evaluation Team recommends the following:

1. Extend the zonal repair feasibility study to consider the question of location,

organizational structure, long-term sustainability on a zone-by-zone basis etc. in more detail.

2. Closely monitor the debt restructuring program to ensure that the objectives of the program are being met.

## 2.7 Project Performance Targets

As mentioned previously, it is too early to evaluate the progress of the RECs in meeting Project Performance Targets. Many of the policy/institutional reforms have yet to be implemented in the field and few commodities have been installed to date. The following assessment, therefore, should be considered preliminary and not an indication of the ultimate effectiveness of the USAID RE Project:

- **System Losses** - The Performance Target for system losses is set at a maximum of 15 percent. It is important to note that this target is useful for measuring the performance of the participating RECs on a general basis, but may not be appropriate for assessing the performance of each individual REC. Commodities purchased under the USAID Project may or may not be sufficient to reduce system losses to 15 percent or below for each and every REC. However, as a general rule, the elimination of non technical losses alone should allow most systems to achieve the targeted loss level.

Appendix Q provides a comparison of system losses for the participating RECs. The comparison shows mixed results with some RECs experiencing an increase in losses over 1987 and/or 1990 and others experiencing a decrease. Some of the increase in losses may be attributable to rate increases causing an increase in pilferage and/or better reporting procedures. Nevertheless, the Evaluation Team believes that the program currently underway to reduce non-technical and technical losses is on target and the results of this effort will eventually show up in the financial performance of the RECs.

- **Power Factor** - The Project Target for power factor is established at a minimum of 95 percent. Since many of the capacitors have not yet been installed, it is too early to measure the results of the program.
- **Collection Efficiency** - The Project Target for collection efficiency is set at a minimum of 95 percent. Again it is too early to accurately assess any trends resulting from the efforts to improve this area. Appendix R provides a comparison of collection efficiency for the periods 1989, 1990 and 1991 to date. This comparison indicates that the RECs are collecting 93% of current receivables. Collection of total receivables, however, is only 89%, an indication of the presence of hardcore arrears in the RECs portfolio.

It is apparent that the RECs lack a systematic approach in dealing with hardcore arrears and defaults.

- **Financial Operations** - While no specific financial objectives for the RECs have been established for the USAID Project, it is intended that the financial performance of the RECs will improve and that operating expenses per kilowatt hour will be reduced. A comparison of selected operating and financial results for COMPAC 1 and 2 RECs for 1989 and 1990 is provided in Appendix S. The following general observations may be drawn from these statistics:
  1. Operating revenues increased by 26.5% over the past two years (page 2). Operating revenue per kWh increased by 13.9% (page 6) indicating that approximately one-half of the revenue increase was due to increased sales with the other half due to rate increases. (Note that since a number of RECs increased rates during 1990 and 1991, the full impact of the rate increases is not reflected in this comparison of 1989 and 1990 data.)
  2. Power cost during this period increased by 25.1% (page 2), or approximately 0.7% less than the increase in operating revenue. Thus, the spread between operating revenue and power cost widened providing additional funds to cover operating expenses.
  3. Non-power supply operating costs per kWh increased by 8.2% from 1989 to 1990 (page 7). This was probably due to increased maintenance, collection etc., activities which were not possible until increased revenue provided additional funds.
  4. Operating margins (before interest and depreciation expense) increased by 44.4% (page 3), an obvious positive sign.
  5. Depreciation expense increased by 27.9% over the past two years (page 4). While this level of increase seems highly unusual, it may be due to the addition of a new plant or perhaps to the use of higher depreciation rates.
  6. Net margin has increased by 155.5% (page 5), another positive sign of progress.
- **Power Outages** - Again no specific target has been established for a reduction in power outages. In any event, it would be too early to measure the impact of the USAID Project on improving service reliability. Nevertheless, the Evaluation Team is confident that the transformers, fused-cutouts,

sectionalizing equipment etc. purchased through the COMPAC 1 and 2a will play an important role in reducing outages. The sectionalizing studies and O & M surveys should also have a positive effects.

The Team notes, however, that additional effort needs to be expended on the part of NEA and the RECs to improve the reporting of outages so that performance may be more accurately measured. At the present time, reporting is very sporadic and few, if any, RECs keep adequate summaries of outages by cause. The Team recommends that outage recording software be included in the engineering software package purchased for the RECs.

- **Currency With NPC Payments** - The RECs pay for their monthly purchases to NPC during the following month. An indication of how well the RECs meet their obligation with NPC is provided by the ratio of average monthly Purchased Power Expense to Accounts Payable - NPC. A resultant ratio of more than one means that the particular REC has an arrearage with NPC. Appendix T shows the standing of each COMPAC 1 and 2 REC. In general, the RECs are current with their NPC payments. The average ratios of 1.20 to 1.35, when translated into number of days, means that the RECs were able to fully pay their monthly billings for the period 1989 to June 1990 after six to ten days from due date the bill was recorded on the RECs' books.
- **Currency with NEA Payments** - As shown in Appendix U, progress has been made in improving NEA's collection efficiency for COMPAC 1 and 2 RECs with the ratios increasing from 84% as at year end 1990 to 92% by June 1991. These percentages compare favorably with the national average of 54% and 57%, respectively.
- **Improved Financial Ratios** - The Contract of Loan between NEA and the COMPAC 1 and 2 RECs requires the RECs to meet certain financial tests. Appendix V provides a listing of these provisions and the status of the RECs compliance with such provisions.

A summary of the Project Paper Progress Indicators is provided in Table 2-2. A comparison of USAID and World Bank operational initiatives, and Evaluation Team recommendations is provided in Table 2-3.

## 2.8 GOP Contribution

Under the terms of the Project Agreement between the GOP and USAID dated September 28, 1988, the GOP is committed to contribute US\$ 13.5 million toward the RE project. In September 1991 USAID contracted with a local accounting firm to audit the GOP's contribution to date. The results of that audit are presented in Appendix G. A summary is presented as follows:

## TABLE 2-2

### PROJECT PAPER PROGRESS INDICATORS

#### I. Quantitative Outputs (Tracking Indicators)

1. Increased collection efficiency (95% of total accounts receivable).
2. Decrease in operating expense per kWh.
3. Reduced power outages.
4. System loss reduction (reduce to average of 15%).

#### II. Improvements (Quantitative Indicators)

##### Improve

1. Inventory Control
2. Loan Administration
3. Accounting & Financial MIS
4. Number of NEA Functions Reduced

#### III. Policy Action

##### 1. GOP

- a) Turn over all NPC direct connection non-utility customers to RECs/  
District utilities.
- b) GOP assumes FX exposure of NEA loans.
- c) NEA & RECs cease activities unrelated to rural electricity distribution  
(e.g. BLISS program, TANGLAW, and LIVELIHOOD projects).
- d) Transfer REC generation & transmission to NPC on case by case basis.
- e) Adjust NPC tariffs.

##### 2. NEA

- a) Consolidate RECs into viable units.
- b) Establish revolving loan fund for REC loans.
- c) Member referendums on financial/operating targets.
- d) Rates based on marginal cost pricing.
- e) NEA re-establish supervising/monitoring function.

TABLE 2-2

PROJECT PAPER PROGRESS INDICATORS  
(continued)

IV. Other

1. RECs

- a) Improve repair facilities for equipment.
- b) O&M studies to determine system operating requirements, improvements and rehabilitation needs.
- c) Redirect member services departments to emphasize member communication, education and involvement in REC affairs.
- d) Implement microcomputer-based billing and customer accounting system.

Key PP Identified Performance Areas

<u>KEY PERFORMANCE AREA</u>	<u>DESIRED LEVEL</u>
1. NEA amortization payment	- current
2. NPC power account	- current
3. System loss	- 15% or below
4. Collection efficiency	- 95%
5. Accounts Receivable	- less than two (2) months sales
6. Advances to officers & employees	- P50,000 & below
7. Consumer Account Expense	- P7.00 per consumer
8. Administrative and general expense:	
2,000 MWh sales and above/mo.	- P0.11 per kWh sold
1,000 to 1,999 MWh sales/mo.	- P0.23 per kWh sold
9. Signed up membership	- 80%
10. Involvement in annual meeting	- 16%
11. Involvement in district elections	- 80%

**TABLE 2-3  
MAJOR OPERATIONAL INITIATIVES**

Date: October 28, 1991

Activity Proposed	Targets *1		Status *3	Recommendations
	World Bank *2	USAID		
Improve REC collection efficiency	Collect average 85%	Collect average 95% of total accounts receivable	As of 6/30/91, 88% (Ref: 2.7, Appendix R)	Collect average 95%
Improve financial operations	N/A	Gross Operating margin minimum of 15% of revenue	As of 12/31/91, 8.3% (Ref: 2.7, Appendix S)	Continue target of 15%
Decrease REC Operating expenses per kWh	Nonpower costs less than 40% of power costs	AID R.E. Project Goal	O & M expense per kWh has increased by 8.2% from 1989 to 1990 (Ref: 2.7, Appendix S)	Continue as planned to decrease operating expense per kWh
Reduce REC power outages	N/A	AID R.E. Project Goal	Unknown. Data from RECs incomplete. (Ref: 2.7)	Continue to reduce power outages
REC System Losses reduced (tech. and non-tech combined)	Average 20% losses	Average 15% losses	As of 6/30/91, 17.5% (Ref: 2.7, Appendix Q)	Average 15% losses
RECs keep current with NEA and NPC payments	N/A	AID R.E. Project Goal	As of 6/30/91, 92% current with NEA and 100% current with NPC (Ref: 2.7 Appendix Q)	Continue as Planned
Control accounts receivable	N/A	Amount less than 2 months sales	N/A	Less than two months sales
Control cash advances to officers/employees	N/A	Maintain total at p50,000 or below	N/A	Continue as planned
Control customer acct. expense	N/A	p7.00/customer	N/A	Continue as planned
Target for signed-up REC membership	N/A	80%	N/A	80%
Target for member involvement in annual meetings	N/A	16%	N/A	16%
Target for involvement in District Elections	N/A	80%	N/A	80%
Eliminate overstaffing	N/A	200 consumers per employee	N/A	Continue as Planned
Increase utilization of distribution system capacity	N/A	45% load factor minimum	N/A	Continue as Planned
Increase efficiency of electric power delivery	N/A	95% power factor target	N/A	95% power factor
Internally generated capital	15% of annual investment program	N/A	N/A	N/A
Debt service rates	Minimum 1.1	N/A	N/A	N/A
Current Rates	Minimum 1.0	N/A	N/A	N/A

\*1. The final Report for the Republic of the Philippines Special Assistance for Project Formation on NEA Electrification Project, prepared for OECF by the SAPROF Team does not establish any specific performance targets.

\*2. Ref: World Bank "Yellow Paper" and Appraisal Mission - Aide Memoire, dated March 22, 1991.

\*3. Compact 1 and 2 RECs.

<u>CATEGORY</u>	<u>BUDGETED</u>	<u>AUDITED</u>
1. Commodities		
COMPAC-1,2,4	\$ 5,870	
Computer Equipment for NEA	500	
Computer Equipment for RECs	<u>540</u>	
	\$ 6,910	\$ 5,824
2. Training	\$ 304	\$ ----
3. Project Operations/Management	\$ <u>6,314</u>	\$ <u>134</u>
Total	\$13,528	\$ 5,958

The Evaluation Team did not have the resources to substantiate the findings of the independent auditors, or to reconcile the exact figures which appear to be heavily skewed toward the commodities category. A comparison of the auditors report on GOP expenditures and USAID expenditures is the following:

<u>ITEM</u>	<u>GOP</u>	<u>USAID</u>
1. Life of Project Budget	\$13,528	\$40,000
2. Spent to Date	\$ 5,958 *	\$15,225
3. % Expended	44	38

(\* ) Does not include in kind contributions

The GOP expenditures, as the audit report defines, appear inconsistent with both the life-of-project budget and expenditure status of September 30, 1991. It is recommended that USAID have the auditors rework their analysis to confirm to the current budget and expenditure status, and that additional back up information be provided. In-kind contributions also need to be accounted for and the actual expenditures reconciled.

## 2.9 Conclusions of Mid Term Evaluation

Based on our review and evaluation of Phase I of the RE Project, the Evaluation Team offers the following summary conclusions:

1. The USAID RE project appears to be well conceived and designed and is on target with respect to the needs of the RE program in the Philippines. In spite of the late start, progress to date has been substantial as major fundamental institutional and technical changes have been effected.

2. The USAID RE Project should be given substantial credit providing much of the impetus in accomplishing these changes.
3. The GOP has demonstrated continuing commitment to the effort to establish a commercially viable RE program through the introduction of key legislation and policy reform. The reform process, however, is not yet complete and there is a need to continue to press for passage of the proposed legislation. In addition, the GOP should be encouraged to follow through on the transfer of direct connected industries to the RECs. USAID should consider making the passage of key legislation a conditionality of continuing assistance under the Phase II parallel financing arrangements.
4. The NEA has demonstrated continued commitment to achieving commercial viability of the RECs through a number of major institutional changes such as the adoption of a new Statement of Operating Policy and the streamlining of NEA's organizational structure. In addition, NEA has adopted or is in the process of adopting numerous policies/guidelines which should foster greater fiscal responsibility and efficiency on the part of both NEA and the RECs. Ultimate success in implementing these reforms, however, will depend on NEA's commitment to communication, training and consistent enforcement.
5. The TA component of the USAID project appears, in general, to be on target and progressing as planned. The Team notes, however, the following areas where improvements/enhancements are in order:
  - a. Greater effort should be expended to involve the RECs in the distribution planning process. This will provide a greater sense of ownership, and a higher quality end product and will advance the time when the RECs will be able to stand on their own.
  - b. The distribution planning process needs to be enhanced to include the economic evaluation of alternatives and the use of modern load flow simulation models.
  - c. There is a need to investigate alternative materials and/or construction techniques which have the potential to extend the average expected life of distribution facilities.
  - d. Training of NEA and REC management and employees continues to be a weak link in the effort, not due to lack of interest or dedication, but to budget constraints. Achieving commercial viability of the RECs will depend on improving managerial, administration and job skills at both the NEA and REC levels.

6. The commodity procurement component of the project has gone well. While a few minor problems have been experienced, these problems are not considered uncommon for a procurement of this size. For future reference, particularly with the much larger equipment procurement for the World Bank/OECF projects, the following is noted:
  - a. There is a need to automate the materials handling process to improve efficiency.
  - b. Communication between NRECA and NEA needs to be improved to ensure a smooth operation.
  - c. There is a great need for transportation and construction/maintenance vehicles at the RECs. Unfortunately, the 35 boom trucks purchased under the USAID project appear to be undersized for some REC applications.
  - d. Disposition of COMPAC 3 Mobile transformers needs to be determined.
7. It is too early to assess the progress of the RECs toward meeting Project Performance Targets. Most of the commodities have not yet been installed; and the majority of the new policies/guidelines have not yet made it into the field.
8. USAID contracted with a local firm to audit the GOP contributions to the project. The draft report, submitted to USAID in late September 1991, indicates that to date, the GOP has contributed approximately US \$6.0M of the total commitment of US \$13.5M, or 44 percent. This compares to USAID's expenditures to date of US \$15.2M out of a total commitment of US \$40.0M, or 38 percent. However, the Evaluation Team notes that there appears to be some inconsistencies with both the current budget and the expenditures to date and recommends that USAID request the auditors to rework their analysis and/or explain the inconsistencies.

### **3.0 PHASE II PROJECT REDESIGN**

#### **3.1 Introduction**

This Mid-Term Evaluation is intended to evaluate the progress achieved during Phase I of the project, and make recommendations for the redesign of Phase II of the project within the framework of the WB/OECF parallel financing arrangement assuming that the evaluation concludes that such an arrangement is feasible and desirable. As a part of the evaluation, the Team reviewed Scenario No. 4 from the ERI report, the compatibility of the

WB/OECF/USAID projects, and the current requirements of NEA and the RECs, to arrive at a structure for the project redesign. The following sections of this report focus on these elements and lay out the redesign framework.

### 3.2 Compatibility of WB/OECF/USAID Projects

The World Bank (WB) and the Overseas Economic Cooperation Fund (OECF) have entered into negotiations with USAID to establish areas of mutual support in revitalizing and rehabilitating rural electrification in the Philippines. A list of the RECs involved in the WB and OECF projects is provided in Appendix C). While there are differences between all three programs (see Appendix X), the basic purpose and objectives are similar. The project redesign in this section is based on the assumption that it is possible to structure all three programs to be mutually supportive and run concurrently. This premise is based on the following findings:

1. The WB and OECF loan programs are essentially commodity funding mechanisms for REC rehabilitation and expansion based on achieving financial viability of the entire system. Each loan also contains provision for some degree of Technical Assistance and project management. Definitions of financial viability and technical performance vary somewhat, but the overall objective is almost identical. Each program includes provision for funding of REC system expansion (the USAID program does not), and the OECF package includes an element for energizing rural areas based on social needs.
2. The USAID component concentrates on providing Technical Assistance and technical loss reduction/institutional commodity procurement. The TA portion is designed to support the commodity procurement and provide needed institutional development assistance to strengthen NEA and the RECs. USAID has indicated it would be receptive to reallocating funds from commodity procurement (which WB and OECF can finance) to increased Technical Assistance.

The characteristics of the three programs fit well within the general policy of the National Economic Development Authority (NEDA) to utilize grant funds (USAID) for Technical Assistance and loan funds (WB and OECF) for commodities. The Evaluation Team supports earlier findings that USAID can leverage its grant funds by supporting the broad program of WB and OECF.

The World Bank has installed the following conditions relative to its proposed loan to NEA:<sup>7</sup>

"As conditions of negotiating the proposed loan, NEA will need to:

- a) Furnish to the Bank ten satisfactory Schema Evaluation Reports (para. 4.9);
- b) Nominate a Project Director, with qualifications satisfactory to the Bank, (para. 4.23).

Assurances would be sought at negotiations that NEA would:

- a) Not amend, abridge, or repeal the SOP, or any annex thereto, without obtaining the Bank's prior consent (para. 1.9);
- b) Furnish to the Bank by June 30 of each year, its annual financial statements certified by an acceptable auditor (para. 2.12);
- c) (i) conduct jointly with the Bank an annual review of its investment program for the next five years its investment accomplishments for the last two years, and (ii) adopt any mutually acceptable adjustments (para. 4.9);
- d) Furnish the remaining Evaluation Reports to the Bank for review and comment (para. 4.9);
- e) Furnish to the Bank a copy of each on-lending agreement not later than one month following its signature (para. 4.14);
- f) Have its activities in relation to the Special Account, as well as the Statement of Expenditures being maintained for disbursement purposes, audited in conjunction with the audit of its annual accounts (para. 4.18).

At negotiations, understandings would be sought that the Government and NEA would:

- a) Utilize resources accumulated in Foreign Exchange Trust Fund only for the purpose of covering NEA against future foreign exchange losses (para. 5.12);
- b) Use their combined best efforts to ensure that necessary legislation to increase NEA's authorized capital to P 20 billion is enacted by the end of 1992 (para. 5.18).

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<sup>7</sup>

Refer to pages 42 and 43 of the World Bank's "Yellow Paper". Note that the paragraph references are to the "Yellow Paper".

The following would be conditions of effectiveness of the proposed loan:

- a) NEA's retention of consultants to conduct a Technical Assistance effort in the area of materials handling (para. 2.5);
- b) NEA's retention of consultants to provide assistance with NEA's loan administration function (para. 2.10);
- c) Effectiveness of the USAID parallel financing (para. 4.13)."

A comparison of the various operational initiatives under the WB and/or USAID projects was provided in Table 2-3. ( A comparison of major policy initiatives under the WB and/or USAID projects was previously included as Table 2-1.

Final negotiations between USAID, WB, OECF and the GOP still remain. It is recommended that USAID take into consideration the following points:

1. Resolution of final goals for technical loss reduction. The Evaluation Team recommends that USAID continue to press for a system loss target of 15% as being both desirable and achievable under the parallel financing agreement.
2. Resolution of final goals for financial viability. The Evaluation Team recommends that USAID seek to obtain consensus of the World Bank and OECF in endorsing the USAID project performance targets (see Table 2-2).
3. Specific definition of what, if any, Technical Assistance will be financed under WB and OECF. The Evaluation Team recommends that there be a clear division of responsibilities to minimize potential problems of coordination.
4. Establishment of a clear division of responsibility for procurement of commodities by WB OECF, and provision for Technical Assistance funded by USAID. The Evaluation Team recommends that the World Bank and OECF be responsible for providing assistance in areas of materials handling and construction monitoring for their own projects.
5. Establishment of common project milestones, evaluation criteria, and evaluation time frame for related activities. The Evaluation Team suggests the following Project Milestones and Evaluation Criteria:

Project Milestones

- Development of a Parallel Financing Agreement with the World Bank and OECF.
- Development of consultancy contracts:

- NRECA Extension (financial/institutional and REMP)
  - Engineering
  - Training
- Completion of World Bank Materials Management Study and Action Plan to implement the recommended system.
  - Completion of NRECA's analysis of computer requirements and determination of hardware and software to be provided.
  - Passage of key legislation.
  - Development of World Bank/OECF disbursement schedule.
  - Definition of USAID Phase II commodities component.
  - Development of commodities specifications, procurement, and installation.
  - Completion of REMP.
  - Completion of engineering planning studies and system maps.
  - Development of training plans and curriculum.
  - Identification of the appropriate vehicle for training.
  - Interim evaluation (second quarter, 1993, before current NRECA contract expires).

#### Evaluation Criteria

- REC progress toward achieving performance targets (eg, system loss reduction, collection efficiency, etc.).
- As NEA's new policies/guidelines are implemented and COMPACs 1, 2a, and 3 are installed, evaluation of this program will become more meaningful.
- REC progress toward computerization, materials installation, training, etc.
- NEA progress in implementing policies/guidelines, computerization, debt reduction, etc.
- GOP progress in passing key legislation.
- Performance of Technical Assistance contractor in completing work items, studies, MIS analysis, etc.
- Performance of commodity procurement and delivery activities for USAID/World Bank/OECF projects.

The Final Report for the Republic of the Philippines Special Assistance for Project Formation NEA Electrification Project, prepared for the OECF by the SAPROF Team, dated February 1991 does not establish any specific performance targets or operational objectives for the OECF project. However, various World Bank documents do create performance targets which parallel, in some respects, the USAID performance targets. Three specific areas where the World Bank and USAID performance targets differ are REC collection efficiency, system losses, and operating expense:

1. **System Losses** - USAID has established a performance target of 15% for systems losses whereas the World Bank target is 20%. While the World Bank target is more lenient, the Evaluation Team notes that if the USAID program is assumed to be sufficient to result in a reduction in system losses to 15%, the World Bank/OECF project being much larger and addressing similar causative factors should actually result in lower system losses than that possible from the USAID project alone. The Evaluation Team recommends that USAID continue to target a reduction in system losses to a maximum of 15%.
2. **Collection Efficiency** - USAID has established a performance target of 95% for REC collection efficiency where as the World Bank targeted 85%. Since the issue is addressed largely through the USAID Technical Assistance component, the fact that the World Bank target is lower, will have no impact on what is actually achieved. The Evaluation Team recommends that USAID maintain its position on a targeted collection efficiency of 95%.
3. **Operating Expense** - USAID has set an objective of reduced operating expense per kWh, but has not specified the amount of reduction. The World Bank has taken a different approach by targeting O & M expenses to be a maximum of 40 percent of power costs. While on the surface both objectives would appear to be desirable, they should be applied judiciously. Distribution O & M expenses, for example, tends to be as much a function of the level of the current construction program as a measure of efficiency. If the construction program for the current year increases, O & M expenses are likely to decrease as costs associated with personnel, equipment, and materials are capitalized rather than expended. Further, if revenue is down, O & M expenses may be artificially low as needed programs are deferred due to lack of funds. Consequently, the Evaluation Team recommends that USAID continue to monitor the RECs' O & M expense with the objective of reducing costs on a kWh basis, but that the achievement of the target objective be evaluated judiciously.

Another area where a potential for conflict between USAID, World Bank, and OECF projects exists is in the nature of the commodities purchased. The USAID project is clearly directed at rehabilitation of the existing distribution system with the objectives of improving reliability and reducing losses. In contrast, the World Bank and OECF programs include elements of system expansion as well as rehabilitation. In fact, the OECF program even includes funds for extending services for humanitarian purposes. It should be noted, however, that even though the World Bank and OECF include a system expansion component, the total funds available for system rehabilitation through these programs (World Bank US \$35.4M plus OECF US \$23.7M for a total of US \$59.1M) greatly exceed the amount allocated by USAID for COMPAC 2b and 4 (US \$16.7M). Thus, it would appear that the parallel financing arrangement will result in a sub-targeted increase in funds

allocated to system rehabilitation efforts compared to the USAID project alone. Nevertheless, USAID may wish to press the World Bank and OECF to place greater emphasis on rehabilitation efforts.

The Evaluation Team also noted that BOHECO II, which was to be included in COMPAC 4, is not included in either the World Bank or OECF programs. Likewise, ILECO, CEBECO II, BOHECO I, and COMPAC I RECs are not included in the World Bank or OECF programs. In negotiation with the World Bank and/or OECF, USAID may wish to insist that these RECs be included in the parallel financing projects.

Finally, it should be emphasized that NEA and the REC will require assistance in handling the material and monitoring construction of facilities procured with World Bank and OECF funds. While it was previously suggested that USAID might provide funding for the assistance, the Evaluation Team recommends that this assistance be funded as part of the World Bank and OECF program cost of construction. This approach will eliminate any possibility of USAID being held responsible for World Bank and/or OECF projects; and, because material handling and construction maintenance are a legitimate element of the cost of construction and maybe capitalized, it should not violate GOP restrictions on the use of loan funds for Technical Assistance.

It is further recommended that all three respective donor organizations establish a central-point-of-contact to coordinate with the NEA project implementation team.

### 3.3 Evaluation of the ERI Report Scenario No. 4

Under contract with USAID, Energy Resources International, Inc. (ERI) prepared a report entitled **The USAID/Philippines Rural Electrification Project: Its Status and Options**, dated May 24, 1991. The ERI report described four possible scenarios for continuation of the project with the fourth scenario recommended. USAID has tentatively accepted the conceptual framework of Scenario 4 assuming confirmation by the Mid-Term Evaluation. The following are key elements of the redesign, along with the Evaluation Team's findings (see Table 3-1 for a summary):

1. **Project Duration and Technical Assistance** - The Evaluation Team concurs with the ERI report to extend the PACD by 27 months to December 1995 and provide some measure of Technical Assistance during this extended period.
2. **Technical Assistance** - The ERI report describes a broad program of technical assistance, primarily in engineering, procurement/materials handling, project management, and human resources development. A total of seven long-term resident advisors and one long-term non-resident advisor are recommended. The Evaluation Team recommends paring this assistance down to a more practical and manageable level, specifically: retain the two long-term

**TABLE 3-1  
ERI REPORT FRAMEWORK - WB/OECF  
AND EVALUATION TEAM RECOMMENDATIONS**

ITEM	ERI RPT RECOMMENDATION	COMPATABILITY WITH WB/OECF	EVALUATION TEAM RECOMMENDATIONS																												
1. Project Duration - The current PACD is Sept. 1993	Extend the PACD 27 months to cover the full duration of the WB/OECF projects	Some degree of technical assistance will be necessary for the duration of the project	Extend the PACD to Dec 1995																												
2. Phase II activities call for COMPAC-2b and 4 to be completed, total cost of \$USD 17.81 million	Drop COMPAC-2b, 4 and reallocate funds to TA and alternate commodity procurement	The commodity procurement planned for COMPAC-2b,4 can be covered by these two projects. There is a discrepancy between the eligible REC lists of WB/OECF and the USAID COMPAC-2a RECs, which will need to be resolved.	Drop the COMPAC-2b,4 from the Phase II program, provided: 1)WB and OECF agree to pick up all REC's in COMPAC-2a which qualify for COMPAC-2b, and 2)agreement on expanded TA is reached with WB, OECF, and NEA																												
3. Provide long-term consulting services for the duration of the project.	Extend the long term consultancy contract to run concurrently with the WB/OECF projects.	Probably necessary, particularly if the TA component of these projects is dropped.	Provide long term consultant Technical Assistance through the PACD of Decemeber 1995																												
4. Long term resident Advisors:	Provide a total of seven: - Two for basic management, planning, and engineering services - One for master planning - One for procurement - Three for human resources development In addition, provide a long term (non-resident) advisor for material handling.	Only the procurement and material handling advisors directly affect these projects. The level of support that WB and OECF can provide in these areas is undefined.	Provide four long term resident advisors: two for basic project management, one for master planning, and one for training. WB/OECF to include the cost of procurement and materials handling in the commodity package.																												
5. Technical Assistance	Provide TA for: - PHILRECA - Strategic Planning - Special REC Financial Management - Materials Procurement and Management - Engineering Review and Monitoring - Additional Computerization - Human Resources Development	All these proposed areas of TA are compatible with WB/OECF	Concur with TA in: - Master Planning - Engineering - Special REC Financial Solutions Reduced level of TA in: - Human Resource Development (Training) - PHILRECA - Zonal Repair Centers Delete TA in: - Materials Procurement and Management																												
6. Commodities: (excluding COMPAC-2b,4)	Provide the following: -\$4.378 MM Boom Trucks -\$1.0 MM Bucket Trucks -\$3.0 MM Utility Vehicles	Vehicles will help support the commodity installation, pole treatment chemicals are not applicable to these projects.	Recommend \$10.518 MM in Additional Commodities - Computers - Vehicles - Pole Treatment Chemicals - Watt-hour Meters																												
7. Training	Allocate \$2.935 MM for a broad program of Human Resources	N/A	Allocate \$1.02 MM for a more basic and focused program.																												
8. Budget Breakdown	<table border="0"> <tr><td>TA</td><td>\$13,293,000</td></tr> <tr><td>Commodities</td><td>\$22,492,000</td></tr> <tr><td>Training</td><td>\$2,935,000</td></tr> <tr><td>Ops/Mgmt</td><td>\$700,000</td></tr> <tr><td>Evaluation</td><td>\$200,000</td></tr> <tr><td>Contingency</td><td>\$380,000</td></tr> <tr><td>Total</td><td>\$40,000,000</td></tr> </table>	TA	\$13,293,000	Commodities	\$22,492,000	Training	\$2,935,000	Ops/Mgmt	\$700,000	Evaluation	\$200,000	Contingency	\$380,000	Total	\$40,000,000	N/A	<table border="0"> <tr><td>TA</td><td>\$13,800,000</td></tr> <tr><td>Commodities</td><td>\$24,009,000</td></tr> <tr><td>Training</td><td>\$1,020,000</td></tr> <tr><td>Ops/Mgmt</td><td>\$400,000</td></tr> <tr><td>Evaluation</td><td>\$400,000</td></tr> <tr><td>Contingency</td><td>\$371,000</td></tr> <tr><td>Total</td><td>\$40,000,000</td></tr> </table>	TA	\$13,800,000	Commodities	\$24,009,000	Training	\$1,020,000	Ops/Mgmt	\$400,000	Evaluation	\$400,000	Contingency	\$371,000	Total	\$40,000,000
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Total	\$40,000,000																														

advisors in the project management area; provide one long-term advisor for master planning and one long-term advisor for training; provide additional TA in engineering and technical issues; and delete TA for procurement and materials handling. **This approach necessitates that the WB/OECF projects be responsible for commodity procurement and materials handling associated with their own projects.** It also significantly reduces the human resources development program recommended by ERI.

3. **Commodities** - The Evaluation Team recommends somewhat more commodity procurement than the ERI report, specifically in expanded computer procurement, vehicles, pole treatment chemicals, and possible watt-hour meters.

The following sections describe the redesign in more detail.

### 3.4 Project Redesign Overview

While maintaining the original goals and objectives of the project, Phase II will essentially be a complete redesign of the specific program elements. The redesign centers on two key assumptions:

1. The World Bank and OECF projects will provide funding for the majority of system loss reduction, expansion, and rehabilitation commodity procurement. These projects will also fund some degree of support equipment such as computers and possibly vehicles.
2. USAID grant funds for Technical Assistance will be considerably increased and the majority of previously planned commodity procurement will be dropped. USAID will not be directly involved with commodity procurement handled by the WB and OECF.

The major changes to Phase II of the project are as follows:

- PACD - Extended to December 1995.
- Commodities:
  - COMPAC-2b, 4 will be dropped
  - Computer procurement is expanded
  - Vehicle procurement is expanded
  - Pole treatment chemicals are considered for funding by USAID
  - Watt-hour meters are considered for funding by USAID.

- Technical Assistance:
  - Procurement and materials handling are dropped, the costs for this TA will be incorporated into the WB/OECF commodity loan package
  - Long-term TA is extended over the new PACD period
  - Engineering, training, master planning, and financial and institutional support is expanded.

The Phase II project can be completed within the original project budget of \$40 million. An updated project Phase I and Phase II Activity Chart is illustrated in Figure 3-1.

### 3.5 Extension of PACD

The Project Assistance Completion Date (PACD) will need to be extended to December 1995 in order for the Technical Assistance to cover the duration of the proposed WB/OECF project loan. Both these institutions have defined the project time frame as 1992 through 1995. It is anticipated, however, that the USAID project activities will taper off significantly over the later years.

### 3.6 Technical Assistance

#### 3.6.1 Engineering

Continuing Technical Assistance in the engineering area will significantly enhance NEA and the RECs' ability to implement the current project. Assistance will also help lay a sound technical foundation for ongoing operation, expansion, and maintenance of the distribution systems. The specific areas of proposed planning assistance which go beyond the present and currently planned assistance are as follows:

1. Expand engineering services to approximately 106 RECs<sup>8</sup>

The Work Statement in the NRECA contract states that "the Contractor shall conduct system studies of REC distribution systems which shall include a 10-year load forecast; system improvements required and estimated cost in time frame." Similar work items are provided for mapping, sectionalizing studies and O&M studies. The Work Statement does not clearly state how many RECs are to be covered under this section of the contract although by inference, one could argue that all 70 RECs included under COMPACs 1,2 and 4 are intended. Nevertheless, at the present time AWIA estimates that

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<sup>8</sup> There are approximately 106 RECs covered by the USAID, World Bank and/or OECF projects.

the current budget is sufficient to complete services to only 24 RECs beyond the first 36 for a total of 60.

In order to extend engineering services for 1) distribution, long range plans (5-year/10-year), 2) Q&M surveys, 3) sectionalizing studies and 4) mapping to all of the RECs covered by the USAID, World Bank, and/or OECF Projects, the current engineering budget will need to be expanded. An estimate of the additional cost to extend these services to an additional 46 RECs is provided below:<sup>9</sup>

a.	Estimated cost per system based on current AWIA contract inflated at 10 percent for 3 years	\$ 40,000
b.	No. of RECs	x 46
c.	Total Estimated Cost	\$1,840,000
		<u>Use \$1,900,000</u>

2. Improve Engineering Methods

As noted in Section 2.2.4 there are a number of weaknesses in the current level of engineering services being provided to the RECs including:

- a. Failure to perform least cost analysis (i.e. economic evaluation)
- b. Failure to utilize a modern computerized simulated load flow program.

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<sup>9</sup> Ibid.

In order to upgrade the services to the RECs covered under Phase I of the RE project, additional budget will need to be provided. A rough estimate of the additional cost is as follows:

a.	Software <sup>10</sup>	\$ 30,000
b.	Revise analysis for RECs where work is already started	\$ 4,000
c.	No. of RECs <sup>11</sup>	x 14
		Subtotal \$ 56,000
d.	Incremental cost to upgrade the analysis for additional RECs <sup>12</sup>	\$ 1,000
e.	No. of RECs	x 92
		Subtotal \$ 92,000
		Total \$ 176,000
		Use \$ 200,000

### 3. Computer Aided Drafting (CAD) Systems

In view of the fact that new maps are being prepared for the RECs, this would be an opportune time to introduce current technology by employing Computer Aided Drafting (CAD) techniques, alternately referred to as Automated Mapping (AM). While this could be extended to include Facilitates Management (FM) capabilities to record and manage inventory records developed from the results of the O&M surveys, the RECs are probably not ready for this additional step at this time. The cost to purchase CAD systems sufficient to handle the mapping for 24 RECs and provide initial digitizing services is estimated below:

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<sup>10</sup> The cost of providing licensed software for each REC is not included in the above estimate.

<sup>11</sup> Approximately 26% of the voltage drop sheets were completed for the first 36 RECs as of August 31, 1991. Assume 40% completion by the time the conversion to the revised methodology is made.

<sup>12</sup> This estimate represents the incremental cost to upgrade the engineering analysis for the REC systems where the analysis is not yet complete. The basic cost of the engineering is included either in the original or in the estimate for extending engineering service to additional RECs.

a.	CAD Work Station		\$ 25,000
b.	Printer/plotters		\$ 10,000
		Subtotal	\$ 35,000
c.	No. of Systems <sup>13</sup>		x 8
d.	Equipment/Software	Subtotal	\$280,000
f.	Estimated hours to digitize map per primary km		6 km/hr
g.	Average number of km per REC		x 550 km
h.	Estimated Cost per hour		x \$5.00/hr
i.	Estimated Cost to Digitize REC system		\$ 16,500
j.	No. of RECs		x 24
k.	Digitizing	Subtotal	\$ 396,000
l.	Estimated cost to develop base maps		\$ 5,000
m.	No. of RECs		x 24
n.	Base Maps	Subtotal	\$ 120,000
		<b>TOTAL</b>	\$ 796,000
		<b>USE</b>	\$ 800,000

Note that extending CAD mapping services to only 24 RECs is intended to permit field verification of the hardware, software and digitizing techniques to a limited number of RECs.

<sup>13</sup> Assume 1 system for every 3 RECs.

#### 4. Summary Cost Estimate

The Technical Assistance line item for the redesigned project will include the following for engineering (re: Section 3.9):

Expand Engineering Services	\$ 1,900,000
Improve Engineering Methods	200,000
Computer Aided Design (CAD)	800,000
	<hr/>
Total Engineering:	\$ 2,900,000

#### 3.6.2 Training

A program of training activities aimed at strengthening the technical, administrative, and managerial capabilities at NEA and the RECs is important to support the overall project goals and related on going and currently contracted activities.

In particular, there are two areas of training that merit additional funding. The first addresses the long-term institutional goal of establishing training capability on the part of the RECs so that they can be self-sustaining. The second addresses shorter-term concern targeting training in basic job skills that the RECs and NEA require in their new orientation as self-interested borrowers and interested lender, respectively. Currently planned training activities (e.g., computerization) should be executed as planned under Phase I.

The Mid-Term Evaluation resulted in the following observations relative to training:

1. Training requirements tend to be consistent from one REC to another. A nationally coordinated training effort with active participation from each REC is the best approach.
2. The development of effective training curricula and associated materials is an expensive undertaking and can be significantly facilitated by USAID.
3. Development of a training program on a national basis will help to ensure high standards of quality.
4. The availability of domestic training resources is limited. A national training program can be enhanced and accelerated by acquiring existing foreign expertise and training materials.
5. The principal areas to be covered by the training program are: technical, administrative, and managerial.

The need for training is well documented and accepted. The project will cover the following specific areas:

1. **Technical** - Training is needed in routine REC equipment maintenance (shop and field), safety, equipment installation, power system design, and demand projections. Training in the use of technical software such as voltage drop programs is needed as is training related to technical standards and equipment specification and procurement.
2. **Administrative** - Training is required in all aspects of REC administrative functions, including billing, collections, general ledger, investments, materials procurement, inventory control, and salary administration. In addition, training in investment strategy, project feasibility analysis, cost control, and asset management would be very beneficial.
3. **Managerial** - Training in basic management techniques would benefit all supervisors and managers throughout the organization. Much of the technical and administrative training will only be effective if sound management principles are practiced.

There are a number of potential vehicles which can be utilized to coordinate a comprehensive and systematic training program for the RECs. Each of these vehicles have positive and negative features which could affect the long term viability and sustainability of a training program.

1. NEA is the logical candidate for training associated with the implementation of its policies and guidelines. It would be difficult for an outside organization such as PHILRECA to step in to fulfill this role. Once the initial efforts to implement the new policies and guidelines have been completed, the financial resources required by the training efforts should be reduced and less subject to all but the most severe budget restraints.
2. A suitable training entity needs to be identified for coordinating training associated with job and professional skills not directly related to NEA policies and guidelines. However, the burden of actually undertaking and implementing training efforts should be shared by PHILRECA, regional organizations of RECs, national organizations of REC departments/functions (e.g. MSD) and other training institutes and private organizations. In this way, if PHILRECA does not develop as hoped for, other entities will be in a position to fulfill this role. A committee/project team should be set up to coordinate and direct development of the training program. The committee should consist of representatives of NEA, PHILRECA, the RECs and an outside Training Advisor.

3. Ownership of any facilities, curricula etc. would be transferred to NEA, PHILRECA, or a designated Regional Training Center at the end of the project. Transfer of ownership to PHILRECA would only occur if PHILRECA met certain conditions relating to performance, future liability etc.
4. An expert training specialist (i.e. Training Advisor) is required to coordinate training efforts. However, whenever possible, curricula should be developed making maximum possible use of local talent.
5. Financing of the curricula development and equipment should be through a USAID grant. The cost of conducting the training sessions during the project term should be shared by NEA, the RECs and USAID with the assistance from USAID phased out over time.
6. Consideration should be given to provide a significant component of training on a regional basis. The establishment of a regional training center, perhaps in conjunction with the zonal repair centers would be helpful in this regard.

The budget for the training component is estimated below. The budget has been divided into that portion which will fall under Technical Assistance, and that portion which will be included in the training budget line item (ref: Section 3.9).

<u>ITEM</u>	<u>TA</u> (\$ 000)	<u>TRAINING</u> (\$ 000)
Long Term Training Advisor (48 mo.)	\$ 1,000	0
Short Term Advisors (15 mo.)	225	0
Training Materials	0	200
Sponsorship of Seminars		250
TA & Training		100
Miscellaneous and Contingency	75	150
	\$ 1,300	\$ 700
TOTAL		

Notes:

1. The TA training estimate of \$1,300,000 will be added to the Technical Assistance budget.
2. The Training line Item would be increased by \$700,000 as most of the existing \$320,000 is obligated.

### 3.6.3 Master Planning

The objectives of the Rural Electrification Master Plan (REMP) is to outline a management plan for integrated long-term development of rural electrification in the Philippines, with emphasis on the next ten years. The main elements foreseen for the REMP, applicable to all of the RECs, are:

- Establishment and implementation of a methodology for investment planning and evaluation.
- Preparation of an indicative nationwide investment and lending program, on the basis of which a draft investment program can be developed for each REC.
- Development of a sound pricing schedule, together with tariff criteria and suggested tariffs for each REC.
- Establishment of technical and financial operation and performance criteria, together with performance targets for each REC, with emphasis on distribution system operation, maintenance and electric service reliability.
- Calculation of a broad-based manpower development plan, on the basis of which training programs can be prepared for each REC.
- A planning process for development of viable commercial operations with emphasis on the billing and collection process.

On a nationwide basis, the REMP is expected to identify gaps in all major planning and operating functions and develop strategies to close them. Priority measures for resolving issues should be identified, allowing the development of detailed, integrated remedies for the system's major problems. In conjunction with the REMP, and in coordination with NEA and the RECs, the consultants will prepare a RE Planning Manual which the RECs can use in developing integrated five-year technical and financial plans.

The product of the REMP as defined in the Project Paper is not a single report or plan, but a collection of procedures and tools which permit effective planning to be carried out on a continuing basis.

Both NEA and the RECs have the strategic goal of bringing reliable electricity at an affordable price to the greatest number of people. NEA and the RECs have different resources and different objectives, but the approaches with which they should carry out their planning and decision making are not dissimilar. Adapted to their resources and issues, the individual RECs are, therefore, just as much in need of a strategic planning process as is NEA.

The individual planning and decision making tools developed thus far under the REMP component of the project are each useful to a particular function, but collectively they have several shortcomings. In some instances they do not interface with each other and cannot be utilized interactively for optimal decision making. They have not been selected or defined within a larger framework so as to form collectively a corporate or strategic planning capability. And, in focussing primarily on financial or commercial viability, they overlook other important issues such as engineering and the socio-economic objectives which are the ultimate organizational goals of NEA and the RECs.

An integrated strategic planning capability will allow decision makers at all levels to understand how their decisions affect the over all viability and future of the rural electrification system, the impact of their actions, and the relative merits of their decision options best achieving individual and corporate goals with the resources available. Combined with an operational management system and a management information system, this will give NEA and the individual RECs the ability to set goals and priorities, establish realistic action plans, monitor individual and organizational performance and continue to modify a strategic plan in a dynamic process into which performance data and changing conditions are continually incorporated.

Defining the process and implementing it in the RECs will require care and time, a further argument for the continuity offered by a long-term planning advisor. Local contractors and PHILRECA can be utilized to implement the systems, but an advisor is recommended to take on part of the role now filled by short-term specialists. Some short-term specialists will still be required, however, to develop certain individual modules of the system and to write or upgrade computer software. The long-term advisor will provide continuity to follow through the introduction, implementation and trouble-shooting of the various modules.

The costs for the REMP effort are estimated as follows:

1 long-term Expat advisor for 36 mo:	\$ 720,000
Short Term Consultants (as required):	200,000
Manuals/Training Materials:	80,000
	<hr/>
TOTAL	\$ 1,000,000

This cost will be added to the Technical Assistance line item of the revised budget (ref: Section 3.9).

### 3.6.4 Financial/Institutional

The Evaluation Team recommends that the general TA portions of the RE Project be extended through December 31, 1995 to coincide with the termination date of the World Bank project. The following represents a brief overview of the Scope of Work for the Contractor:

1. Manage the USAID Project;
2. Oversee the additional engineering and CAD services being provided;
3. Oversee the training assistance program and master planning effort;
4. Provide additional Technical Assistance as required.

The Evaluation Team has also identified additional work elements. It is expected that this list would be expanded to include other necessary elements of Technical Assistance not covered by the present NRECA contract including:

- Zonal Repair Study - A number of additional issues need to be addressed in order to implement the zonal repair facilities.
- Vehicle Procurement - A survey of REC vehicle requirements should be performed prior to developing specifications and procuring the vehicles (ref: Section 2.3.3).
- Life Extension - A study of equipment and construction/O&M techniques to identify possible approaches which may be taken to achieving longer life expectancies (ref: Section 2.2.4).
- Commodity Procurement - Computers, vehicles, pole treatment chemicals, and Watt-hour meters.

The estimated cost of the extended Technical Assistance is as follows:

First 15 months	
1. Estimated average monthly cost <sup>14</sup>	\$ 100,000
2. No. of months	x 15 mo.
	<hr/>
	Subtotal \$ 1,500,000
Last 12 months	
3. Estimated average monthly cost <sup>15</sup>	\$ 50,000
4. No. of Months	x 12 mo.
	<hr/>
	Subtotal \$ 600,000
	<hr/>
	TOTAL \$ 2,100,000
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The \$2,100,000 will be added to the Technical Assistance line item of the revised budget (ref. Section 3.9).

### 3.7 Commodities

#### 3.7.1 Computers

The Evaluation Team has identified computers (hardware and software) as being critical components necessary for the RECs to achieve commercial viability. Lack of computer equipment/software is presently hampering the ability of the RECs to improve billing practices, develop a uniform record keeping system for reporting to NEA, undertake engineering planning studies at the local level, etc. In visiting the RECs, the Team found that there is much interest on the part of the RECs in computerizing operations; and the experience of the few RECs that have purchased their own computers/software have demonstrated that the talent exists to make effective use of the facilities. The only thing

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<sup>14</sup> The present NRECA Contract, excluding engineering (AWIA) is approximately \$4,750,000. Assuming an original contract period of 48 months, the average monthly cost is approximately \$99,000. Assume that the effects of inflation are offset by a reduction in work efforts required by the Statement of Work for the extension period. Use \$100,000/month for the first 15 months, \$50,000/month for the last 12 months.

<sup>15</sup> Ibid.

lacking at the present time is the financial resources to purchase the hardware/software and adequate training.

While the general need is clear, it is premature to specify exactly what is required and how it should be funded. The computer analysis currently underway by NRECA should provide a better handle on the exact needs of the RECs. Negotiations with the World Bank/OECF are necessary to coordinate the funding of various components of Phase II redesign. NEA has estimated the computer hardware (CPU and Monitor only) requirements of the WB/OECF projects as follows:

Computers (CPU & Monitor):	World Bank RECs	163
	OECF RECs	19

It is the opinion of the Team that the current budget of \$1,100,000 will need to be considerably increased to adequately address the computerization issue. This area of commodity procurement should be given first priority in allocating funds from the commodity budget.

### 3.7.2 Vehicles

Vehicle procurement is an essential part of the continuing REC revitalization program. The necessary vehicles can be categorized into three types:

- Utility Vehicles: General support vehicles for daily use that are used to transport maintenance personnel and general use materials.
- Boom Trucks: Used for installing poles and other heavy equipment.
- Bucket Trucks: Necessary for maintaining overhead lines and associated equipment, and for lifting light duty equipment.

USAID completed an initial study of similar vehicle categories prior to purchasing the first boom trucks. The definition in that study varied somewhat from the above definition in that boom trucks were categorized as light and heavy duty and specified with a bucket option.

The RECs will need complete support services from a full compliment of vehicles, both for normal O & M and to assist with the installation of materials under the World Bank and OECF program. The Evaluation Team recommends that the initial study by USAID be updated and discussed with WB/OECF. NEA has estimated the additional vehicle requirements of the WB/OECF Projects as:

Boom Trucks(with bucket accessory):	World Bank	12
	OECF	49

Additional vehicles will need to be determined and specified. Funding for this activity should be the second priority, and be coordinated with the parallel financing partners. The Team recommends that USAID attempt to finance one category of vehicles only, thus simplifying the procurement and interface process.

### 3.7.3 Pole Treatment Chemicals

Historically, the RECs have been plagued with extremely low life expectancy for distribution line poles. Pole lives less than 10 years are not uncommon, and even now, discussions with NEA/NRECA/AWIA indicate targets of 20 years at best. This compares with average life expectancies of 35 to 40 years for typical US utilities. Replacement of these poles represents a significant financial burden on the RECs. The extremely short expected life of poles in the Philippine RECs is the result of degradation of the buried portion, often causing failure of the pole at or just below the ground line in high winds and typhoons. Pole treatment can extend the life of existing poles thus deferring replacement cost and labor. NEA has a pilot program underway to test pole treatment, but has not initiated a broad program of preventive maintenance to extend pole life.

USAID could assist NEA with this program by procuring the necessary chemicals for pole treatment, while the RECs would furnish labor and materials. NEA has estimated that pole treatment can be accomplished for about 550 Pesos per pole (about \$20), whereas pole replacement can cost up to \$200. Certainly this program would be of significant benefit to the RECs in deferring costly pole replacement. However chemical treatment of poles is within the ability of the RECs/NEA to finance and carry out. USAID should consider funding this activity only if it would significantly accelerate the process.

### 3.7.4 Watt Hour Meters

NEA and the RECs would like to ensure that watt-hour meters procured under the WB/OECF projects meet two basic criteria:

1. The meters are back mounted design with non-reversible components. This will help eliminate thievery problem associated with the current bottom mounted Chinese meters.
2. The meters should use high quality components to reduce maintenance and extend useful service life.

NEA has estimated the number of watt-hour meters required under the WB/OECF projects as follows:

World Bank	271,042
OECF	226,467
Total	<u>497,509</u>

Procurement of these meters under the remaining USAID commodity budget would offer the advantages of: 1) sole source procurement to US suppliers which would ensure quality of workmanship and construction, 2) US suppliers would be awarded the contract under USAID procurement guidelines, and 3) the procurement would use the entire remaining commodity budget of USAID.

The primary disadvantage of funding this commodity is that virtually no funds would be allocated to computerization, and would recommend meters to be funded only with left over funds. Another alternative rests with NEA: to develop a specification which would eliminate low priced suppliers of poor quality equipment. Thus the same equipment could be procured under the WB/OECF projects.

### 3.8 Contracting Options

The Evaluation Team investigated different contracting options for Technical Assistance in the Phase II redesign. In order to focus on the best option, a general criteria was established.

#### 3.8.1 Criteria

The following criteria has been used by the Evaluation Team in evaluating contracting options for the Phase II redesign:

1. Maintain Continuity - There is great advantage in efficiency and effectiveness by maintaining continuity of project personnel and support staff. The overall evaluation of NRECA has been favorable up to the Mid-Term Evaluation. Since NRECA is under contract for the next two years, they will have participated in four of the six (assuming PACD extension) project years. Some degree of ongoing participation would be advantageous to the project.
2. Limit the Number of Contractors - Conceivably the project tasks could be broken up into any number of contracts. However, in order to establish effective coordination and communications, the Evaluation Team recommends

limiting the number of contractors. Ideally, a managing contractor would be contracted with a broad support staff and/or subcontractors that could handle

all phases of the work. As a second option, specific project tasks could be spun off to separate contractors.

3. Redesign Effects - The Phase II project will significantly alter some of the existing and future contract requirements. For example, the deletion of major commodity procurement will change the role of the NRECA technical advisor and support staff. The effects of this redesign need to be accounted for in future contracting mechanisms.
4. USAID Restrictions on Contract Modifications - USAID has a policy of limiting contract modifications to 35 percent of the original contract. This limits the possibility of extending the total Technical Assistance contract to any one contractor. Thus, the project tasks need to be broken down, analyzed, and separated so as to determine the best contracting option.

### 3.8.2 Recommendations

Based on the review of Phase II contracting options, the Evaluation Team recommends the following approach:

1. The current contract with NRECA should be amended to include the proposed financial/institutional activities through the new PACD of December 1995. This will ensure that NRECA staff who are most familiar with the program will be available to provide project operations and engineering support through the extended PACD. The estimated cost of this amendment is \$ 2,100,000 which is within the USAID guidelines.
2. The Master Planning Effort (REMP) should also be included in the NRECA contract amendment for the same reasons as noted in No. 1. The cost of this effort is estimated at \$1,000,000. Unfortunately the REMP and Financial/Institutional effort will exceed USAID guidelines. Assuming that the NRECA contract now contains excess funds from deletion of COMPAC-2a and 4, USAID may want to negotiate inclusion of the master planning effort and extended financial/institutional functions in one contract amendment, limiting the cost within USAID guidelines for amendments.
3. Contracts for additional engineering and training, could be let concurrently with the amended NRECA contract.
4. The existing contract with NRECA should be reviewed to determine the

effects of dropping out COMPAC-2b and 4. This revision to the scope would save both field and home office costs.

### 3.8.3 Budget

The Technical Assistance contracting budget would be allocated as follows:

1.	Current NRECA Contract		
	Existing Contract Amount		\$ 6,500,000
	Amendment (Financial/Institutional)		2,100,000
	Amendment (Master Planning)		1,000,000
		TOTAL	<u>\$ 9,600,000</u>
2.	Phase II Redesign Contracts		
	Engineering		\$ 2,900,000
	Training TA		1,300,000
		TOTAL	<u>\$4,200,000</u>
	Total Technical Assistance		<u><u>\$ 13,800,000</u></u>

### 3.9 Cost Estimate/Financial Plan/Implementation

The Phase II Rural Electrification Project is designed to be completed within the original project budget of USD\$ 40 million. Host country participation has been adjusted to reflect the decrease in commodity procurement and increase in Technical Assistance, thus the GOP will provide approximately \$13.804 million. Specific line items have been adjusted as follows (reference Tables 3-2 and 3-3, and Figure 3-2).

**AID Contribution:**

<u>ITEM</u>	<u>EXISTING</u> (\$000)	<u>REDESIGN</u> (\$000)	<u>DIFFERENCE</u> (\$000)
Commodities	\$ 31,848	\$ 24,009	(\$ 7,839)
Technical Asst	4,968	13,800	8,832
Training	320	1,020	700
Project Ops/Mgmt	900	400	(500)
Evaluation/Audit	150	400	250
Contingency	1,814	371	(1,443)
<b>TOTAL</b>	<b>\$ 40,000</b>	<b>\$ 40,000</b>	<b>\$ 0</b>

**Notes:**

1. Commodities reflect the deletion of COMPAC 2b and 4; the addition of computers, vehicles, pole treatment chemicals, and Watt-hour meters (ref: Section 3.7).
2. Technical Assistance includes the following (ref: Section 3.6):
  - Additional Engineering
  - Training Technical Assistance
  - REMP Master Planning
  - Financial/Institutional.
3. Training is increased for the expanded program (ref: Section 3.6.2).
4. Project Operations and Management is reduced to reflect the USAID FSN and original PSC contractor, as follows:

Expenditures to date	\$ 237,310
FSN for 48 mo. @ \$ 2,500/mo =	\$ 120,000
<b>TOTAL =</b>	<b>\$ 357,310</b>
<b>USE</b>	<b>\$ 400,000</b>

5. Evaluation and Audit is increased to reflect the PACD extension and additional requirements.
6. Contingency is reduced as a result of better definition of the project.

**GOP Contribution:**

<u>ITEM</u>	<u>EXISTING</u> (\$000)	<u>REDESIGN</u> (\$000)	<u>DIFFERENCE</u> (\$000)
Commodities	\$ 6,910	\$ 3,313	(\$ 3,597)
Training	304	1,020	716
Project Ops/Mgmt	<u>6,314</u>	<u>9,471</u>	<u>3,157</u>
TOTAL	\$ 13,528	\$ 13,804	\$ 276

Notes:

1. Commodity effort is significantly reduced to reflect the deletion of COMPAC 2b,4.
2. Training is increased to reflect the new emphasis under the USAID redesign, and is kept at about the existing 1:1 ratio to the USAID funded portion.
3. Project Operations and Management is increased to cover the PACD extension of two years.

**TABLE 3-2**  
**REVISED LIFE-OF-PROJECT BUDGET**  
**(\$000)**

Project Input	AID	GOP	TOTAL
Commodities:			
COMPACs 1,2a,3	\$11,531	\$2,273	\$13,804
Boom Trucks	\$1,378	\$0	\$1,378
Disaster Relief	\$582	\$0	\$582
Other Commodities	\$10,518	\$1,040	\$11,558
Subtotal	\$24,009	\$3,313	\$27,322
Technical Assistance:			
Long Term TA	\$6,500	\$0	\$6,500
Engineering	\$2,900	\$0	\$2,900
Training TA	\$1,300	\$0	\$1,300
REMP	\$1,000	\$0	\$1,000
Financial/Inst	\$2,100	\$0	\$2,100
Subtotal	\$13,800	\$0	\$13,800
Training	\$1,020	\$1,020	\$2,040
Project Ops/Mgmt	\$400	\$9,471	\$9,871
Evaluation/Audit	\$400	\$0	\$400
Contingency	\$371	\$0	\$371
<b>TOTAL</b>	<b>\$40,000</b>	<b>\$13,804</b>	<b>\$53,804</b>

**TABLE 3-3  
PROJECT REDESIGN EXPENDITURE SCHEDULE**

Category	9/30/91	12/91	92	93	94	95	TOTAL
<b>Commodities:</b>							
Compac 1,2a,3	\$9,397	\$2,134	\$0	\$0	\$0	\$0	\$11,531
Boom Trucks	\$1,378	\$0	\$0	\$0	\$0	\$0	\$1,378
Disaster Relief	\$582	\$0	\$0	\$0	\$0	\$0	\$582
Other Commodities	\$0	\$0	\$5,268	\$5,250	\$0	\$0	\$10,518
<b>Technical Assistance:</b>							
Long Term TA	\$2,414	\$300	\$1,893	\$1,893	\$0	\$0	\$6,500
Engineering	\$0	\$0	\$500	\$800	\$800	\$800	\$2,900
Training TA	\$0	\$0	\$325	\$325	\$325	\$325	\$1,300
REMP	\$0	\$0	\$300	\$200	\$250	\$250	\$1,000
Financial/Inst	\$0	\$0	\$0	\$300	\$1,200	\$600	\$2,100
Training	\$55	\$45	\$300	\$300	\$300	\$20	\$1,020
Project Ops/Mgmt	\$238	\$0	\$41	\$41	\$40	\$40	\$400
Evaluation/Audit	\$77	\$73	\$50	\$50	\$50	\$100	\$400
Contingency	\$0	\$0	\$0	\$0	\$0	\$371	\$371
<b>TOTAL</b>	\$14,141 36%	\$2,552 6%	\$8,677 22%	\$9,159 23%	\$2,965 7%	\$2,506 6%	\$40,000 100%
<b>CUM TOTAL</b>	\$14,141 36%	\$16,693 42%	\$25,370 64%	\$34,529 87%	\$37,494 94%	\$40,000 100%	\$40,000 100%

Figure 3-1. Updated Phase I & II Activity Chart

- Original Planned Activity Time Frame
- - - Redesign Phase II Activity Time Frame

ACTIVITY

Project Assistance Completion Date

Technical Assistance:

- NRECA Contract
- Financial/Institutional Master Planning
- Engineering
- Procurement
- Technical Loss Relations
- Institutional
- Other Commodities

Engineering Training

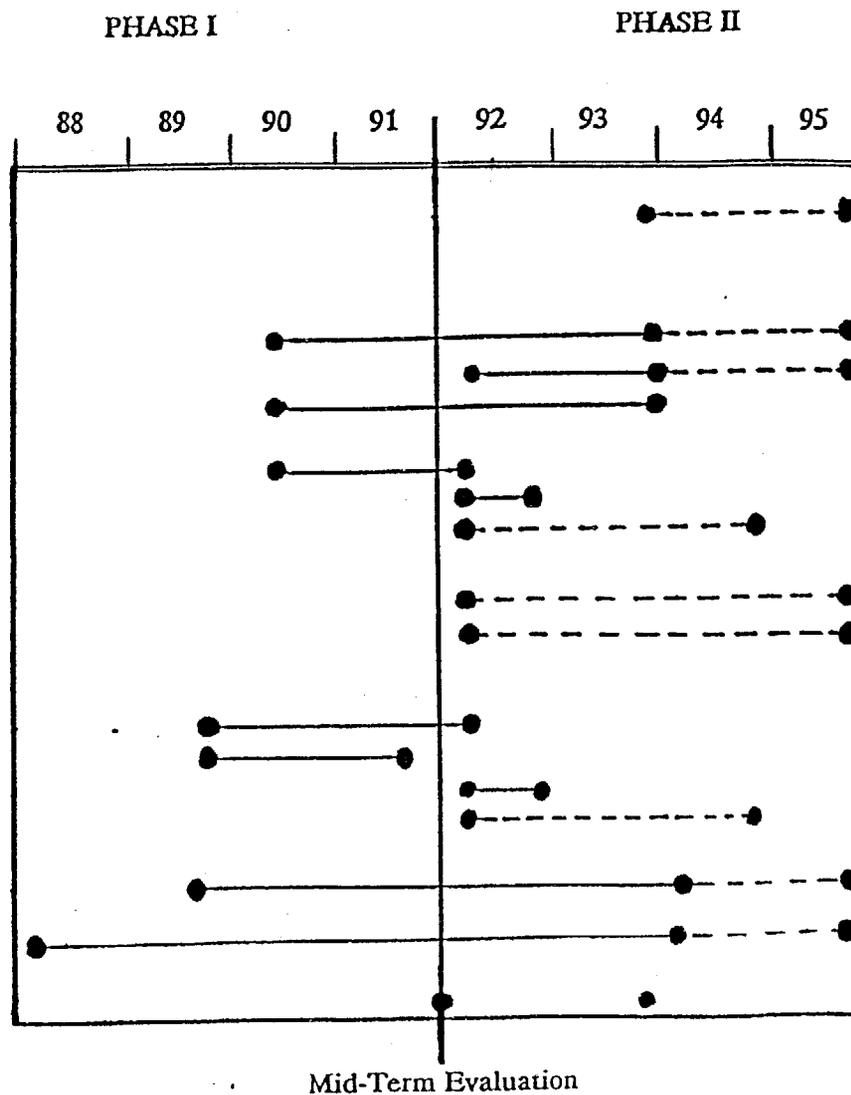
Commodities:

- COMPAC 1,2a,3 (Incl. Disaster Relief)
- Boom Trucks
- Institutional
- Other

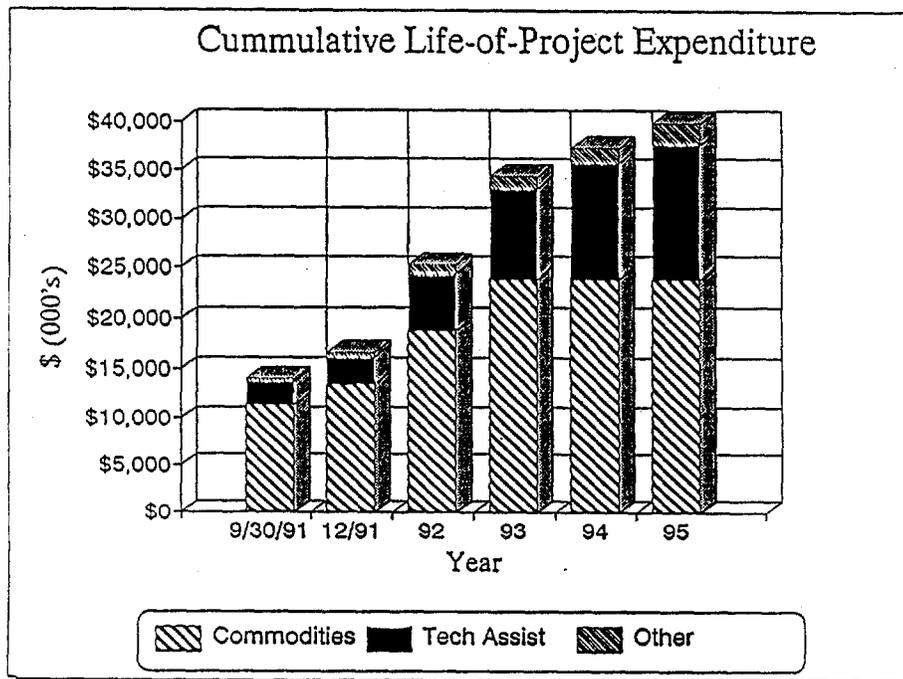
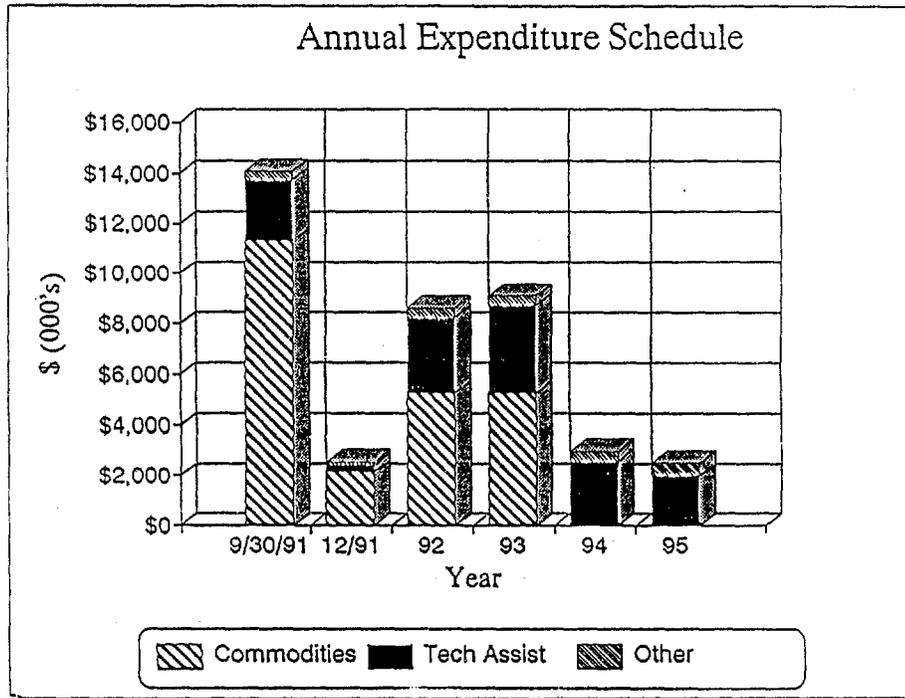
Training

Project Ops/Management

Evaluation



**FIGURE 3-2  
ANNUAL EXPENDITURE SCHEDULE  
CUMULATIVE LIFE-OF-PROJECT EXPENDITURE**



**VOLUME II  
APPENDICES**

**MID-TERM EVALUATION  
RURAL ELECTRIFICATION PROJECT (#492-0429)  
IQC Contract No. PDC-0249-I-00-0091-00**

October 22, 1991

**USAID/PHILIPPINES  
DEVELOPMENT INFORMATION CENTER**

Prepared for:

**United States Agency for International Development**

**Resource Management Associates of Madison, Inc.**

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ERRATA SHEET  
November 1, 1991

Volume II of the Mid-Term Evaluation Rural Electrification Project (#492-0429)

List of Appendices: Show Appendix O as deleted.  
Appendix D, page 16, line 13 should read: Ref: Appendix X  
Appendix D, page 16, line 20 should read: Ref: Section 3.0  
Appendix F, page 2, line 22 should read: Jamil Sopher  
Appendix X, page 1, line 19 should read: Section 3.0  
Appendix X, page 1, add one more line to read: extensions.  
Appendix X, page 5, line 1, delete the word: extensions.

**Appendices  
Volume II**

- Appendix A Summary of Actions Taken by GOP/NEA Prior to September 1988 to Revitalize the RE Sector
- Appendix B Project Design Summary Logical Framework
- Appendix C Summary of RECs Participating in the Various RE Financing Projects
- Appendix D Statement of Work for Mid-Term Project Evaluation and Summary of Findings of the RMA Evaluation Team
- Appendix E List of Documents Reviewed
- Appendix F Summary of Interviews
- Appendix G Report of Host Country Contribution
- Appendix H Industrial Customers Directly Connected to NPC Located Within REC Franchise Areas
- Appendix I Synopsis of Financial Manuals Developed as Part of the RE Project
- Appendix J Summary of RECs With Approved Debt Restructuring as of August 31, 1991
- Appendix K Summary of REC Rate Adjustments Between August 1990 and August 1991
- Appendix L Distribution of REC's Cost and Margins as a Percent of Total Revenue, December 1989 to June 1991
- Appendix M Number of Profitable/Unprofitable RECs, December 1989 to June 1991
- Appendix N Present, Proposed and Functional NEA Organizational Charts
- Appendix O Analysis of Contract Number 492-0429-C-00-0065-00, Task Status as of July 31, 1991, Additional Work Remaining Under Present Contract and RMA Recommendations
- Appendix P Commodity Documents
- Appendix Q Comparison of System Losses for COMPAC 1 and 2 RECs for 1987, 1990 and 1991 (To Date)

- Appendix R Comparison of Collection Efficiency for COMPAC 1 and 2 RECs for 1987, 1990 and 1991 (To Date)
- Appendix S Summary of Operating Revenue, Expenses, and Margins for COMPAC 1 and 2 RECs for 1989 and 1990
- Appendix T Ratio of Average Monthly Purchased Power Expense to NPC Accounts Payable for COMPAC 1 and 2 RECs, December 1989 to June 1991
- Appendix U Status of RECs Payments to NEA As of December 31, 1990 and June 30, 1991
- Appendix V Status of REC Compliance with Certain Tests in Section 4.6 of the Contract for Loans with NEA
- Appendix W NEA Comments on the Draft Report of the Mid-Term Evaluation
- Appendix X World Bank and Overseas Economic Cooperation Fund Rural Electrification Projects
- Appendix Y Scope of Work For the Rural Electrification Project

Rural Electrification Project  
RMA Evaluation Team  
**SUMMARY OF ACTIONS TAKEN BY GOP/NEA  
PRIOR TO SEPTEMBER 1988 TO REVITALIZE THE  
RE SECTOR**

Source: Project Paper Rural Electrification Project, Project No. 492-0429, dated September, 1988.

The following actions were taken by the GOP/NEA prior to September, 1988 to implement the recommendations of the 1987 Price Waterhouse study in order to revitalize the RE sector:

- Appointment of a new and more streamlined policy oriented Board of Administrators at NEA;
- Activation of an NEA Executive Committee, which meets weekly to provide policy recommendations to the Board;
- Agreement in January 1987 with the NPC, the agency responsible for the generation of electricity, to give a two-year moratorium to selected RECs on payment of arrearage to NPC;
- Provision, in September 1987, through the Department of Finance of an additional P500 million equity contribution to NEA to be relent to selected RECs for settlement of their unpaid NPC power bills;
- Agreement with NPC in May 1988 for NPC to take over the operation and maintenance of REC-owned 69 KV transmission lines, thus relieving the RECs of the operating and financial burden of such non-revenue producing facilities;
- Agreement with NPC in May 1988 to a scheduled NPC take-over of REC owned and operated self-generation facilities where the RECs are not connected to the NPC grid. Such take-overs will not only relieve the RECs of the financial burden of operating expensive generating facilities but will also directly result in lower power rates to REC members;

RMA Evaluation Team

**SUMMARY OF ACTIONS TAKEN BY GOP/NEA  
PRIOR TO SEPTEMBER 1988 TO REVITALIZE THE  
RE SECTOR  
(continued)**

- Agreement for NPC to provide P10 million (\$500,000) to NEA for bridge financing loans to selected RECs for commodities (capacitors, oil switches, reclosers) to improve power load factors which will contribute to savings in line losses;
- Agreement with the ADB to utilize up to \$5 million in available ADB funds for procurement of poles, meters, transformers and service drop wire for expansion of qualified RECs;
- Negotiations undertaken between NEA and NPC to agree upon a system for payment of royalties to the RECs for those industrial consumers located within REC service areas which are directly connected to and serviced by NPC.

The NEA itself has also developed and begun to implement a comprehensive reform and rehabilitation program for the NEA and the RECs including:

- Implementation of a reorganization plan for NEA, approved by the GOP Civil Service Commission, to streamline and improve overall operations;
- Initiation of a program to reconcile all NEA/REC loan accounts by the end of calendar year 1988;
- Development of a program, including technical and non-technical measures to minimize system losses, with an aim to bringing selected REC system losses to 15% or below;
- Development of a program to increase the power load factor to at least 95% on all REC systems;
- Identification and initiation of a targeted NEA relending program to 19 of the most needy RECs, located primarily in Central Luzon and Bicol regions. Ten of the nineteen selected RECs are in Region III of Central Luzon where fully half of the total value of all arrearage to NPC are found. Thirteen of the targeted RECs are in areas where the REC had taken over old, inefficient,

Rural Electrification Project  
RMA Evaluation Team

**SUMMARY OF ACTIONS TAKEN BY GOP/NEA  
PRIOR TO SEPTEMBER 1988 TO REVITALIZE THE  
RE SECTOR**  
(continued)

and undersized municipal or privately owned substations and distribution line which are in need of replacement. These nineteen RECs will be the prime beneficiaries of the P500 million relending fund to settle NPC arrearage;

- Contracting in July 1988 of additional external auditors by NEA to conduct immediate and comprehensive financial and management audits of 19 financially distressed RECs included in NEA's P500 million relending program. NEA's 20 auditors from its external audit office were already assigned to 10 electric RECs needing immediate attention;
- Temporary replacement by NEA staff of REC general managers in several of the most politicized and/or poorest performing RECs. In some instances the REC Board of Directors has also been disbanded pending management reform and improved performance levels by the REC. Nineteen RECs have thus been taken over by NEA;
- Concluded written agreements of commitment and support with several of the RECs in the NEA targeted relending program setting forth three-month, six-month, and one year targets for both improved performance in key result areas by the RECs and levels of financial, materials and institutional support to be provided by NEA; and
- Creation by NEA, under Office Order No. 236, series of 1988, of a Committee to undertake a three-year performance evaluation of RECs, excluding the beneficiaries (19) of the NEA Relending Program. The objective of the evaluation is to group the RECs according to their current level of performance and to recommend courses of action needed to improve overall REC operation. Desired levels of performance in key performance areas have been established in Table A-1:

Table A-1  
PERFORMANCE STANDARDS OF RELENDING PROGRAM

<u>KEY PERFORMANCE AREA</u>	<u>DESIRED LEVEL</u>
1. NEA Amortization Payment	- current
2. NPC Power Account	- current
3. System Loss	- 15% or below
4. Collection Efficiency	- 99%
5. Accounts Receivable	- less than two (2)months sales
6. Advances to Officers and Employees	-p50,000 and below
7. Distribution Expense-Operation Maintenance	-p100.0 per km
8. Consumer Account Expense	-p7.00 per consumer
9. Administrative and General Expense:	
2,000 MWH Sales and above/mo.	- p0.11 per kwh sold
1,000 to 1,999 MWH Sales/mo.	- p0.17 per kwh sold
Less than 1,000 MWH Sales/mo.	- p0.23 per kwh sold
10. Signed Up Membership	- 80%
11. Involvement in Annual Meeting	- 16%
12. Involvement in District Elections	- 80%

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## Appendix B. Project Design Summary Logical Framework

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																												
<p><i>Program Sector Goal: The broader objective to which this project contributes: (A-1)</i></p> <p>To increase the reliability of electric power service in the rural area of the Philippines.</p>	<p><i>Measures of Goal of Achievement: (A-2)</i></p> <p>Reliability of service increased; fewer service interruptions experienced.</p>	<p>(A-3)</p> <p>Impact studies; REC and NEA records; systems studies of RECs.</p>	<p>Assumptions for achieving goal targets (A-4)</p> <p>It is necessary to put RE sector on an overall sounder financial basis in order for power service to be more reliable.</p>																												
<p><i>Project Purpose: (B-1)</i></p> <p>To achieve commercial viability of selected Rural Electric Cooperatives (RECs) by addressing institutional, policy, and technical weaknesses of the REC system.</p>	<p><i>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</i></p> <p>A majority of the RECs participating in the project will be commercially viable distributors of electric power in their service areas; and all participating RECs will demonstrate:</p> <ul style="list-style-type: none"> <li>-increases collection efficiency.</li> <li>-decreased operating expense per KWH.</li> <li>-reduced power outages.</li> </ul>	<p>(B-3)</p> <ul style="list-style-type: none"> <li>-Baseline data and evaluation findings.</li> <li>-REC and NEA records</li> </ul>	<p>Assumptions for achieving purpose (B-4)</p> <p>Automation leads to greater efficiency.</p> <ul style="list-style-type: none"> <li>-Institution-building is necessary for RECs to achieve commercial and operational viability.</li> <li>-REA's reorganization and decentralization of functions leads to improved support of REC system.</li> <li>-Trained personnel remain with the RECs.</li> <li>-NEA and NPC agreement on sharing of revenues derived from electrical sales to industrial users is concluded.</li> </ul>																												
<p><i>Project Outputs: (C-1)</i></p> <ul style="list-style-type: none"> <li>-NEA functions more effectively;</li> <li>-Participating RECs demonstrate improved financial management and decreased system losses; and</li> <li>-feasibility of Regional Service Centers assessed.</li> </ul>	<p><i>Magnitude of outputs: (C-2)</i></p> <ul style="list-style-type: none"> <li>-NEA Inventory Control, Loan Administration, Accounting and Financial Management Information systems improved; overall number of REA functions reduced, to concentrate on more effectively serving RECs.</li> <li>-REC collection efficiency increased to an average of 95% of total accounts received; systems losses reduced to an average of 15%; and</li> <li>-one feasibility assessment conducted.</li> </ul>	<p>(C-3)</p> <ul style="list-style-type: none"> <li>-A.I.D. and GOP monitoring and evaluations.</li> <li>-Impact studies.</li> <li>-Quarterly progress reports.</li> </ul>	<p>Assumptions for achieving outputs: (C-4)</p> <ul style="list-style-type: none"> <li>-RECs and REA participate as planned.</li> <li>-Qualified staff can be identified to participate in training.</li> <li>-Improved financial management capability leads to increased collection efficiency.</li> <li>-Acquisition of commodities enables RECs to reduce system losses.</li> <li>-Working relationship between REA and RECs exists.</li> <li>-REC's current technical capability is sufficient for them to absorb proposed Institutional Development assistance.</li> </ul>																												
<p><i>Project Inputs: (D-1)</i></p> <p>Institutional Development Assistance</p> <ul style="list-style-type: none"> <li>-technical assistance</li> <li>-training</li> <li>-MIS improvements</li> <li>-study on maintenance and repair options</li> </ul> <p>System Loss Reduction Program</p>	<p><i>Implementation Target (Type and Quantity) (D-2)</i></p> <p>Life-of-Project Budget (\$000)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">TA</td> <td style="width: 10%; text-align: right;">\$4,968</td> <td style="width: 10%; text-align: right;">\$0</td> <td style="width: 10%; text-align: right;">\$4,968</td> </tr> <tr> <td>Training</td> <td style="text-align: right;">320</td> <td style="text-align: right;">304</td> <td style="text-align: right;">624</td> </tr> <tr> <td>Commodities</td> <td style="text-align: right;">31,800</td> <td style="text-align: right;">6,910</td> <td style="text-align: right;">38,710</td> </tr> <tr> <td>Evaluation/Audit</td> <td style="text-align: right;">150</td> <td style="text-align: right;">0</td> <td style="text-align: right;">150</td> </tr> <tr> <td>Project Op, Mgmt</td> <td style="text-align: right;">900</td> <td style="text-align: right;">6,314</td> <td style="text-align: right;">7,214</td> </tr> <tr> <td>Contingency/Inflation</td> <td style="text-align: right;">1,867</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1,862</td> </tr> <tr> <td><b>TOTAL</b></td> <td style="text-align: right;"><b>\$40,000</b></td> <td style="text-align: right;"><b>\$13,528</b></td> <td style="text-align: right;"><b>\$53,528</b></td> </tr> </table>	TA	\$4,968	\$0	\$4,968	Training	320	304	624	Commodities	31,800	6,910	38,710	Evaluation/Audit	150	0	150	Project Op, Mgmt	900	6,314	7,214	Contingency/Inflation	1,867	0	1,862	<b>TOTAL</b>	<b>\$40,000</b>	<b>\$13,528</b>	<b>\$53,528</b>	<p>(D-3)</p> <ul style="list-style-type: none"> <li>-Quarterly progress reports.</li> <li>-Financial reports.</li> <li>-A.I.D. and GOP monitoring.</li> </ul>	<p>Assumptions for providing inputs: (D-4)</p> <ul style="list-style-type: none"> <li>-Availability of incremental funding (AID).</li> <li>-Timely availability of required GOP counterpart.</li> <li>-Proposed loans to RECs are financially viable.</li> <li>-RECs willing to accept loans at proposed interest rate.</li> <li>-REA/GOP continued commitment to reform.</li> <li>-REC's membership supports participation in project.</li> </ul>
TA	\$4,968	\$0	\$4,968																												
Training	320	304	624																												
Commodities	31,800	6,910	38,710																												
Evaluation/Audit	150	0	150																												
Project Op, Mgmt	900	6,314	7,214																												
Contingency/Inflation	1,867	0	1,862																												
<b>TOTAL</b>	<b>\$40,000</b>	<b>\$13,528</b>	<b>\$53,528</b>																												

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SUMMARY OF RECS  
PARTICIPATING IN THE VARIOUS RE  
FINANCING PROJECTS

A. USAID COMPAC 1

<u>Region</u>	<u>Rec Name</u>	<u>Acronym</u>	<u>World Bank<sup>1</sup></u>	<u>OECF<sup>2</sup></u>
1 IX	Zamboanga City Electric Cooperative	ZAMCELCO	x	
2 X	Agusan del Norte Electric Coop	ANECO	x	
3 I	Ilocos Norte Electric Cooperative	INEC	x	
4 IV	Quezon I Electric Coop	QUEZELCO	x	
5 VI	Capiz Electric Coop	CAPELCO	x	
6 VI	Iloilo I Electric Coop	ILECO		
7 VI	Negros Occidental Electric Coop	NOCECO	x	
8 VI	Central Negros Electric Coop	CENECO	x	
9 VII	Cebu II Electric Coop	CEBECO II		
10 VII	Bohol I Electric Coop	BOHECO		
11 VII	Cebu III Electric Coop	CEBECO III	x	
12 VII	Cebu I Electric Coop	CEBECO I	x	
13 IX	Zamboanga del Norte Electric Coop	ZANECO	x	
14 IX	Zamboanga del Sur I Electric Coop	ZAMSURECO I	x	
15 IX	Zamboanga del Sur II Electric Coop	ZAMSURECO II	x	
16 X	Agusan del Sur Electric Coop	ASELCO	x	
17 X	Misamis Oriental II Electric Coop	MORESCO II	x	
18 XI	Davao del Sur Electric Coop	DASURECO	x	
19 XI	South Cotabato I Electric Coop	SOCOTECO I	x	
20 XI	South Cotabato II Electric Coop	SOCOTECO II	x	
21 XI	Davao del Norte Electric Coop	DANECO	x	
22 XII	Maguindanao Electric Coop	MAGELCO	x	
23 XII	North Cotabato Electric Coop	COTELCO	x	

<sup>1</sup> Source: World Bank's staff Appraisal Report Philippine Rural Electrification Revitalization Project (Yellow Paper), dated July 26, 1991.

<sup>2</sup> Source: OECF's Final Report for the Republic of the Philippines' Special Assistance for Project Formation NEA Rural Electrification Project, dated February, 1991.

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SUMMARY OF RECS  
PARTICIPATION IN THE VARIOUS RE  
FINANCING PROJECTS  
(continued)

B. USAID COMPAC 2

<u>Region</u>	<u>REC Name</u>	<u>Acronym</u>	<u>World Bank</u>	<u>OEFC</u>
24 I	Ilocos Sur Electric Coop	ISECO	x	
25 III	Tarlac I Electric Coop	TARLECO I	x	
26 III	Tarlac II Electric Coop	TARLECO II	x	
27 III	Pampanga III Electric Coop	PELCO I	x	
28 IV	Batangas I Electric Coop	BATELEC I	x	
29 V	Camarines Sur II Electric	CASURECO II	x	
30 V	Camarines Sur III Electric	CASURECO III	x	
31 V	Albay III Electric Coop	ALECO III	x	
32 XI	Davao Oriental Electric Coop	DORECO	x	
33 I	La Union Electric Coop	LUELCO	x	
34 I	Pangasinan III Electric Coop	PANELCO III	x	
35 V	Camarines Sur IV Electric Pilot Project	CASURECO IV	x	
36 III	Peninsula Electric Coop	PENELCO	x	

C. USAID PRESENT PHASE II (Next 34)

37 I	Central Pangasinan Electric Coop	CENPELCO	x	
38 III	Nueva Ecija I Electric Coop	NEECO I	x	
39 III	Nueva Ecija II Electric Coop	NEECO II	x	
40 III	Nueva Ecija III Electric Coop	NEECO III	x	
41 IV	Quezon II Electric Coop	QUEZELCO II	x	
42 IV	First Laguna Electric Coop	FLECO	x	
43 V	Albay I Electric Coop	ALECO I	x	
44 V	Camarines Sur I Electric	CASURECO I	x	
45 V	Albay II Electric Coop	ALECO II	x	
46 V	Camarines Norte Electric Coop	CANORECO	x	
47 VI	VMC Rural Electric Coop	VRESKO	x	
48 VI	Antique Electric Coop	ANTECO	x	
49 VI	Iloilo III Electric Coop	ILECO III	x	
50 VIII	Samar I Electric Coop	SAMELCO I	x	

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SUMMARY OF RECS  
PARTICIPATION IN THE VARIOUS RE  
FINANCING PROJECTS  
(continued)

<u>Region</u>	<u>REC Name</u>	<u>Acronym</u>	<u>World Bank</u>	<u>OECF</u>
51 VIII	Leyte III Electric Coop	LEYECO III	x	
52 VIII	Leyte II Electric Coop	LEYECO II	x	
53 X	Bukidnon II Electric Coop	BUSECO	x	
54 X	First Bukidnon Electric Coop	FIBECO	x	
55 I	Pangasinan I Electric Coop	PANELCO	x	
56 III	Zambales I Electric Coop	ZAMECO I	x	
57 III	Pampanga I Electric Coop	PELCO I	x	
58 III	Zambales II Electric Coop	ZAMECO II	x	
59 III	Pampanga II Electric Coop	PELCO II	x	
60 III	Pampanga Rural Electric	PRESCO		x
61 V	Sorsogon II Electric Coop	SORECO II	x	
62 V	Sorsogon I Electric Coop	SORECO I	x	
63 VI	Iloilo II Electric Coop	ILECO II	x	
64 VI	Aklan Electric Coop	AKELCO	x	
65 VII	Negros Oriental II Electric Coop	NORECO II	x	
66 VII	Bohol II Electric Coop	BOHECO II		
67 VII	Negros Oriental I Electric	NORECO I	x	
68 VIII	Samar II Electric Coop	SAMELCO II	x	
69 X	Misamis Oriental I Electric Coop	MORESCO I	x	
70 XII	Sultan Kudarat Electric Coop	SUKELCO	x	

D. Other World Bank and/or OECF Projects

71 IV	Aurora Electric Coop	AURELCO	x	
72 X	Misamis Occidental I Coop	MOELCI	x	
73 I	Abra Electric Coop	ABRECO		x
74 I	Benguet Electric Coop	BENECO		x
75 I	Mountain Province Electric Cooperative	MOPRECO		x
76 II	Cagayan I Electric Coop	CAGELCO I		x

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SUMMARY OF RECS  
PARTICIPATION IN THE VARIOUS RE  
FINANCING PROJECTS  
(continued)

<u>Region</u>	<u>REC Name</u>	<u>Acronym</u>	<u>World Bank</u>	<u>OECF</u>
77 II	Cagayan II Electric Coop	CAGELCO II		x
78 II	Ifugao Electric Coop	IFELCO		x
79 II	Isabela I Electric Coop	ISELCO I		x
80 II	Isabela II Electric Coop	ISELCO II		x
81 II	Kalinga Apayao Electric Coop	KAELCO		x
82 II	Viscaya Electric Coop	NUVELCOx		
83 II	Quirino Electric Coop	QUIRELCOx		
84 IV	Batangas II Electric Coop	BATELEC IIx		
85 IV	Lubang Island Electric Coop	LUBELCO		x
86 IV	Oriental Mindoro Elec. Coop	ORMECO		x
87 IV	Occidental Mindoro Elec. Coop	OMEKO		x
88 IV	Busuanga Electric Coop	BISELCO		x
89 IV	Tablas Island Electric Coop	TIELCO		x
90 IV	Marinduque Electric Coop	MARELCO		x
91 V	First Catanduanes Elec. Coop	FICELCO		x
92 V	Masbate Electric Coop	MASELCO		x
93 VIII	Leyte I Electric Coop	LEYECO I		x
94 VIII	Leyte IV Electric Coop	LEYECO IV		x
95 VIII	Leyte V Electric Coop	LEYECO V		x
96 VIII	Eastern Samar Electric Coop	ESAMELCO		x
97 VIII	Northern Samar Electric Coop	NORSAMELCO		x
98 VIII	Southern Leyte Electric Coop	SOLECO		x
99 IX	Basilan Electric Coop	BASELCO		x
100 IX	Tawi-Tawi Electric Coop	TWELCO		x
101 X	Misamis Occidental Electric Coop	MOELCI II		x
102 X	Surigao del Norte Elec. Coop	SURNECO		x
103 XI	Surigao del Sur I Electric Cooperative	SURSECO I		x
104 XI	Surigao del Sur II Elec. Coop	SURSECO II		x
105 XII	Lanao del Norte Elec. Coop	LANECO		x
106 XII	Lanao del Sur Electric Coop	LASURECO		x

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STATEMENT OF WORK  
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A. Review and Assessment of Project Progress

The Contractor shall review the status and implementation of the project towards meeting objectives. The Contractor will particularly address the following:

1. Assess GOP/NEA continued commitment to achieving the commercial viability of the Philippine REC system. Review and assess policies and actions taken by the GOP/NEA in support of the independent commercial liability of RECs, including:
  - a. Actions undertaken regarding the turn-over of all National Power Corporation direct connected non-utility customers to the distribution utilities holding the area coverage franchises.

RMA FINDINGS

Ref: Section 2.1.2

Minimal progress has been made to date toward achieving this goal. In early 1990, a OEA-chaired inter agency committee submitted to the ECC a set of technical indicators which would be used to determine an REC's technical and financial capability to serve an industrial customer. The ECC subsequently approved the indicators and directed the NEA and ERB to implement the change of the program. However, the ERB deferred implementation until such time as NPC's rates would be restructured to widen the differential between NPC's wholesale rates (sales to direct connect customers) thereby alleviating some of the pressure from industry to remain on the NPC system.

To date, no industrial customers directly served by NPC have been transferred to a REC. However, seven direct connect customers have agreed to pay a royalty to the local REC. Appendix G provides a summary of the status of direct connect customers as of May 1991.

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- b. Actions undertaken by NEA and the RECs to cease all activities which are unrelated to rural electrification, such as the BLISS program, TANGLAW, LIVELIHOOD projects, etc.

RMA FINDINGS:

Ref: Section 2.1.4

NEA and the RECs have ceased all activities which are unrelated to rural electrification such as the BLISS program, TANGLAW, LIVELIHOOD, etc. Proposed legislation has been drafted which provides for the condonation of loans previously made to the RECs for these programs.

- c. Actions undertaken regarding discontinuation of all generation and transmission activities by the RECs, i.e. dendro thermal and mini-hydro power plants.

RMA FINDINGS

Ref: Section 2.1.4

In general, the RECs are in the process of phasing out of all generation and transmission activities. The Bail Out Plan calls for the RECs to turn over all operable generating plants to NPC while the GOP will assume responsibility for non-operable units. However, to date, NPC and NEA have not agreed on the valuation of some of the assets, particularly the transmission lines and the dendro thermal units. Thus, the process of the RECs terminating all generation and transmission activities is not yet complete. Proposed legislation provides for the condonation of loans to the RECs for alternative generating units.

- d. Review and assess progress on development and implementation of GOP/NEA guidelines/rules which would require RECs to be more financially responsible. Assess adequacy and significance for REC

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commercial viability, and identify other possible needed actions.

RMA FINDINGS:

Ref: Section 2.1.3

The GOP/NEA have made substantial progress in developing policies, guidelines and rules which will require greater fiscal responsibility on the part of the RECs. These policies/ guidelines/rules address important issues related to accounting, rate making, budgetary, planning, etc. They also provide a framework for evaluating and responding to REC requests for loan funds which will minimize the risk associated with repayment. However, most of these policies/guidelines/rules are still in the draft stage or are only recently adopted by NEA. The ultimate success of this effort will therefore be determined by NEA's dedication and effectiveness in communicating, training, and enforcing new policies.

2. Assess status and effectiveness of all activities, contracts and staffing for meeting project objectives. This includes technical assistance, USAID and counterpart staff, training, policy agenda/plans, commodity procurement, delivery and installation, and NEA and REC financial, accounting and engineering operations.

a. Status:

- 1) Technical Assistance:

Ref: Section 2.2

Given the delay in the start of the project, the TA appears to be on track. NRECA has been active in the development of the various policy and guidelines manuals which require both NEA and the RECs to operate in a more fiscally responsible

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manner. The O&M surveys have been largely completed. One 5 year/10 year engineering study (CASURECO IV) is nearing completion; and it is the intention of NEA/NRECA/AWIA to use this study as a pattern for the studies for the other RECs. At the present time AWIA estimates that the remaining budget will permit the completion of planning studies for approximately 60RECs. See Appendix O and NRECA's Progress Report for August, 1991 for greater detail on various components of the TA being provided.

2) Commodities:

The institutional commodity procurement (computers and software) is lagging behind the project schedule. However, the reasons cited by NRECA are valid, and the Evaluation Team believes that the current plan will ultimately benefit NEA and RECs with a well conceived computer network. The NRECA consultant is on site and making good progress on their current tasks. NRECA had sufficient capacity to complete this task by the scheduled completion date of June 30, 1992.

The technical loss reduction commodity procurement for Compacts 1 and 2a is essentially complete. All equipment has been procured and has either been delivered or is in transit. NRECA has sufficient capacity to monitor the remaining tasks. The Evaluation Team credits NRECA for expediting the procurement in light of the project's late start. The only problem which was noted was the somewhat poor level of communication between NRECA and NEA. The staff at NEA are not as well informed on NRECA's activities as they should be, and NRECA is somewhat restrictive with sharing information. The material tracking system used by

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NRECA is also somewhat limited in usefulness and not well understood by NEA.

- b. Has NEA established a sufficient capacity to implement the project, specifically technical staff, management direction, administrative support and facilities?

1) Technical Assistance:

Ref: Sections 2.2 and 2.4

In general, the Evaluation Team believes that NEA has established sufficient capacity to implement the project. The one area where the Team has some concern is in communication and training relative to the implementation of the new rules/guidelines. While it is still too early to make a definitive assessment of the implementation process, the apparent unfamiliarity of the RECs with the changes being made and the budget constraints on NEA's budget give rise to some concerns. Without adequate communication and training, the development of the new rules/guidelines will go for naught. Consequently, training must be given high priority in the Phase II redesign.

2) Commodities:

Ref: Sections 2.3 and 2.4

NEA has had only limited involvement in the Compact 1,2a and 3 commodity procurement activities. The evaluation team findings covered the following areas:

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- Engineering - Sufficient capacity exists to review specification, supplier technical proposals, and technical contract conditions.
  - Commercial - Sufficient capacity also exists to evaluate commercial proposals and conditions of procurement.
  - Expediting - NEA is severely lacking in expediting capacity, primarily due to lack of automation (computer capability). The bulk of NEA's time is spent performing manual expediting tasks. NEA is well aware of these limitations and are anxious to work with NRECA on the Materials Management Study.
- c. Assess responsiveness of technical assistance to the needs of the project. Is the technical assistance properly staffed?

**RMA FINDINGS**

Ref: Section 2.2

The TA portion of the project appears to be on target to the needs of the project and properly staffed.

- d. Is the technical assistance sufficient to support the need for project success?

**RMA FINDINGS:**

Ref: Section 2.2

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In general, the Evaluation Team has found the TA sufficient to support project success. However, the Team has some concern in the area of engineering support being provided by NRECA/AWIA including:

- Lack of involvement of the RECs in the development of the 5 year/10 year plans for their distribution system;
- Lack of economic evaluation of alternative plans (least cost planning) as required by NEA's Investment Guidelines;
- Lack of analysis and consideration of system losses in the planning process; and
- Failure to utilize comprehensive distribution circuit analysis software to calculate voltage drops, line loadings, fault currents, losses, etc.

There is also concern that the task of developing a Rural Electric Master Plan (REMP) has been defined and/or interpreted in such a way that it consists solely of various policy/guideline manuals. Consequently, it does not truly represent a long range strategic plan for NEA and the RECs as apparently contemplated in the Project Paper.

Finally, the Team is concerned that the amount allocated in the project budget for training is inadequate compared to the needs of NEA and the RECs. It is apparent that the lack of managerial and job skills at both the NEA and REC levels had been a leading cause of the problems plaguing the RE sector. In light of the attitude of the GOP relative to the use of loan funds for training purposes as well as the budget constraints on NEA and the RECs, it is important that USAID expand the scope of the training component of the project to ensure project success.

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- e. Do project plans/actions require modification in view of current economic conditions or project experience in order to meet project objectives?

**RMA FINDINGS**

Project plans/actions do require modification to the program to meet project objectives. Some of the modifications are due to weaknesses or deficiencies noted by the Team as discussed above. Other modifications are required to accommodate the parallel financing scheme with the World Bank and OECF projects.

Additional technical assistance should have been provided for commodity equipment and material tracking and expediting. The project has furnished only the minimum technical assistance in the commodity procurement support tasks. While the project will successfully procure the required commodities, there will be little enhancement of NEA's commodity procurement capability. This deficiency will be addressed in the World Bank Energy Sector Loan consultancy for materials management.

3. Identify and assess activities which contribute to progress at the REC level towards solving managerial, operational and technical deficiencies, specifically the following:
  - a. Plans and activities for zonal repair facilities for RECs.

**RMA FINDINGS:**

Ref: Section 2.6

Under the USAID contract, NRECA has completed a feasibility study of zonal repair facilities. The study concluded that zonal repair

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facilities are needed and are feasible on a general basis. An implementation study is now required to address the location, organizational structure, long term sustainability on a zone basis etc.

- b. Plans and activities related to the system and O&M studies to determine REC system operation requirements, system improvements and rehabilitation plans.

**RMA FINDINGS:**

Ref: Section 2.2.4

- 1) The O&M studies for COMPACT 1 and 2 RECs are essentially complete.
  - 2) The LRPs for COMPACT 1 and 2 RECs are proceeding with Rural Electrification Project approximately 25 percent of the voltage drop maps required. The first LRP (CASURECO IV) is undergoing final review and will serve as model for future studies.
- c. Plans and activities for the design and implementation of a microcomputer-based billing and customer accounting system.

**RMA FINDINGS:**

Ref: Section 2.2.5

- 1) A survey of the existing computer capabilities has been completed with a response rate of approximately 33 percent.
- 2) NRECA is currently reviewing the results of the survey to determine the needs of the RECs.

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- d. Assess measures implemented by NEA to improve its managerial and administrative effectiveness, specifically the following.

**RMA FINDINGS:**

Ref: Sections 2.2, 4, 2.6 and 2.7

- 1) The RECs are making a concerted effort to reduce non-technical bias through replacement of defective meters, customer education, the BAPA program, promotion of anti-pilferage legislation and enforcement of existing laws against pilferage.
- 2) The commodities being purchased under the USAID program will assist the participating RECs in reducing technical losses.
- 3) It is too early for the result of these efforts to be clearly seen in the financial statements of the RECs.

4. Assess measures implemented by NEA to improve its managerial and administrative effectiveness, specifically the following:

- a. Reorganization plans and activities for NEA to streamline and improve overall operations.

**RMA FINDINGS:**

Ref: Section 2.1.3

NEA has made impressive progress in streamlining its organizational structure to improve its operations. A proposed revision to NEA's organizational structure is currently under review by GOP authorities.

- b. Implementation of measures to improve and strengthen NEA's support of the RECs.

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**RMA FINDINGS:**

Ref: Sections 2.1.3 and 2.4

Significant progress has been made in developing policy/guideline manuals which will help the RECs improve operational efficiency and responsibility. Implementation of these policies/guidelines through communication, training and enforcement is the next step. NEA is providing additional support to the RECs through training programs (albeit constrained by budget considerations) and engineering assistance.

- c. NEA and REC staff training program development and implementation.

**RMA Findings:**

Ref: Section 2.2.6

The NEA and REC staff training program continues to be a weak area of the RE program. While the NEA and RECs appear to recognize the importance of training, budget constraints severely limit the opportunities and quality of the training program.

- 5. Assess the status and effectiveness of the commodity procurement activities of the project, specifically the following:
  - a. Was Phase I commodity procurement timely and were types and quantities of commodities adequate to meet objectives.

**RMA Findings:**

Ref: Section 2.3

Given the delayed start of the project distribution system, commodity procurement has proceeded on track within the project implementation

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time frame. Procurement of computer equipment had lagged behind the original project schedule due to the need to access requirements and coordinate with existing facilities. The types and quantities of commodities are generally adequate to meet the project objectives although it is possible that some RECs will need additional commodities to reach the targeted loss level of a maximum of 15 percent.

- b. Identify problems with procurement, delivery and use of commodities, including monitoring systems.

**RMA Findings:**

Ref: Section 2.3

No major problems with the procurement, delivery, and use of commodities was identified. The few minor problems noted are not uncommon with a project of this size.

- c. Assess adequacy of operational systems and accountability for delivery and use of commodities.

**RMA Findings:**

Ref: Section 2.3

While the materials management system appears to be adequate for Phase I and the team is recommending modifications to Phase II which will minimize procurement of additional commodities, future changes in the system are warranted including:

- 1) Computerization of records
- 2) Reduced paper work
- 3) Better communications between NRECA and NEA
- 4) Improvement in the domestic transportation system.

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NRECA is planning to conduct a study of materials handling financed by the World Bank which will lead to the development of a more efficient system to handle the much greater quantities of materials procured under the World Bank/OECF loans.

- d. Vehicles were added to the project through a Project Agreement Amendment. Asses the usefulness, results and need for such support.

**RMA Findings:**

Ref: Section 2.3.3

Lack of adequate transportation and construction vehicles is a major problem for the RECs. Unless this problem is solved, the RECs will find it difficult to absorb and/or make effective use of the materials purchased under the World Bank/OECF loans. The 35 boom trucks purchased under the USAID project represents an important contribution toward addressing this need although it appears that they are somewhat undersized for the RECs' needs.

6. Assess progress and potential of participating RECs to meet agreed-upon performance targets, specifically the following:
  - a. Reduce REC system losses to 15%.

**RMA Findings:**

Ref: Section 2.7

It is too early to assess the impact of the RE project on reducing system losses. The Team believes that the program currently underway to reduce non-technical and technical losses is on target and should result in the achievement of Project Performance Targets for the participating RECs.

- b. Improve REC power load factors to 95%.

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**RMA Findings:**

Ref: Section 2.7

The capacitors purchased under COMPACT 1 and 2 are not yet installed. Consequently, it is too early to assess the impact of the RE project on improving REC power factors to 95% or above. The Team believes that the quantity purchased should, in general, permit achievement of the project objectives.

- c. Improve REC collection efficiency.

**RMA Findings:**

Ref: Section 2.7

It is too early to assess the impact of the RE project on improving collection efficiency since many of the new and/or revised approaches to collections have only been in place a short time. Current efforts toward improving collection have the potential of achieving project goals.

- d. Improve REC financial operations and reduce operating expenses per kilowatt hour.

**RMA Findings:**

Ref: Section 2.7

It is too early to assess the impact of the project on reducing O&M expenses per kWh.

- e. Reduce REC power outages.

**RMA Findings:**

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Ref: Section 2.7

It is too early to measure the impact of the commodity procurement on reducing outages since much of the equipment is not yet installed. The type of equipment purchased, however, should help to improve system reliability and reduce outages. A better and more consistent accounting system needs to be developed and installed to record outages by source in order to track progress.

- f. Are RECs keeping current with NEA and NPC payments?

**RMA Findings:**

Ref: Section 2.7

The participating RECs appear to be maintaining currency with respect to NPC payments. However, a number of participating RECs are again falling behind in their payments to NEA.

- g. Improve financial ratios as provided for in the loan contracts between NEA and the RECs.

**RMA Findings:**

Ref: Section 2.7

It is too early to assess the impact of the project on improving financial ratios as provided for in the loan contracts between NEA and the RECs.

7. Assess status of host country contributions toward project objectives.

**RMA Findings:**

Ref: Section 2.8

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Currently understudy by USAID consultant. If results are available they will be included in final report.

8. Assess donor coordination and progress to attracting additional donor financing for the program. This would include an assessment of on-going and planned donor projects in the sector.

**RMA Findings:**

Ref: Section 3.0

World Bank funding (approximately \$80M) and OECF funding (approximately \$80M) appears to be on track.

9. Review and assess plans for Phase 2 of the USAID Project and World Bank parallel financing arrangement along the lines of Option #4 as contained in the ERI report-Project Status & Future Options.

**RMA Findings:**

Ref: Section 4.0

The Evaluation Team recommends Phase II be redesigned to accommodate a parallel financing arrangement with the World Bank/OECF. Major changes in the Phase II design are as follows:

- 1) Extension of PACD to December, 1995;
- 2) Additional technical assistance including:
  - a. Engineering services extended to the 106 RECs covered under the USAID/World Bank/OECF programs
  - b. Additional training assistance
  - c. Development of a Rural Electric Master Plan
  - d. Computer aided drafting (CAD) for some RECs.

Rural Electrification Project  
RMA Evaluation Team

STATEMENT OF WORK  
FOR MID-TERM PROJECT EVALUATION AND  
SUMMARY OF FINDINGS OF THE RMA EVALUATION TEAM  
(continued)

- 3) Commodities which were to be purchased under COMPACTS 2b and 4 are eliminated;
- 4) Additional commodity procurement as follows:
  - a. Additional vehicles (boom trucks and bucket trucks)
  - b. Additional computers
  - c. Pole treatment chemicals.

Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED

Note: The following is a list of the major documents reviewed by the RMA Evaluation Team as part of its investigation.

A. General Background

1. National Electrification Administration and Rural Electric Cooperatives Financial, Organizational and Technical Assessment, prepared by Price Waterhouse, dated March 13, 1987.
2. The USAID/Philippine Rural Electrification Project: Its Status and Options, prepared by Energy Resources International, Inc., dated May 24, 1991.
3. World Bank, Staff Appraisal Report Philippines Rural Electrification Project (Yellow Paper), dated July 26, 1991.
4. Final Report for the Republic of the Philippines Special Assistance for Project Formation on NEA Rural Electrification Project, prepared by SAPROF Team for the Overseas Economic Cooperative Fund Japan, dated February, 1991.
5. The Rural Electrification Act of 1991 (Draft), dated August 12, 1991.
6. Vital Documents on the Philippine Rural Electrification Program including Presidential Decrees Nos. 40, 263, 501, 1370 and 1645, Letter of implementation No. 80, Letter of Instruction No. 38, and Memorandum Order No. 395.
7. House Bill -- Providing for the Condonation of all Outstanding Loan Obligations of Electric Cooperatives Involving Alternative Generation Projects Pursuant to Section 2 of Presidential Decree No. 1645. Including other loans on Social Projects of NEA (Draft).
8. House Bill No. 28877 and Senate Bill No. 1646 -- An Act Increasing the Authorized Capital Stock of the National Electrification Administration. Amending for the Purpose Presidential Decree Numbered Two Hundred and Sixty Nine, as Amended. Otherwise known as the "National Electrification Administration Decree."

Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED  
(continued)

9. House Bill No. 19008 -- An Act Penalizing the Unauthorized Installation of Electrical Connection, the Use of Tampered Meters, and For Other Purposes (Pending). (Senate Bill No. 425 is similar).
  10. World Bank Aide Memoirs dated July 20 and November 23, 1990 and March 22 and August 27, 1991.
  11. Why Direct Power Connections are Economically Unjustifiable, by Ramon C. Abaya.
  12. Letter to Hon. Fulgencio Factoran (Chairman of NEA) from the Government Corporate Monitoring and Coordinating Committee, dated January 14, 1991. This is the "Bail Out" plan for NEA.
- B. Project Documents
1. USAID Project Paper, Rural Electrification Project, Project No. 492-0429, dated September, 1988.
  2. Project Grant Agreement Between the Republic of the Philippines and the United States of America for the Rural Electrification Project, dated September 28, 1988.
  3. USAID Action Memorandum for the Director, dated June 19, 1991.
  4. Contract No. 492-0429-C-00-0065-00 between USAID and NRECA, dated May 21, 1990.
  5. Subcontract Between NRECA International, Ltd. and Price Waterhouse Philippines, dated May 21, 1990.
  6. Subcontract Between NRECA International, Ltd. and Adrian Wilson International, Inc., dated June 1, 1990.
  7. Rural Electrification Project, Project No. 492-04-29 Work Program For the Year July 1, 1991-June 30, 1992, prepared by NRECA, dated June 14, 1991.

Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED  
(continued)

8. Rural Electric Project, Project No. 492-0429, Progress Reports, for the month July, 1991, prepared by NRECA.
9. Subcontract Between NRECA International, Ltd. and de Lucia and Associates, Inc., dated July 1, 1990.
10. Draft report on GOP contributions to the USAID RE Project prepared by Urban Integrated Consolidated, Inc., submitted to USAID in early October, 1991.

C. Financial

1. National Electrification Administration, Financing Strategy, (Draft) prepared by NRECA International, dated July, 1991.
2. Rural Electric Cooperatives, Budget Manual, prepared by NRECA International, Ltd., dated August, 1991.
3. Rural Electric Cooperatives, Accounting Manual, prepared by NRECA International, Ltd., dated August, 1991.
4. Investment Guidelines, prepared by NEA's CORPLAN with advise and supervision of the World Bank, dated July 19, 1991.
5. National Electrification Administration, Loan Operation Manual (Draft), prepared by NRECA International dated February, 1991.
6. NEA Financing Projection Model Users/Reference Manual (Draft), prepared by NRECA, dated August 8, 1991.
7. Preliminary Report on Tariffs, prepared by NRECA, dated October 17, 1990.
8. National Electrification Administration, Rate Manual (2nd Draft), prepared by NRECA, dated August 12, 1991.

Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED  
(continued)

9. **Rural Electrification Cooperative Financial Performance Analysis: Guidelines to Use of a Model** (Draft), prepared by de Lucia and Associates, Inc., dated May 1991.
10. **Rural Electrification Investment Planning Part I: Manual For Computer Model Part II: Methodology** (Draft), prepared by de Lucia and Associates, Inc., dated May 1991.
11. **Rural Electrification Chronicle 1987-1989**, prepared by the National Electrification Administration.
12. National Electrification Administration, **Borrower's Manual A Guide for the Preparation of Loan Applications** (Draft), prepared by NRECA, dated February 1991.
13. National Electrification Administration, **Loan Policy Manual**, prepared by NRECA, dated July 24, 1991.
14. **Request for Technical Proposals Banking Consultancy**, prepared by NEA, dated March 26, 1991.
15. **1990 Financial and Statistical Data of Rural Electric Cooperatives**, completed by NEA.
16. **Contract of Loan between National Electrification Administration and Zamboanga Del Sur I Electric Cooperative, Inc.**, dated March 6, 1990. (Typical for COMPACT 1 RECs).
17. **Contract of Loan between National Electrification Administration and Davao Oriental Electric Cooperative, Inc.**, dated November 24, 1989. (Typical for COMPACT 2 RECs).
18. **Monthly Financial and Statistical Reports** from January to June 1991 for all RECs.
19. RECs **Financial Profile** as of December 31, 1989, December 1990, and June 30, 1991.

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Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED  
(continued)

20. NEA's Annual Audit Reports for 1989 and 1990.

D. Engineering

1. Invitation for Bidding - Volumes 1 & 2.
2. Long Range Plan, Volume I & II for CASURECO IV (Draft), prepared by AWIA, undated.
3. Zonal Repair/Service Center Feasibility Study, prepared by NRECA, undated.
4. Report on Engineering Methodology Utilized in Preparation - REC Medium Term Investment Plans, prepared for the World Bank by NRECA, dated November 1990.

E. Commodities

1. A Report on the Present Practices in the Costing and Transfer of Materials and Equipment by NEA to the RECs, prepared by RECs, dated March, 1991.
2. Commodity Flow Chart and Paper Trail, NEA Materials Management Department.

F. Human Resources Development

1. NEA Training Evaluation Mechanism, prepared by the Human Resources Department of NEA, undated.
2. Plan for Human Resources Development for National Electrification Administration, (Draft) prepared by NRECA, dated January 18, 1991.
3. Systematic Training Effectiveness Program, prepared by the Training Services Division of NEA, dated July 19, 1991.
4. A Four Year Training Plan (1990-1993) (Draft), prepared by NEA, undated.

Rural Electrification Project  
RMA Evaluation Team

LIST OF DOCUMENTS REVIEWED  
(continued)

5. The 1991 Training Program, prepared by NEA, undated.
  6. A Five Year Training Plan for NEA Personnel (1991-1995), prepared by NEA, undated.
  7. 1991 Plans and Programs of Cooperatives Services Department, prepared by NEA, dated January 14, 1991.
- G. Miscellaneous
1. Newsletters for several RECs.
  2. Memorandum of Cooperation between NEA and PHILRECA, dated August 7, 1990.

Rural Electrification Project  
RMA Evaluation Team

SUMMARY OF INTERVIEWS

A. NEA

<u>TITLE</u>	<u>NAME</u>
Dep. Admin., Tech. Serv.	Edgar Agliam
CORPLAN Manager	Grace Santibanez
AID Project Manager	Thelma Aguila
Public Relations Manger	Ces Cabrera
Materials Management	Eduardo Lacson
Foreign Loans Manager	Victoria Lopez
Coop. Audit Manager	Benita Monticca
In-House Training Manager	Dianna San Luis
Rates and Large Loads Division Manager	Yolanda Manundo
Board Secretary	Sylvia Mesina
Manager Coop Services Dept.	Edith Bueno
Manager Human Resources Dept.	Alice Mercado
Director Accounts Management Group	Eduardo Bangit
Director of Engineering	Nestor Manuel

B. Regional Electric Managers (REM)<sup>1</sup>

<u>REGION</u>	<u>NAME</u>
III	Marcelo Tigleo
VI	Dante Blanco
VII	Francisco Silva
IX	Gene Cada
XI	Reynaldo Sevilla

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<sup>1</sup> Some meetings involved additional staff members from the office of REM. However, in the interest of brevity, only REM is listed.

Rural Electrification Project  
RMA Evaluation Team

SUMMARY OF INTERVIEWS  
(continued)

C. USAID

<u>TITLE</u>	<u>NAME</u>
Project Officer	Alex Sundermann
Project Manager	Conchita Silva

D. NRECA

<u>TITLE</u>	<u>NAME</u>
Field Team Coordinator/ Institutional Advisor	Bill Lawrence
Engineering Advisor	Glen Benjamin
Computer Specialist	Jack Hicks

E. AIWA

<u>TITLE</u>	<u>NAME</u>
President/General Manager	Joven Joaquin
Vice President/Business Dev't.	Alexander Ablanza
Project Officer	Rustico Manipol

F. WORLD BANK

<u>TITLE</u>	<u>NAME</u>
World Bank Representative	Jamil Sopen

Rural Electrification Project  
RMA Evaluation Team

SUMMARY OF INTERVIEWS  
(continued)

G. REC<sup>2</sup>

<u>REGION</u>	<u>REC</u>	<u>TITLE</u>	<u>NAME</u>
III	TARELCO I	General Manager	Jose Sequban
III	TARELCO II	System Engineer	Romy Macalino
VI	CENECO	General Manager	Christopher Rios
VI	ILECO	General Manager	
VI	NOCECO	General Manager	Lamberto Canlas
VI	RESCO	General Manager	
VII	CEBECO I,II,III	General Manager	Francisco Silva
IX	DASURECO <sup>3</sup>	General Manager	Jesus dela Victoria
XI	DANECO	General Manager	Jose Amacio

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<sup>2</sup> The meetings with the RECs generally involved a number of staff members in addition to the General Managers. However, in the interest of brevity, only the General Manager is listed.

<sup>3</sup> Due to flight delay, the team member assigned to DASURECO was unable to meet with the REC. However, Alex Sunderman of USAID met with representatives of the REC.

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**REVIEW OF HOST COUNTRY CONTRIBUTION**

PROJECT NAME : RURAL ELECTRIFICATION  
 PROJECT NUMBER : 492-0429  
 IMPLEMENTING AGENCY : NATIONAL ELECTRIFICATION ADMINISTRATION (NEA)  
 AGREEMENT DATE : September 20, 1988  
 P A C D : September 1993  
 REVIEW PERIOD : August 1991  
 Based on IA's Report as of : June 30, 1991

**I. AMOUNT PER GRANT AGREEMENT:**

A. Grant	US\$ 40,000,000	75%
B. GOP Counterpart Contribution (GOPCC)	13,528,000	25%
C. Total Project Cost/GA	US\$ 53,528,000	100%

**II. GOP COUNTERPART CONTRIBUTION**

	REFORMED GOP COUNTERPART CONTRIBUTION (RGOPCC)		
	In Pesos	Exchange Rate	In US Dollars
A. From Phase I Review ending May 31, 1991			
A.1 Cash (From Project Appropriation)	2,351,934	21.325	110,290
A.2 Type "C" Sub-total	80,989 <u>2,432,923</u>		<u>3,798</u> <u>114,088</u>
B. From Phase II Review as of August 31, 1991			
A.1 Cash (From Project Appropriation)	124,540,421		5,844,803
Sub-total	<u>124,540,421</u>		<u>5,844,803</u>
TOTAL (A & B)	<u>127,073,344</u>		<u>5,958,891</u>

III. PERCENTAGES

A. % of RGOPCC/GOPCC	or	US\$ 5,958,091	=	44%
		US\$ 13,528,000		
B. Time Elapse as of June 30, 1991		33 months	=	55%

IV. FINDINGS AND OBSERVATIONS

During the Phase I review ending May 31, 1991 a total of US\$114,088 was reported by GOP (NEA) as the counterpart contribution consisting of the following:

1. Personnel services of detailed staff	US\$	5,670
2. Renovation of Project Office		4,950
3. Training/seminar		5,728
4. Utilities		2,870
5. Gasoline expenses		242
6. Purchase of Furniture and Fixture and office supplies		3,148
7. Office rental		4,165
8. Frieght		83,517
9. Type "C" (Foreign Travel)		3,798
TOTAL	US\$	<u>114,088</u>

NEA reported an amount of counterpart contribution of US\$4,568,832 using the December 31, 1990 and June 30, 1991 exchange rate of ₱28.00/\$1.00 and ₱27.75/\$1.00, respectively.

As agreed, the standard exchange rate to be applied shall be the rate prevailing at agreement date. The Project which was signed last September 20, 1988 has an exchange rate of ₱21.325 to US\$1.00. Following the exchange rate of ₱21.325 the GOP Counterpart Contribution should have been computed as follows:

The amount consist of the following:

1. Commodities			
Equipment/Materials	₱ 124,201,087	or	US\$ 5,824,201
2. Salaries & Wages	248,968		11,675
3. Utilities	89,597		4,202
4. Office rental	100,769		4,725
	<u>₱ 124,640,421</u>		<u>US\$ 5,844,803</u>

V. STATUS OF THE REVIEW

1. In-kind contribution has not been reported yet since identification and valuation still on-going.

REA DISBURSEMENTS  
Local Counterpart - USAID

1990  
AMOUNT

Jan. 1 to June 30, 1991  
AMOUNT

COMMODITIES

Compac I

Equipment/Materials Releases P22,515,673.28  
Inland Freight 945,000.00

P 61,663,456.19

Sub-total P23,460,673.28

\$ 837,881.19

P 61,663,456.19

\$ 2,222,106.51

Compac IIA

Equipment/Materials Releases P16,335,972.49  
Inland Freight 836,000.00

P 23,685,985.20

Sub-total P17,171,972.49

\$ 615,284.73

P 23,685,985.20

\$ 853,549.02

LONG TERM CONTRACTOR

Salaries & Wages P 183,155.00  
Renovation of USAID Office 105,547.00  
Light 52,500.00  
Water 26,700.00  
Gasoline 5,168.55  
Furniture & Fixture 67,127.00  
Office Rental 195,387.50  
P 637,585.05

P 186,726.00  
-  
45,000.00  
24,600.00  
-  
-  
191,835.00  
P 448,161.00

\$ 22,770.89

\$ 16,149.95

TRAINING

Travelling Expenses P 86,507.27

\$ 3,089.55

GRAND TOTAL

P41,356,738.09

\$1,477,026.36

P 85,797,602.39

\$ 3,091,805.50

Conversion Rates Used:  
Dec. 31, 1990 P28.00/\$1.00

Prepared by: CONSOLACION F. RAIBERAC

STATUS OF \$40M USAID GRANT  
 AID/ Local Counterpart  
 Actual Disbursements

	1990		Jan. 1 to June 30, 1991		As of June 30, 1991	
	AID	GOP	AID	GOP	AID	GOP
<b>COMMODITIES</b>						
Compac I	\$ 926,814.34	\$ 837,891.19	\$1,597,299.90	\$2,222,106.53	\$2,524,114.24	\$3,059,987.72
Compac IIA	-	613,284.73	-	553,549.02	-	1,466,833.75
Compac IIB	-	-	-	-	-	-
Compac IV	-	-	-	-	-	-
NEA Safety (Compac 3)	-	-	-	-	-	-
NEA MIS ;	-	-	-	-	-	-
REC: MIS	-	-	-	-	-	-
<b>Sub-Total</b>	<b>\$ 926,814.34</b>	<b>\$1,451,165.92</b>	<b>\$1,597,299.90</b>	<b>\$3,075,655.55</b>	<b>\$2,524,114.24</b>	<b>\$4,526,821.47</b>
<b>TECHNICAL ASSISTANCE</b>						
Long Term Contractor (NEECA)	\$ 428,778.08	\$ 22,770.89	\$ 824,857.59	\$ 16,149.95	\$1,303,615.67	\$ 38,920.84
Local Accountant	124,423.01	-	-	-	124,421.05	-
Local Engineer	-	-	-	-	-	-
Short Term Contractor	-	-	-	-	-	-
Procurement Specialist	-	-	-	-	-	-
<b>Sub-Total</b>	<b>\$ 603,201.13</b>	<b>\$ 22,770.89</b>	<b>\$ 824,857.59</b>	<b>\$ 16,149.95</b>	<b>\$1,428,058.72</b>	<b>\$ 38,920.84</b>
<b>TRAINING</b>	<b>\$ 84,948.24</b>	<b>\$ 3,089.55</b>	<b>-</b>	<b>-</b>	<b>\$ 84,948.24</b>	<b>\$ 3,089.55</b>
<b>PROJECT OPERATION MANAGEMENT MONITORING</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>EVALUATION</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>CONTINGENCY/INFLATION</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>GRAND TOTAL</b>	<b>\$1,614,963.71<sup>L1</sup></b>	<b>\$1,477,026.36</b>	<b>\$2,422,157.49<sup>L1</sup></b>	<b>\$3,091,805.50</b>	<b>\$4,037,121.20<sup>L1</sup></b>	<b>\$4,568,831.86</b>

L1 = based on USAID Public Vouchers received by NEA.

Prepared by: CONSOLACION E. BALDERAS

Rural Electrification Project  
RMA Evaluation Team

INDUSTRIAL CUSTOMERS DIRECTLY CONNECTED TO NPC LOCATED  
WITHIN REC FRANCHISE AREAS  
(As of May, 1991)

LUZON

	<u>Industries</u>	<u>REC</u>
1.	Northern Cement Corp.	LUELCO
2.	Bacnotan Consolidated Ind.	LUELCO
3.	Benguet Corp - Tuding Project	BENECO
4.	Benguet Mines	BENECO
5.	Itogon - Suyoc	BENECO
6.	Lepanto Mines	BENECO
7.	Philex Mines	BENECO
8.	Baguio Export Processing Zone Authority	BENECO
9.	Bataan Pulp & Paper Millas	PENELCO
10.	Bataan Refining Corp.	PENELCO
11.	Capitol Heavy Ind. Corp.	PENELCO
12.	Columbian Carbon Phils.	PENELCO
* 13.	Exempler Enterprises	PENELCO
14.	Paragon-Johannesburg	PENELCO
15.	Planters Products, Inc.	PENELCO
16.	Bagac Nuclear	PENELCO
17.	Mond-Arsenal	PENELCO
18.	Phil. Explosives Corp.	PENELCO
19.	Bataan Export Processing Zone Authority	PENELCO
* 20.	Elegant Chemical Alloy Corp.	PELCO I
21.	Trust Ind'l. Pulp & Paper Co.	PELCO II
* 22.	Industrial Cas Co., Inc.	PELCO III
23.	Milwaukee	PELCO III
24.	SKK Steel	PELCO III
25.	Paniqui Sugar Corp.	TERELCO I
26.	Benguet Corp. Masinloc-Chromite Operation	ZAMECO I
27.	Benguet Corp. Dizon Copper Gold Operation	ZAMECO II
28.	Phil. Shipyard & Eng'r. Corp.	ZAMECO II
29.	Fortune Cement Corp.	BATELEC II
30.	Lipa Ice Plant	BATELEC II
31.	Isarog Pulp & Paper	ALECO II

\* Not on NPC list as of January 1989.

Rural Electrification Project  
RMA Evaluation Team

INDUSTRIAL CONSUMERS DIRECTLY CONNECTED TO NPC LOCATED  
WITHIN REC FRANCHISE AREAS  
(As of May, 1991)

VISAYAS

<u>Industries</u>	<u>REC</u>
1. Nobel Phils, Inc.	NORECO II
2. Phil. Starch & Ind'l. Corp.	BOHOL I
3. Phil. Sinter Corp.	BOHOL II
4. Prime White Cement Corp.	CEBU III
5. Atlas Consolidated Mining & Dev. Corp.	CEBU III
6. Phil. Asso. Smelting & Refining Corp.	LEYTE V
7. Phil. Phosphate Fertilizer Inc.	LEYTE V
* 8. San Miguel Corp. - Bacolod	CENECO

MINDANAO

<u>Industries</u>	<u>REC</u>
1. Southern Island Flour Mills	ZANECO
2. PNOC-Malangas Coal Corp.	ZAMSURECO II
3. Nasapit Lumber Co., Inc.	ANECO
4. Menzi Development Corp.	MORESCO
5. Floro Cement Corp.	MORESCO
* 6. Pacific Cement Co.	SURNECO
7. Dole Philippines	SOCOTECO II
8. Apex Mining Co., Inc.	DANECO
9. North Davao Mining Corp.	DANECO
10. PNOC - BCC	SURSECO
11. Paper Industries Corp. of the Phils. Bislig	SURSECO
12. Paper Industries Corp. of the Phils. Iligan	LANECO

\* Not on NPC list as of January 1989.

Rural Electrification Project  
RMA Evaluation Team

INDUSTRIAL CUSTOMERS  
PRESENTLY SERVED BY RECS  
(As of May, 1991)

LUZON

<u>Industries</u>	<u>REC</u>
1. Acoje Mines	ZAMECO I
2. US Naval Com. Sta Phils.	ZAMECO II
3. Phil. Flour Mills	QUEZON I
4. Central Azucarera	BATELEC I
5. Benguet Corp., Inc.	CANORECO
6. Abcar Paragon	CANORECO

VISAYAS

1. BISCO	NOCECO
2. CAC	NOCECO
3. Central Azucarera	NORECO I
4. United Robina Sugar Milling Corp.	NORECO I

MINDANAO

1. Zambowood	ZAMCELCO
2. Marfishing	ZAMCELCO
3. INTERCO	ZAMCELCO
4. PHIDCO	ZAMCELCO
5. Dacon	ZAMCELCO
6. Agwood & Stanply	ANECO
7. Ferro Chem & Electro	MORESCO I
8. Integrated Chrome Corp.	MORESCO I
9. Indophil & Minply Co.	MORESCO II
10. Pacific Cement Co.	SURNECO
11. Suricon	SURNECO
12. Mla. Mining Corp.	SURNECO
13. South Seas Natural Resources	SURNECO
14. INTERCO	DORECO
15. Dole Phils.	SOCOTECO I
16. Eversun	MAGELCO

Rural Electrification Project  
RMA Evaluation Team

LARGE INDUSTRIAL CUSTOMERS  
DIRECTLY SERVED BY NPC  
WHO OPTED FOR A ROYALTY  
PAYMENT TO THE REC

Industries

1. INGASCO
2. Malayan Steel
3. SKK Steel Corp.
4. Milwaukee
5. Asia Pacific
6. CIGI
7. SMC

REC

PELCO III  
PELCO III  
PELCO III  
PELCO III  
PELCO III  
CENECO  
CENECO

**RURAL ELECTRIFICATION PROJECT  
RMA EVALUATION TEAM**

**SYNOPSIS OF FINANCIAL MANUALS  
DEVELOPED AS PART OF THE RE PROJECT**

The following provides a brief synopsis of the various financial manuals which have been developed as part of the RE Project.

1. Accounting Manual -- The Accounting Manual provides a framework for the development of a uniform accounting system for the RECs. The manual provides guidelines and instructions for the REC accounting staff to fulfill this requirement. The manual has been field test in eight geographically diverse areas.
2. Borrowers Manual -- The Borrowers Manual provides a guide for the RECs to follow in developing a loan application to NEA. The manual discusses NEA's responsibilities as a lender, the loan application process, and the loan releasing process. The manual also provides sample documents which an REA may use as a guideline in drafting its loan application.
3. Budget Manual -- The Budget Manual establishes a process wherein each REC is expected to develop an annual budget and work plan to be submitted to NEA for review and approval. The manual also sets forth the procedures which will be utilized to compare actual operating expenses and performance with budgeted expenses and performance as a control measure.
4. Financing Strategy -- This manual establishes the financing strategy for NEA. Topics covered include 1) the Bail-Out plan, 2) REC loan restructuring proposal, 3) loans policies/investment guidelines, 4) proposed reorganizations, 5) investment plans, 6) project financing requirements, 7) loans pricing strategy and foreign exchange trust fund.
5. Financing Projection Model Users/Reference Manual -- This manual provides a users guide for the computerized Financing Projections Model for NEA.
6. Financial Performance Analysis Guidelines to Use of a Model -- This manual provides instructions relative to the use of a computer model which is used to project and analyze the financial performance of an REC over a future 10 year period.

RURAL ELECTRIFICATION PROJECT  
RMA EVALUATION TEAM

SYNOPSIS OF FINANCIAL MANUALS  
DEVELOPED AS PART OF THE RE PROJECT  
(Continued)

7. Investment Guidelines -- The Investment Guidelines sets forth policies, guidelines, and procedures to be followed in evaluating requests for loans from the RECs. The guidelines require a five year planning process updated on an annual basis. The planning process establishes financial and economic performance standards to be used to evaluate proposed investment programs.
8. Investment Planning Manual -- The Investment Planning Manual provides instructions for the use of a computer model which is used to evaluate the economic and financial performance of various investment proposals. The manual describes the model, provides information to facilitate the use of the model, and discusses the general methodology and assumptions used in developing the model.
9. Loan Operations Manual -- The Loan Operations Manual establishes guidelines and procedures to implement a loan evaluation and operations process. The manual defines the process of loan evaluation, prescribes the procedures for releasing the proceeds of the loan, and describes the collection process.
10. Loan Policy Manual -- The Loan Policy Manual establishes the policies and guidelines to be followed by NEA in authorizing loans to the RECs. The manual includes 31 different policies covering all aspects of the lending process including such issues as lending objectives, foreign exchange risks, provision for doubtful accounts, loan security, debt restructuring, lending between the RECs, auditing, documentation requirements, etc.
11. Rate Manual -- The Rate Manual provides a framework for the RECs to develop their individual retail rate structures. The manual includes policies related to the establishment of revenue requirements and the development of rate structures and tariffs.

Rural Electrification Project  
RMA Evaluation Team

SUMMARY OF RECS WITH  
APPROVED DEBT RESTRUCTURING  
AS OF AUGUST 31, 1991  
(In Million Pesos)

RECS	Effective Date	Amount of Arrears	Terms		Interest Rate
			Repayment Period	First Due Date	
<u>REGION I</u>					
1 ISECO	March 16, 1990	21585	6 years	June 30, 1990	7%
2 LUELCO	December 31, 1990	9264	5 years	March 31, 1992	7%
3 PANELCO III	March 16, 1990	11147	2 years	June 30, 1990	7%
<u>REGION II</u>					
4 ISELCO I	December 31, 1990	16996	5 years	March 31, 1991	7%
5 QUIRINO	October 31, 1990	3645	5 years	December 31, 1991	7%
6 NUEVA VISCAYA	March 16, 1990	11996	8 years	March 31, 1991	7%
			ing one (1) year grace period.		
			ing one (1) year grace period.		
<u>REGION III</u>					
7 TARLAC I	May 31, 1991	11638	5 years	September 30, 1991	7%
8 PELCO III	December 31, 1990	9685	5 years	March 31, 1992	7%
9 TARELCO II	October 31, 1990	4882	5 years	March 31, 1991	7%
10 ZAMBALES I	December 31, 1990	6091	5 years	September 30, 1991	7%
<u>REGION IV</u>					
11 BATELEC I	March 16, 1990	3056	1 year	June 30, 1990	7%
12 BATELEC II	October 31, 1990	14611	5 years	June 30, 1991	7%
13 QUEZON I	March 31, 1990	9995	3 years	June 30, 1990	7%
14 PALAWAN	December 31, 1990	1926	5 years	March 31, 1991	7%
<u>REGION V</u>					
15 ALBAY III	December 31, 1990	10001	5 years	September 30, 1991	7%
16 CANORECO	December 31, 1990	5179	5 years	March 31, 1991	7%
17 CASURECO II	March 31, 1991	11826	5 years	June 30, 1991	7%
18 CASURECO III	June 30, 1991	16967	5 years	September 30, 1991	7%

Rural Electrification Project  
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SUMMARY OF RECS WITH  
APPROVED DEBT RESTRUCTURING  
AS OF AUGUST 31, 1991  
(In Million Pesos)

RECS	Effective Date	Amount of Arrears	Terms		Interest Rate
			Repayment Period	First Due Date	
<u>REGION VI</u>					
19 CENEKO	March 31, 1991	4287	3 years	June 30, 1991	7%
20 GUIMARAS	December 31, 1990	1259	5 years	June 30, 1991	7%
21 ILECO II	March 16, 1990	7646	6 years	June 30, 1990	7%
22 ILECO III	March 16, 1990	3604	3 years	June 30, 1990	7%
<u>REGION VII</u>					
23 BOHECO II	September 30, 1990	5289	5 years	March 31, 1991	7%
24 MORECO I	October 31, 1991	5305	5 years	March 31, 1991	7%
25 SIQUIJOR	December 31, 1991	516	5 years	March 31, 1991	7%
<u>REGION VIII</u>					
26 SAMAR 1	March 16, 1990	7984	9 years including two (2) years grace period.	June 30, 1992	7%
<u>REGION IX</u>					
27 ZAMCELCO	March 16, 1990	5855	3 years	June 30, 1990	7%
28 ZAMSURECO I	September 30, 1990	3425	3 years	March 31, 1991	7%
<u>REGION X</u>					
29 FIBECO	November 31, 1990	7712	5 years including one (1) year grace period.	March 31, 1992	7%
30 BUSECO	March 16, 1990	8100	5 years	June 30, 1990	7%
31 SURNECO	October 31, 1990	12645	5 years	March 31, 1991	7%
32 ANECO	March 16, 1990	5875	5 years including two (2) years grace period.	March 31, 1992	7%

Rural Electrification Project  
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SUMMARY OF RECS WITH  
APPROVED DEBT RESTRUCTURING  
AS OF AUGUST 31, 1991  
(In Million Pesos)

RECS REGION XI	<u>Effective Date</u>	<u>Amount of Arrears</u>	<u>Terms</u>		<u>Interest Rate</u>
			<u>Repayment Period</u>	<u>First Due Date</u>	
33 DANECO	March 16, 1990	3273	3 years including one (1) year grace period.	June 30, 1991	7%
34 DORECO	August 31, 1990	1626	5 years including one (1) year grace period.	June 30, 1991	7%
35 SURSECO	March 16, 1990	4282	5 years including two (2) year grace period	December 31, 1991	7%
REGION XII					
36 SUKELCO	March 16, 1990	3377	3 years	June 30, 1990	7%
37 MARINDUQUE		11611	13 years	December 31, 1991	7%
38 SORSOGON		19389	12 years	March 31, 1991	7%
GRAND TOTAL - Restructuring		<u>303550</u>			

Rural Electrification Project  
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SUMMARY OF REC RATE ADJUSTMENTS  
BETWEEN AUGUST 1990 AND AUGUST 1991

Date Approved	R E C	Average System Rate		Increase	
		Before (P/kWh)	After (P/kWh)	Amount (P/kWh)	Percent (%)
August 13, 1990	DASURECO	1.327	1.353	0.026	2.0
	ANECO	1.307	1.485	0.178	13.6
	SUKELCO	1.582	1.667	0.085	5.4
	ZASURECO I	1.556	1.827	0.271	17.4
	NEECO III	2.240	2.420	0.180	8.0
	SURSECO II	1.749	2.134	0.385	22.0
	October 12, 1990	MORESCO I	1.363	1.568	0.205
	CASURECO II	2.017	2.451	0.434	21.5
	BUSECO	1.481	1.655	0.174	11.7
December 14, 1990	BATELEC II	2.547	2.695	0.148	5.8
	CASURECO I	2.648	2.878	0.230	8.7
	CASURECO III	2.670	3.339	0.669	25.1
	GUIMELCO	3.257	3.863	0.606	18.6
	ZANECO	1.777	1.923	0.146	8.2
	FIBECO	1.688	1.899	0.211	12.5
	SURNECO	1.519	1.844	0.325	21.4
	COTELCO	1.794	1.941	0.147	8.2
	LANECO	1.606	1.752	0.146	9.1
January 14, 1991	ISECO	2.570	2.990	0.420	16.3
	QUIRELCO	2.945	3.650	0.705	23.9
	LUELCO	2.575	3.051	0.476	18.5
	PELCO I	2.646	3.128	0.482	18.2
	PELCO II	2.355	2.678	0.323	13.7
	PELCO III	2.417	2.725	0.308	12.7
	PENELCO	2.470	2.852	0.382	15.5
	AURELCO	3.144	3.573	0.429	13.6
	QUEZELCO I	2.597	2.806	0.209	8.0
	ILECO I	2.672	3.094	0.422	15.8
	LEYECO V	2.551	2.782	0.231	9.1
February 1, 1991	PANELCO III	2.621	3.035	0.414	15.8
	KAELCO	3.181	3.968	0.787	24.7
	NUVELCO	3.024	3.217	0.193	6.4
	ISELCO I	2.809	2.978	0.169	6.0
	NEECO II	2.788	3.375	0.587	21.1
	TARELCO II	2.711	3.078	0.367	13.5
	SORECO I	2.861	3.527	0.666	23.3
	SORECO II	2.844	3.389	0.545	19.2
	CASURECO IV	2.889	3.579	0.690	23.9

Rural Electrification Project  
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SUMMARY OF REC RATE ADJUSTMENTS  
BETWEEN AUGUST 1990 AND AUGUST 1991

Date Approved	R E C	Average System Rate		Increase	
		Before (P/kW)	After (P/kWh)	Amount (P/kWh)	Percent (%)
February 15, 1991	TARELCO I	2.691	3.085	0.394	14.6
	CAPECLO	2.946	3.123	0.177	6.0
	ZAMCELCO	1.441	1.490	0.049	3.4
	ZAMSURECO II	1.849	1.943	0.094	5.1
February 28, 1991	ASELCO	1.838	2.061	0.223	12.1
	ESAMELCO	3.380	3.956	0.576	17.0
	PROSIELCO	2.933	3.515	0.582	19.3
	BATELEC I	2.443	2.689	0.246	10.1
	CANORECO	2.552	2.826	0.274	10.7
March 6, 1991	CENPELCO	2.554	3.178	0.624	24.4
March 7, 1991	INEC	2.673	2.946	0.273	10.2
	OMEKO	2.997	3.808	0.811	27.1
	ALECO III	2.883	3.307	0.424	14.7
March 15, 1991	BENECO	2.429	2.752	0.323	13.3
March 18, 1991	ISELCO II	2.693	3.275	0.582	21.6
	NEECO III	2.910	3.121	0.211	7.3
March 22, 1991	FICELCO	3.046	4.820	1.774	58.2
March 27, 1991	PANELCO I	2.956	3.551	0.595	20.1
	MOPRECO	3.097	3.941	0.844	27.3
	ALECO II	2.636	3.080	0.444	16.3
	MASELCO	2.935	3.386	0.451	15.4
	ILECO II	3.202	3.486	0.284	8.9
	NORECO I	2.817	3.074	0.257	9.1
April 3, 1991	MARELCO	3.032	3.961	0.929	30.6
April 12, 1991	CAGELCO II	2.877	3.606	0.729	25.3
	BOHECO II	2.930	3.313	0.383	13.1
	LEYECO III	3.361	3.938	0.577	17.2
	SIARELCO	3.138	5.323	2.185	69.6
	TAWELCO	3.025	4.025	1.000	33.1

Rural Electrification Project  
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SUMMARY OF REC RATE ADJUSTMENTS

Date Approved	R E C	Average System Rate		Increase	
		Before (P/kWh)	After (P/kWh)	Amount (P/kWh)	Percent (%)
May 9, 1991	ZAMECO II	2.822	2.917	0.095	3.4
	LUBELCO	3.160	5.280	2.120	67.1
May 15, 1991	SAMELCO II	3.258	3.968	0.710	21.8
May 16, 1991	QUEZELCO II	2.739	3.229	0.490	17.9
May 17, 1991	TIELCO	3.004	3.646	0.642	21.4
May 21, 1991	LASURECO	1.665	1.935	0.270	16.2
May 23, 1991	CELCO	3.006	4.000	0.994	33.1
May 27, 1991	PRESCO	2.791	3.087	0.296	10.6
	BISELCO	2.938	4.800	1.862	63.4
June 13, 1991	BOHECO I	2.924	3.213	0.289	9.9
June 28, 1991	SAMELCO I	3.057	3.968	0.911	29.8
	ILECO III	3.106	3.847	0.741	23.9
July 5, 1991	BILIRAN	3.357	4.262	0.905	27.0
	NEECO I	2.652	3.317	0.665	25.1
August 6, 1991	NORECO II	2.692	2.934	0.242	9.0
	SURSECO 1	1.356	1.879	0.523	38.6
	MOELCI II	1.561	1.658	0.097	6.2
	MAGELCO	1.924	2.398	0.474	24.6
Average rate increase				0.494	19.4

Rural Electrification Project  
RMA Evaluation Team

DISTRIBUTION OF RECS COST AND MARGINS  
AS A PERCENT OF TOTAL REVENUE  
DECEMBER 1989 TO JUNE 1991

	Power Cost			Non-Power Cost			Operating Margin			Depreciation		
	December 31		June 30	December 31		June 30	December 31		June 30	December 31		June 30
	1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991
Compac 1 & 2	86.64	66.25	67.17	26.08	25.46	22.36	7.28	8.29	10.47	4.76	4.85	3.85
Phase II RECs	71.31	72.33	69.28	23.98	24.01	21.09	4.71	3.67	9.63	3.47	3.36	2.51
Others	66.26	66.23	64.13	29.64	28.16	24.25	4.09	5.60	11.62	5.68	4.42	3.79
Total	67.89	68.08	67.06	26.30	25.68	22.44	5.71	6.25	10.50	4.58	4.29	3.44

	Interest Expense			Other Income			Net Margin		
	December 31		June 30	December 31		June 30	December 31		June 30
	1989	1990	1991	1989	1990	1991	1989	1990	1991
Compac 1 & 2	3.13	2.47	2.00	1.65	1.12	1.31	1.04	2.09	5.92
Phase II RECs	3.11	2.79	2.51	1.28	1.02	0.73	-0.59	-1.46	5.34
Others	5.00	4.47	3.50	2.04	2.27	2.16	-4.54	-1.01	6.50
Total	3.58	3.05	2.51	2.51	1.37	1.34	-0.82	0.27	5.89

Rural Electrification Project  
RMA Evaluation Team

NUMBER OF PROFITABLE/UNPROFITABLE REC's  
DECEMBER 1989 TO JUNE 1991

	<u>Profitable</u> <sup>1</sup>			<u>Unprofitable</u> <sup>2</sup>		
	<u>12/31/89</u>	<u>12/31/90</u>	<u>6/30/91</u>	<u>12/31/89</u>	<u>12/31/90</u>	<u>6/30/91</u>
Compac 1 & 2	20	28	28	15	7	7
Phase II RECs	15	14	28	19	20	6
Others	39	31	27	81	7	19
Total	74	73	83	42	44	32

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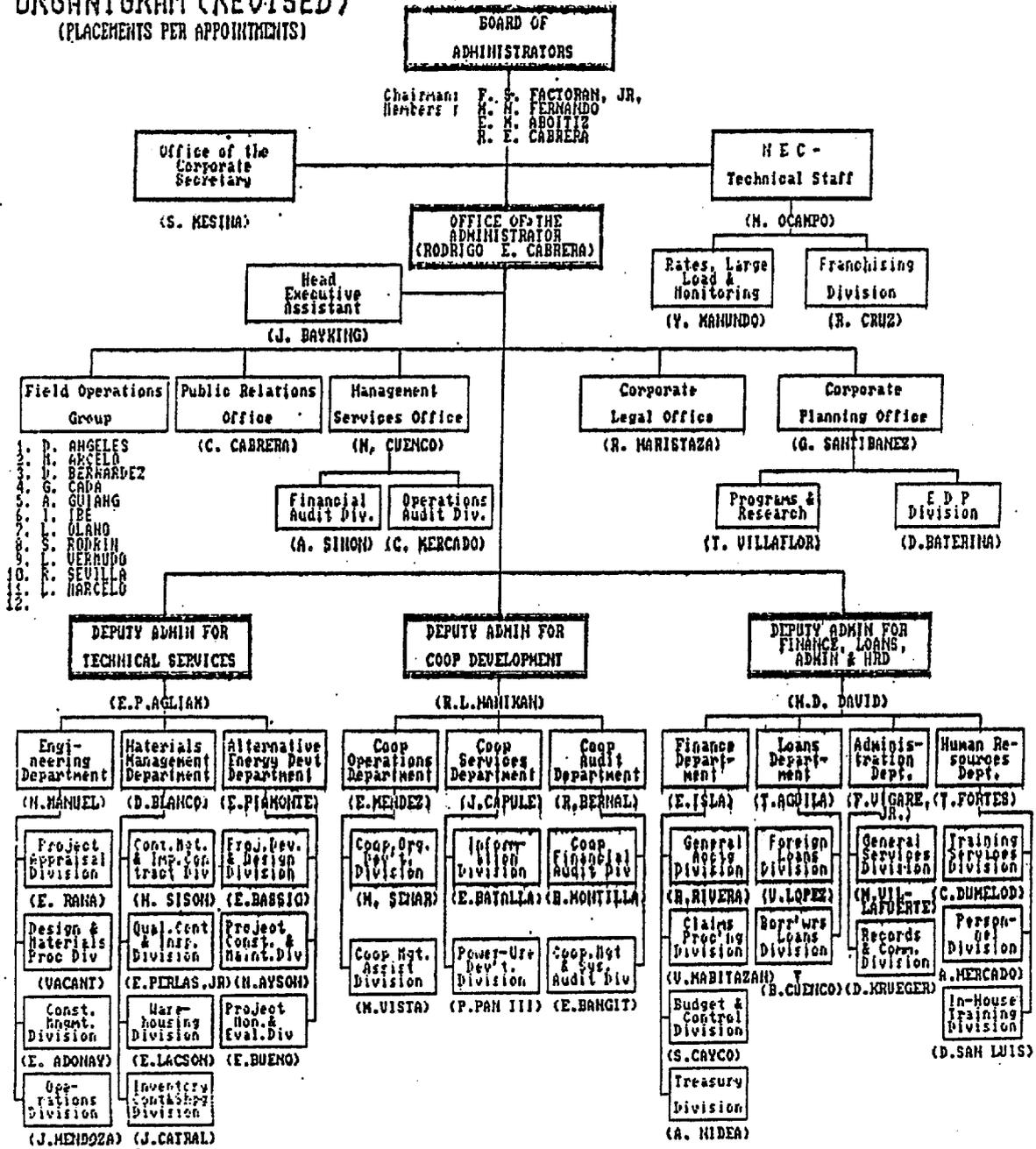
<sup>1</sup> Positive net margins.

<sup>2</sup> Negative net margins

Rural Electrification Project  
RMA Evaluation Team

NATIONAL ELECTRIFICATION ADMINISTRATION  
PRESENT ORGANIZATIONAL CHART

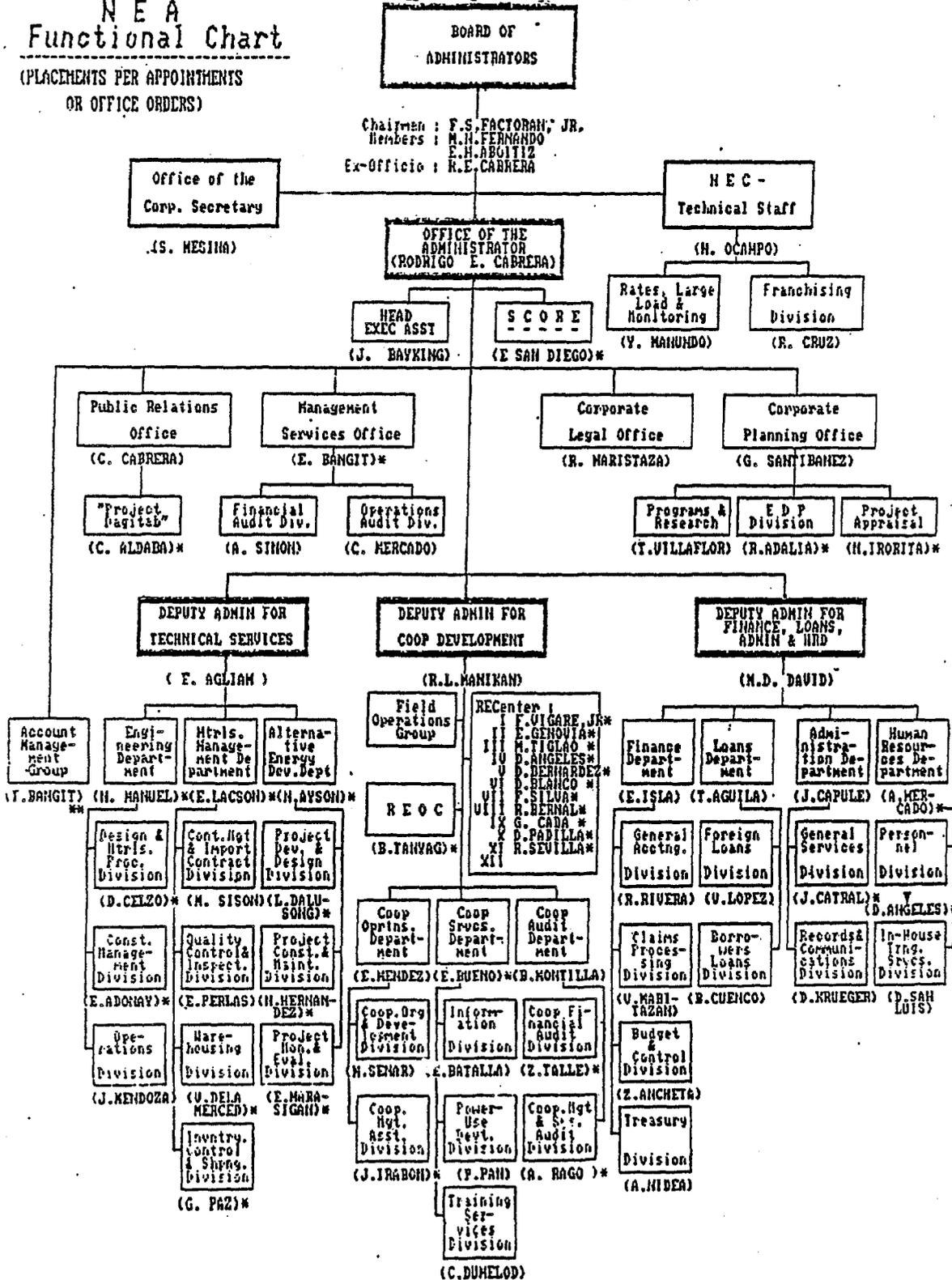
NEA  
ORGANIGRAM (REVISED)  
(PLACEMENTS PER APPOINTMENTS)



Rural Electrification Project  
RMA Evaluation Team

NATIONAL ELECTRIFICATION ADMINISTRATION  
FUNCTIONAL ORGANIZATIONAL CHART

NEA  
Functional Chart  
(PLACEMENTS PER APPOINTMENTS  
OR OFFICE ORDERS)

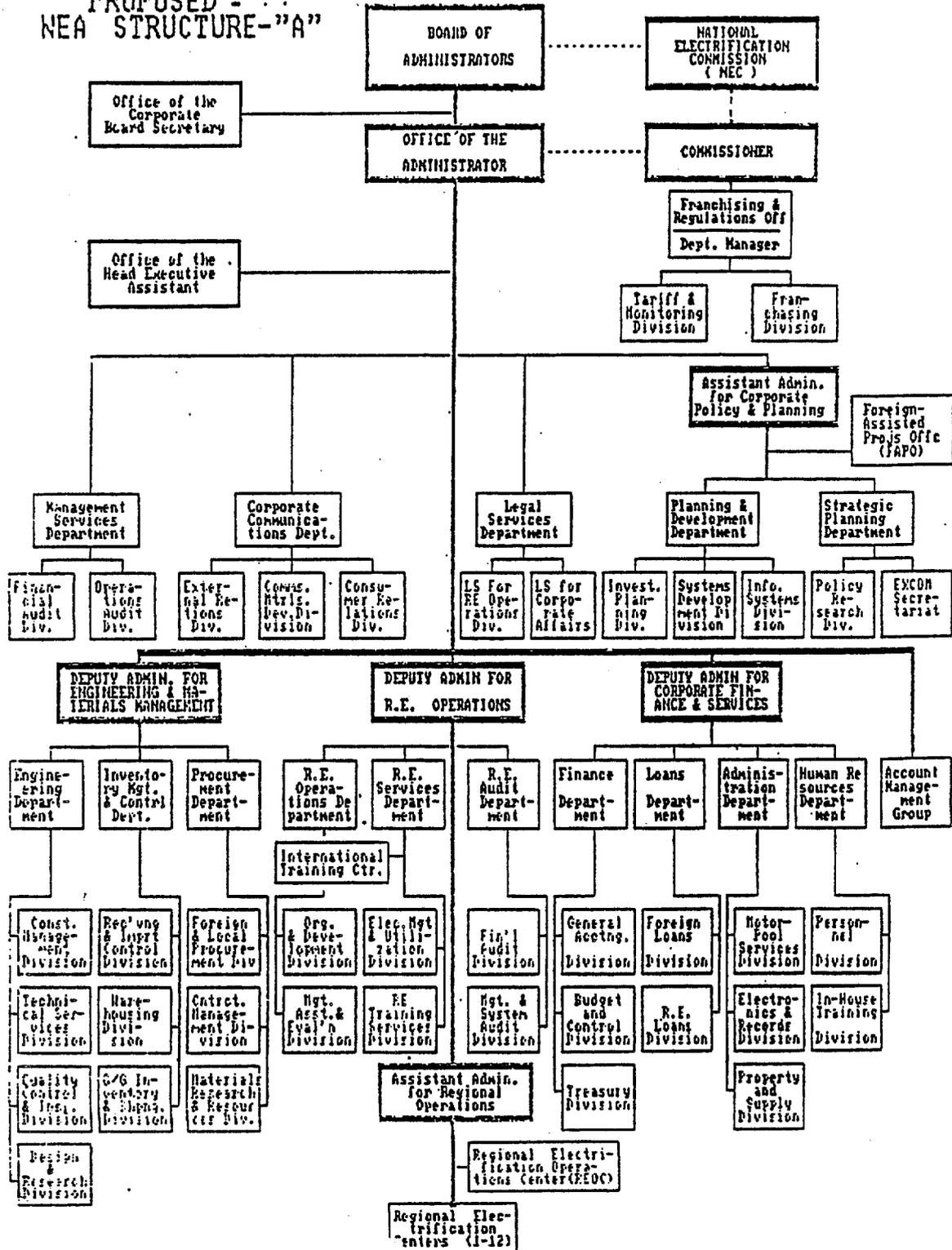


\*OFFICER-IN-CHARGE/ACTING CAPACITY  
\*\*CONCURRENT  
27 August 1991  
/csj

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NATIONAL ELECTRIFICATION ADMINISTRATION  
PROPOSED ORGANIZATIONAL CHART

PROPOSED -  
NEA STRUCTURE - "A"



LEGEND :

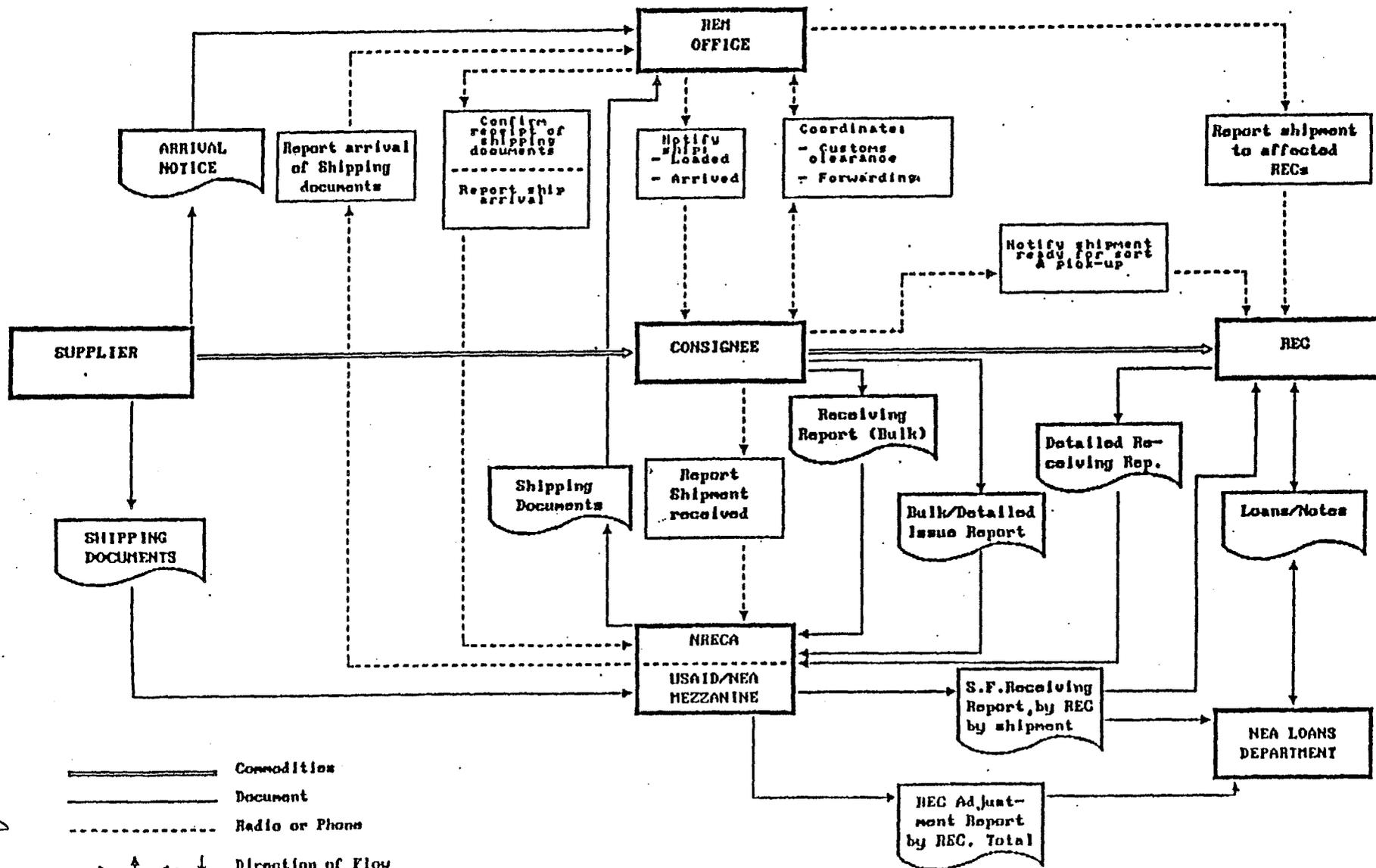
- C C D = Expanded PRO public/membership info
- I S D = Including IS for RE Operations
- Admin Dept. = Split of GS to 2 divisions
- FAP = New Unit
- ANG = New Unit
- ANCPP = New Unit/Subsuming CORPLAN
- I R U = New Unit )
- PROC = New Unit )/Subsuming MMD
- GEN ACC = Subsuming Claims Division
- DES & RES = Created from AED, ENG'G & MMD
- AARO = New Unit
- REOC = From Ad-Hoc to formal unit
- RE Centers = formalizing decentralization/Regionalization

/00.26.91  
c3

COMMODITY DOCUMENTS

- ◆ Commodity Materials Handling Flow Chart
- ◆ Paper Trail Description
- ◆ Documents Instructions
- ◆ NRECA Materials Tracking Documents
- ◆ NRECA Schedule of Materials Shipment

# FLOW CHART - COMMODITIES



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Who Acts	When	What is done	Who receives
Supplier	Time of shipment	Forwards original shipping documents	NRECA
NRECA	Upon receipt	Notification of Shipment	REM
		Forwards documents by JRS	REM
REM	Documents received	Confirms receipt of documents	NRECA
		Notification of Shipment	Consignee & Affected RECs
REM & Consignee (Expediter)	Documents received	Submits shipping documents, Blanket Certificate of Exemption, REC Registration with letter requesting they issue release authority to Bureau of Customs.	Dept. of Finance
REM	Ship arrives	Notification of Arrival	NRECA & Consignee
REM & Consignee (Expediter)	Upon arrival	Submits Formal Entry Declaration & Release Authority	Bureau of Customs
		Pays Ad Valorem of 9%	"
		Removes shipment from Port, forwards	Consignee
Consignee	When received at Consignees	Notification of Receipt of Shipment	NRECA
		Send Bulk Receiving Report	NRECA
		Notifies that shipment ready for sort and pick-up	Affected RECs
	When issued	Send Issue Report (Bulk/Detailed)	NRECA
REC	When Material arrives at REC	Send detailed Receiving Report	NRECA
NRECA	Each Shipment	Send SF Receiving Report	Loans & REC
	When REC has receive all materials	Send Adjustment Report	Loans

### Transmittal of Shipping Documents and Instructions

The attached shipping documents are for materials purchased under USAID Project 492-0429 IFB No. 492-NRECA-90-001. The change in the tax exempt status of NEA has prompted that these materials be purchased directly in the name of the REC whose property they are.

The Consignee, representing several RECs, with cooperation and assistance from the REM office, is to clear customs and remove the materials from the port and move them to the Consignee's warehouse, and issued to the RECs in accordance with the quantities shown on the invoice and packing list.

The materials received by the RECs, including those by the REC that is the consignee which were purchased for his own use, must balance to the materials itemized on the packing list and invoice. It is therefore very important that great care be taken when separating the material by REC.

#### Instructions

A brief outline of the various action critical to the process, that are to be taken by those involved follows.

NRECA upon receipt of the original shipping documents will:

- 1) notify the REM by radio,
- 2) make copy for NRECA file,
- 3) send original shipping documents to the REM by courier.

The REM upon receipt of the original shipping documents will:

- 1) Send a confirmation that they received the original shipping documents to NRECA by radio,
- 2) Notify the Consignee and affected REC of the shipment.

The REM & Consignee, upon receipt of the original shipping documents will:

- 1) Submit a letter to the Dept. of Finance requesting they issue the release authorization to Bureau of Customs. Attachment to this letter are:
  - a) REC (Consignee) registration,
  - b) Blanket Certificate of Exemption, and
  - c) Shipping documents

NOTE: It is suggested that they employ an Expeditor for this. However it is done it should be completed and the authorization issued before the ship arrives.

The REM upon notice of arrival of the ship will:

- 1) Notify NRECA & the Consignee

The REM and Consignee upon arrival of the ship will:

- 1) Submit to the Bureau of Customs;
  - a) Formal Entry Declaration,
  - b) Release Authority from Dept. of Finance
  - c) Notice of arrival of shipment (from port)
- 2) Pay 9% Ad Valorem Tax, under protest.
- 3) Pay storage & demurrage
- 4) Move the shipment from the port to the Consignee warehouse

NOTE: Step one may be done by an Expeditor and step four by a Forwarder.

The Consignees upon receiving the shipment at his warehouse will:

- 1) Notify NRECA of the receipt of the shipment by the Consignee, by radio.
- 2) Send the Bulk Receiving Report, identified with the Bill of Lading Number, to NRECA showing as Consignee the shipment has been received.
- 3) Notify the affected RECs that the shipment is at the Consignee's warehouse ready for sorting and pick-up.
- 4) Sort the shipment by REC using the invoice and Bill of Lading and confirm that they balance the amount shipped.
- 5) Issue the material to each of the specified RECs. Prepare, by REC, issue report, showing Bill of Lading number. Be sure to prepare an issue report as ultimate recipient REC, for the REC that is acting as Consignee. Each entry on the issue report must be identified by using the Item No. from the invoice.

The REC (ultimate recipient) upon receipt of the material will:

- 1) Prepare a detailed Receiving Report. The report shall show the Bill of Lading number and identify each type of material by the Item Number from the invoice.

- 2) Send the detailed Receiving Report, for materials from the shipment, to NRECA.

NRECA will, upon receipt of the receiving report from the REC, prepare an SF Receiving Report and forward it to the Loans (NEA).

Consignee	Cn No	Shipper Name	B/L No.	Loading Data	CIF Value (US\$)	Catalogue /Schedule	Date Ship Arrived	DataDoc. to R E M	Dept. of Finance DataRecd	Date Issue Clearance	Date Customs	Date Allto Consignee Warehouse	DataLas Issued to REC:
CASURECO	11	1	ABChance	APLU/009266054	03/25/91	6,510.80	100/f	04/18/91	04/24/91	05/16/91	05/21/91	05/22/91	
CASURECO	11	1	ABChance	APLU/009266051	---	---	---	---	---	---	---	---	---
---	---	---	---	APLU/070009456	03/25/91	24,182.55	100/d	04/18/91	04/24/91	07/08/91			
CASURECO	11	1	ABChance	APLU/070009487	04/22/91	20,561.06	100/d	05/24/91	06/06/91	06/11/91	06/19/91		
CASURECO	11	2	ABB Power	APLU/009266087	04/09/91	70,003.00	100/a	05/02/91	05/07/91	05/16/91	05/21/91	05/22/91	07/10/91
CASURECO	11	2	ABB Power	APLU/009629750	04/09/91	167,306.70	101/f1f2f3f4	04/09/91	05/07/91	05/16/91	05/21/91	05/22/91	
CASURECO	11	3	Cooper Pow	117205	04/30/91	30,799.90	102/d2,d3	06/04/91	05/23/91	06/11/91	06/19/91		
CASURECO	11	3	Cooper Pow	117208	04/30/91	11,865.50	102/d1,d6	06/04/91	06/06/91	06/11/91	06/19/91		
CASURECO	11	7	Connell Br	023-46725711	05/18/91	6,326.90	104/g-te-15	05/18/91	06/06/91	06/11/91	06/19/91	07/08/91	
CASURECO	11	2	ABB Power	APLU/009630336	05/07/91	191,173.00	100/e	06/01/91	06/06/91	06/11/91	06/19/91		
CASURECO	11	2	ABB Power	APLU/009630448	04/26/91	95,302.00	105/pt	05/25/91	06/06/91	06/11/91	06/19/91	07/03/91	
CASURECO	11	6	A&E Int'l	APLU/010005035	05/21/91	5,226.00	103/c		07/05/91				
CASURECO	11	3	Cooper Pow	123214	06/07/91	16,820.00	102/d2,d3		07/05/91				
CASURECO	11	5	Edison Hub	SEAU/993281524	06/14/91	33,156.50	102/d5,d8		07/11/91				
CASURECO	11	5	Edison Hub	SEAU/993285751	07/25/91	19,425.00	102/d5,d8						
CASURECO	11	3	Cooper Pow	132801	06/30/91	6,129.60	102/d1,d6						
CEBECO I	1	1	ABChance	APLU/009266073	03/25/91	14,922.80	100/f	04/30/91	04/24/91	06/06/91	06/14/91	06/26/91	5/27/91
CEBECO I	1	1	ABChance	APLU/009266513	---	---	---	---	---	---	---	---	---
---	---	---	---	APLU/009266074	03/25/91	93,858.44	100/d	04/30/91	04/24/91	06/06/91	06/14/91	06/26/91	5/27/91
CEBECO I	1	1	ABChance	APLU/009305914	04/23/91	68,925.53	100/d	06/03/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	2	2	ABB Power	APLU/009612423	05/07/91	481,881.00	100/e	06/12/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	2	2	ABB Power	APLU/009612416	04/09/91	569,512.01	101/f1,f2,f3	05/15/91	05/17/91	06/06/91	06/14/91	06/26/91	5/27/91
CEBECO I	3	3	Cooper Pow	112410	03/30/91	61,973.93	102/d1,d6,d7	05/24/91	05/17/91	06/06/91	06/14/91	06/17/91	
CEBECO I	3	3	Cooper Pow	115101	04/20/91	281,614.00	102/d2,d3	06/03/91	05/17/91	06/06/91	06/14/91	06/17/91	
CEBECO I	5	5	Edison Hub	SEAU993265650	04/11/91	94,335.00	103/a	05/23/91	04/25/91	06/06/91	06/14/91	06/17/91	
CEBECO I	6	6	A & E Int'l	APLU/009666614	05/01/91	172,620.25	104/h	06/03/91	05/17/91	06/06/91	06/14/91	06/17/91	
CEBECO I	8	8	LYPCO Int'l	023/2491/5030	02/15/91	17,437.10	104/g-te-14	02/14/91	03/19/91	06/06/91	06/14/91	06/17/91	
CEBECO I*	2	2	ABB Power	APLU/009612419	04/09/91	304,697.00	100/e	05/15/91	5/17/91	06/06/91	06/14/91	06/26/91	5/27/91
CEBECO I	1	1	ABChance	APLU/009306114	05/07/91	8,001.70	100/d	06/12/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	4	4	MATEC	002H00065	05/07/91	70,666.95	103/b	06/17/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	7	7	ARDRY Trad	APLU/009442774	05/19/91	132,888.00	104/g-te-1	06/21/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	7	7	ARDRY Trad	APLU/070009292	05/19/91	382,084.00	104/g-te-2	06/21/91	06/05/91	06/06/91	06/14/91	06/17/91	
CEBECO I	6	6	A&E Int'l	APLU/009972650	05/28/91	53,215.00	103/c		07/17/91				
CEBECO I	8	8	LYPCO Int'l	023/1015/2166	06/15/91	27,410.81	104/g-te-13		07/17/91				
CEBECO I	2	2	ABB Power	APLU/009630626	05/22/91	146,260.00	105/pt		06/14/91				
CEBECO I	3	3	Copper Pow	123217	06/15/91	115,056.00	102/d2,d3						
CEBECO I	3	3	Copper Pow	123218	06/15/91	79,074.90	102/d1,d6,d7						
CEBECO I**	6	6	A&E Int'l	APLU/009973083	06/07/91	22,538.50	103/c		07/17/91				
CEBECO I	5	5	Edison Hub	SEAU993275366	06/06/91	636,723.00	106/v-1		07/17/91				
CEBECO I	5	5	Edison Hub	SEAU993281527	06/14/91	52,410.75	102/d5,d8		07/17/91				
CEBECO I	4	4	OHM Int'l	APLU/009667208	07/10/91	9,801.00	103/b						
CEBECO I	5	5	Edison Hub	SEAU993285754	07/25/91	5,550.00	102/d5,d8						
CEBECO I	3	3	Cooper Pow	131502	06/30/91	84,141.17	102/d1,d6,d7						
CEBECO I	7	7	ARDRY Trad	APLU/009444571	07/14/91	18,600.00	104/g-te-1-12						
DANECCO	1	1	ABChance	APLU/009266059	03/25/91	43,425.43	100/d	05/10/91	04/24/91	5/16/91	05/23/91	06/09/91	06/17/91
DANECCO	1	1	ABChance	APLU/009266514	03/25/91	6,853.70	100/f	05/18/91	04/24/91	5/16/91	05/28/91	06/09/91	06/17/91
DANECCO	1	1	ABChance	APLU/009305915	04/23/91	40,522.25	100/d	06/16/91	05/24/91	06/06/91	06/14/91		
DANECCO	2	2	ABB Power	APLU/009612421	04/10/91	223,155.00	100/e	05/18/91	05/05/91	05/16/91	05/28/91	06/09/91	
DANECCO	2	2	ABB Power	APLU/009612437	05/07/91	322,953.00	100/e	06/16/91	05/24/91	06/06/91	06/14/91		
DANECCO	3	3	Cooper Pow	112409	03/30/91	53,247.51	102/d1,d6,d7		05/05/91	5/16/91	05/28/91		
DANECCO	5	5	Edison Hub	SEAU993265653	04/11/91	30,333.00	103/a	05/18/91	04/25/91	5/16/91	05/28/91	06/30/91	06/17/91
DANECCO*	2	2	ABB Power	APLU/009612418	04/09/91	181,229.57	101/f1f2f3f4	05/18/91	5/15/91	5/16/91	05/28/91	06/09/91	05/25/91
DANECCO	4	4	MATEC	002H00063	05/07/91	54,198.00	103/b	06/16/91	05/28/91	06/06/91	06/14/91		
DANECCO	3	3	Cooper Pow	123215	06/12/91	27,822.65	102/d1,d6,d7		07/08/91				
DANECCO	3	3	Cooper Pow	123216	06/12/91	110,168.00	102/d2,d3		07/08/91				
DANECCO	5	5	Edison Hub	SEAU/993281526	06/14/91	15,654.14	102/d5,d8		07/11/91				
DANECCO	6	6	A&E Int'l	APLU/009972649	06/25/91	52,837.00	103/c		08/01/91				
DANECCO	4	4	OHM Int'l	APLU/009667209	07/17/91	12,036.00	103/b		08/01/91				
DANECCO	5	5	Edison Hub	SEAU/993285755	07/25/91	16,650.00	102/d5,d8		09/07/91				
DANECCO	3	3	Cooper Pow	131503	06/30/91	29,115.60	102/d1,d6,d7		08/12/91				

As of August 13, 1991

COMMODITY SHIPMENTS

Consignee	Cn No	Shipper Name	B/L No.	Loading Date	CIF Value (US\$)	Catalogue /Schedule	Date Ship Arrived	Date Doc. to R E M	Dept. of Finance		Date Customs	Date All to Consignee Warehouse	Date Last Issued to RECs
									Date Recd	Date Issue Clearance			
ILECO I	1	ABChance	APLU/009265615	03/25/91	48,995.52	100/d	05/09/91	04/24/91	05/07/91	05/08/91	05/27/91	05/27/91	06/17/91
ILECO I	1	ABChance	APLU/009266056	03/25/91	5,543.30	100/f	05/09/91	04/24/91	05/07/91	05/08/91	05/27/91	05/27/91	06/17/91
ILECO I	1	ABChance	APLU/009305913	04/22/91	40,037.61	100/d		06/13/91					
ILECO I	3	Cooper Pow	115503	04/18/91	80,178.00	102/d2,d3		05/15/91	05/27/91	05/28/91			
ILECO I	3	Cooper Pow	115502	04/18/91	25,023.25	102/d1,d6,d7		05/15/91	05/27/91	05/28/91			
ILECO I	5	Edison Hub	SEAU993265651	04/11/91	23,387.00	103/a	05/09/91	04/25/91	05/07/91	05/08/91			
ILECO I*	2	ABB Power	APLU/009612417	04/09/91	273,672.30	101/f1f2f3f4	05/09/91	5/09/91	05/07/91	05/08/91	05/28/91	05/28/91	06/17/91
ILECO I*	2	ABB Power	APLU/009612420	04/09/91	193,083.00	100/e	05/09/91	5/09/91	05/07/91	05/08/91	05/28/91	05/28/91	06/17/91
ILECO I	2	ABB Power	APLU/009612424	05/07/91	207,870.00	100/a		06/13/91					
ILECO I	6	A&E Int'l	APLU/009972651	05/21/91	28,857.00	100/c	05/09/91	07/02/91					
ILECO I	3	Cooper Pow	120406	06/07/91	38,152.00	102/d2,d3		07/02/91					
ILECO I	3	Cooper Pow	123212	06/07/91	19,036.55	102/d1,d5,d7		07/02/91					
ILECO I	5	Edison Hub	SEAU993281523	06/14/91	14,176.25	102/d5,d8		07/10/91					
ILECO I	4	OHM Int'l	APLU/009667180	07/10/91	44,261.00	103/b		07/29/91					
ILECO I	5	Edison Hub	SEAU993285752	07/25/91	19,425.00	102/d5,d8							
ILECO I	3	Cooper Pow	131504	06/30/91	22,985.00	102/d1,d6,d7							
LUELCO	1	ABChance	APLU/009266055	03/25/91	3,762.80	100/f	04/18/91	04/24/91	---	05/08/91	05/10/91	05/17/91	
LUELCO	1	ABChance	APLU/009266050	03/25/91	17,337.21	100/d	---	04/24/91	---	05/08/91	05/10/91	05/17/91	
LUELCO	1	ABChance	APLU/070009488	04/22/91	13,642.65	100/d	05/24/91	06/07/91	06/19/91	06/25/91	06/27/91		
LUELCO	2	ABB Power	APLU/009266089	04/09/91	74,501.15	101/f1f2f3f4	05/24/91	05/06/91	06/21/91	06/11/91			
LUELCO	3	Cooper Pow	117204	04/30/91	34,280.00	102/d2,d3		06/07/91		06/25/91	06/27/91		
LUELCO	3	Cooper Pow	117206	04/30/91	10,297.10	102/d1,d6,d7	06/04/91	06/07/91	06/19/91				
LUELCO	5	Edison Hub	SEAU993265652	04/11/91	9,156.00	103/a	05/08/91	04/25/91	---	05/08/91	05/10/91	05/18/91	
LUELCO	8	LYPCO Int'l	023/0995/1480	02/08/91	17,417.68	104/g-te-14	02/14/91	03/21/91	---	02/26/91	04/05/91	04/12/91	
LUELCO	9	OSMOSE Int'l	23/6059	03/04/91	27,569.85	104/g-te-16	04/03/91	03/21/91					
LUELCO*	2	ABB Power	APLU/009266088	04/09/91	76,132.00	100/e	05/02/91	6/10/91	06/11/91	06/25/91	06/27/91		
LUELCO	2	ABB Power	APLU/009266124	05/07/91	110,568.00	100/e	06/01/91	06/07/91	06/19/91	06/25/91	06/27/91		
LUELCO	4	WATEC	002H00053	05/07/91	22,564.00	103/b	06/05/91	06/07/91	06/19/91	06/25/91	05/27/91		
LUELCO	6	A&E Int'l	APLU/009972637	05/21/91	9,541.00	103/c		06/28/91					
LUELCO	3	Cooper Pow	123213	06/07/91	4,393.05	102/d1,d6,d7		07/02/91					
LUELCO	5	Edison Hub	SEAU993281525	06/14/91	13,083.00	102/d5,d8		07/12/91					
LUELCO	5	Edison Hub	SEAU993285753	07/25/91	5,550.00	102/d5,d8							
LUELCO	3	Cooper Pow	132802	06/30/91	4,597.20	102/d1,d6,d7							
MORESCO I	9	OSMOSE Int'l	23/6058	03/04/91	27,569.86	104/g-te-16		03/22/91	---	---	05/28/91	05/17/91	06/17/91
MORESCO I	2	ABB Power	APLU/009630449	04/26/91	93,975.00	105/pt		05/28/91	05/29/91				
TARELCO I	1	ABChance	APLU/009265607	---	---	---	---	---	---	---	---	---	---
---	---	---	APLU/009265602	03/25/91	12,905.97	100/d		04/24/91	06/06/91				
TARELCO I	1	ABChance	APLU/009266053	03/25/91	2,804.60	100/f		04/24/91	06/06/91				
TARELCO I	1	ABChance	APLU/009305912	04/22/91	10,958.85	100/d		06/06/91					
TARELCO I	6	A&E Int'l	APLU/009666223	03/27/91	67,915.10	104/h		04/24/91	06/06/91				
TARELCO I	8	LYPCO Int'l	023/0994/9833	02/08/91	17,417.68	104/g-te-14	02/14/91	05/02/91	---	02/26/91	05/06/91	05/07/91	
TARELCO I	2	ABB Power	APLU/009629622	04/09/91	74,376.00	100/e		05/06/91	06/06/91	---	---	07/23/91	
TARELCO I*	2	ABB Power	APLU/009266090	04/09/91	60,651.70	101/f1,f2,f4		5/06/91	06/06/91				
TARELCO I	2	ABB Power	APLU/009266125	05/07/91	71,675.00	100/e		06/06/91					
TARELCO I	6	A&E Int'l	APLU/009666648	05/08/91	17,575.93	104/h		06/06/91					
TARELCO I	3	Cooper Pow	117207	04/30/91	8,885.50	102/d1		06/06/91					
TARELCO I	7	Connell Br	023-46725696	05/18/91	11,036.35	104/g-te-15		06/06/91					
TARELCO I	7	ARDRY Trad	APLU/009443438	05/19/91	94,920.00	104/g-te-1		06/06/91					
TARELCO I	7	ARDRY Trad	APLU/070009291	05/19/91	401,069.00	104/g-te-2-12		06/06/91					
TARELCO I	8	LYPCO Int'l	023/2491-5166	06/12/91	27,410.81	104/g-te-13		06/24/91					
TARELCO I	8	Edison Hub	SEAU993275438	06/12/91	741,549.00	106/v-1		07/17/91					
TARELCO I	2	ABB Power	APLU/009630624	07/03/91	145,680.00	105/pt		08/07/91					
TARELCO I	7	ARDRY Trad	APLU/009444572	07/14/91	15,026.00	104/g-te-1-12							
VRESKO	9	OSMOSE Int'l	23/6057	03/04/91	27,569.85	104/g-te-16		03/27/91					

Total 9,401,335.97

\* Supplier directly sent original shipping documents to consignee. Consignee furnished copy as required by NRECA-Manila office.

\*\*Supplier sent original B/L & Insurance cert. and a copy of Invoice & Packinglist.

^ Confirmed date that consignee has already the copy.

§-Under IFB No. 492-0429-NRECA-91-002 & the rest is under IFB No. 492-0429-NRECA-90-001

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**SCHEDULE OF MATERIAL SHIPMENT**

Annex "A"

(Value In US Dollar)

Cn.#	Supplier	Cat./Schedule	Description	Actual Date Shipped						Schedule Date Shipment*		Total
				February	March	April	May	June	July	August	September	
<b>FB 492-0429-NRECA-90-001</b>												
1	AB Chance Co.	100/D 100/F	Arrestors Fuses		240,705.12 40,398.00	194,747.95	8,001.70					443,454.77 40,398.00
2	ABB Power	100/E 101/F1-F4 105/PT	Dist. x mer Metering Power Xmers			941,446.00 1,326,873.43 189,277.00	1,386,120.00  146,260.00			145,680.00		2,327,566.00 1,326,873.43 481,217.00
3	Cooper Power Systems	102/D1, D6, D7 102/D2, D3	Cap., Sw. Reclosers		115,222.44	45,774.25 437,169.10		277,296.72 280,196.00		6,343.39	56,918.90	444,636.80 774,283.00
4	Maschinen & Technik	102/D4 103/B	Regulators Hardware				147,428.95			66,918.00	476,466.00	476,466.00 214,346.95
5	Edison-Hubbard	102/D5, D8 103/A	Arr. Sw. Sleeves			157,211.35		128,480.64		66,600.00		195,080.64 157,211.35
6	A & E International	103/C 104/H	Insulators Electl Tools		67,915.10		96,839.00 190,196.18	75,375.50				172,214.50 258,111.28
7	Connell Bros.	104/GTE-1-12 104/GTE-15	Test eq Dir. Mtr.				1,010,961.00 19,049.66			34,989.00		1,045,950.00 19,049.66
8	Lypco International	104/GTE-13 104/GTE-14	Monitor Heat Dect.	52,605.33				55,038.06				55,038.06 52,605.33
9	Oemose Int.	104/GTE-16	Chemicals		82,709.56							82,709.56
<b>Total by Month</b>				52,605.33	546,950.22	3,292,498.08	3,004,856.49	816,386.92	320,530.39	56,918.90	476,466.00	8,567,212.33
<b>IFB 492-0429-NRECA-91-002</b>												
	Edison-Hubbard		Boom-Trucks					1,378,281.00				1,378,281.00
<b>GRAND TOTAL</b>												<b>9,945,493.33</b>

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\* The date of shipment represents the latest it can be shipped without liquidated damages.

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Rural Electrification Project  
RMA Evaluation Team

COMPARISON OF SYSTEM LOSSES FOR COMPAC  
1 AND 2 RECS FOR 1987, 1990 AND 1991

(to date)

REGION	1987	1990	Y-T-D 1991	CURRENT MONTH
<b>COMPAC 1</b>				
I INEC: ILOCOS NORTE	23.02	18.16	16.51	4/91
IV QUEZELCO: FIRST QUEZON	15.07	13.89	16.50	6/91
VI CAPELCO: CAPIZ	9.94	12.35	14.91	7/91
VI ILECO I: ILOILO	20.23	17.77	18.69	6/91
VI NOCECO: NEGROS OCCIDENTAL	21.97	11.81	12.20	7/91
VI CENECCO: CENTRAL NEGROS	19.30	19.18	20.66	6/91
VII CEBECO I: CEBU	12.79	9.45	10.19	7/91
VII CEBECO II: CEBU	13.64	11.42	12.28	7/91
VII CEBECO III: CEBU	7.14	8.55	10.28	7/91
VII BOHECO: BOHOL I	20.22	16.14	14.90	7/91
IX ZANECO: ZAMBOANGA DEL NORTE	17.15	17.42	16.58	3/91
IX ZAMSURECO I: ZAMBO DEL SUR	16.87	22.97	17.69	6/91
IX ZAMSURECO II: ZAMBO DEL SUR	11.05	12.83	8.29	6/91
IX ZAMCELCO: ZAMBOANGA CITY	25.72	25.92	26.76	6/91
X ASELCO: AGUSAN DEL SUR	16.22	20.99	22.80	6/91
X ANECO: AGUSAN DEL NORTE	20.13	13.39	11.05	6/91
X MORESCO II: MISAMIS ORIENTAL	12.04	13.69	23.26	6/91
XI SOCOTECO I: SOUTH COTABATO	16.52	13.10	12.40	6/91
XI SOCOTECO II: SOUTH COTABATO	N/A	16.09	13.39	6/91
XI DASURECO: DAVAO DEL SUR	13.31	13.11	15.97	6/91
XI DANECO: DAVAO DEL NORTE	N/A	15.14	13.99	6/91
XII MAGELCO: MAGUINDANAO	16.39	17.17	15.96	6/91
XII COTELCO: NORTH COTABATO I	18.72	14.29	15.14	2/91
<b>COMPAC 2A</b>				
I ISECO: ILOCOS SUR	36.35	26.00	25.55	7/91
I LUELCO: LA UNION	39.20	32.16	29.48	7/91
I PANELCO III: PANGASINAN	39.46	31.13	33.17	4/91
III TARELCO I: TARLAC	29.81	29.19	26.85	7/91
III TARELCO II: TARLAC	23.88	21.15	20.20	7/91
III PELCO III: PAMPANGA	33.07	17.48	19.68	7/91
IV BATELEC: BATANGAS I	20.32	10.19	7.83	6/91
V CASURECO II: CAMARINES SUR	20.80	24.48	23.63	6/91
V CASURECO III: CAMARINES SUR	24.42	21.36	21.22	6/91
V CASURECO IV: CAMARINES SUR	20.63	18.85	20.07	6/91
V ALECO III: ALBAY III	41.51	33.14	32.65	6/91
XI DORECO: DAVAO ORIENTAL	N/A	8.20	9.47	6/91
<b>III PILOT PROJECT</b>				
PANELCO: BATAAN	N/A	36.26%	33.36%	6/91

Source: NRECA's Progress Report for the month ended August 31, 1991,  
Exhibit xl-3

1) Year to date data not available.

Rural Electrification Project  
RMA Evaluation Team

COMPARISON OF COLLECTION EFFICIENCY FOR COMPAC  
1 AND 2 RECS FOR 1987, 1990 AND 1991 (TO DATE)

<u>Year</u>	<u>NEA Formula (1)</u>	<u>Conventional Formula (2)</u>
1989	93	89
1990	94	90
1991 through June	91	88
3 Year Average	93	89
Formula 1	<u>Current Collections</u> Current Sales	
Formula 2	<u>Total Collections</u> Total Collectibles	

The above statistics show that for the past three years 93% of the RECs current receivable are being collected. However, the fact that the conventional formula, which tracks total collection results in lower ratios than does NEA's formula which tracks current collections is an indication that the RECs had been consistently beset with hardcore arrears. It is apparent that the RECs lack a systematic approach to dealing with hardcore arrears and defaults.

SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

I. Energy Sales - MWh

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WITH RATE INCREASE (Through August 1991)  
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Region	REC	1989	1990	% Change
X	ANECO	60,024	61,992	3.28%
X	ASELCO	14,376	17,172	19.45%
V	ALECO III	10,236	11,328	10.67%
IV	BATELEC I	40,680	47,064	15.69%
VII	BOHECO	12,228	13,500	10.40%
V	CASURECO II	46,608	51,612	10.74%
V	CASURECO III	13,308	15,996	20.20%
V	CASURECO IV	6,720	7,560	12.50%
VI	CAPELCO	29,172	30,732	5.35%
XI	DASURECO	34,020	38,016	11.75%
XI	DORECO	22,308	25,428	13.99%
I	INEC	40,968	44,268	8.06%
I	ISECO	33,960	37,908	11.63%
VI	ILECO	26,952	25,860	-4.05%
I	LUELCO	27,432	27,792	1.31%
XII	MAGELCO	20,472	25,560	24.85%
XII	COTELCO	21,192	23,340	10.14%
III	PELCO I	36,768	52,404	42.53%
I	PANELCO III	33,936	42,684	25.78%
IV	QUEZELCO	35,844	38,076	6.23%
III	TARLECO I	22,032	24,864	12.85%
III	TARLECO II	19,140	21,132	10.41%
IX	ZAMCELCO	121,320	137,784	13.57%
IX	ZENECO	20,724	23,376	12.80%
IX	ZAMSURECO I	29,580	35,940	21.50%
IX	ZAMSURECO II	18,912	21,408	13.20%
	Sub-Total	798,912	902,796	13.00%

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WITHOUT RATE INCREASE (Through August 1991)  
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VII	CEBECO I	18,144	19,140	5.49%
VII	CEBECO II	19,872	23,304	17.27%
VII	CEBECO III	17,112	17,868	4.42%
VI	CENECO	133,380	140,580	5.40%
XI	DASURECO	34,020	38,016	11.75%
X	MORESCO II	25,404	27,432	7.98%
VI	NOCECO	42,972	43,764	1.84%
XI	SOCOTECO I	24,048	29,604	23.10%
XI	SOCOTECO II	98,736	122,640	24.21%
	Sub-Total	413,688	462,348	11.76%
	Total	1,212,600	1,365,144	12.58%

SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Million Pesos

Region	REC	Operating Revenue			Power Cost		
		1989	1990	% Change	1989	1990	% Change
-----							
WITH RATE INCREASE							
X	ANECO	75.7	84.5	11.62%	49.9	50.8	1.80%
X	ASELCO	24.2	32.5	34.30%	12.3	15.4	25.20%
V	ALECO III	22.5	29.6	31.56%	14.7	20.3	38.10%
IV	BATELEC I	70.0	92.4	32.00%	48.7	60.3	23.82%
VII	BOHECO	26.5	34.3	29.43%	16.4	21.4	30.49%
V	CASURECO II	85.2	113.3	32.98%	59.1	81.7	38.24%
V	CASURECO III	31.0	42.4	36.77%	17.8	24.5	37.64%
V	CASURECO IV	15.2	19.5	28.29%	8.3	11.3	36.14%
VI	CAPELCO	65.6	78.5	19.66%	36.5	45.5	24.66%
XI	DASURECO	48.4	57.8	19.42%	27.3	31.9	16.85%
XI	DORECO	27.4	33.6	22.63%	16.2	20.0	23.46%
I	INEC	65.2	87.1	33.59%	44.7	58.1	29.98%
I	ISECO	79.5	100.8	26.79%	47.5	63.1	32.84%
VI	ILECO	60.4	65.9	9.11%	35.1	39.7	13.11%
I	LUELCO	54.2	64.2	18.45%	37.9	47.2	24.54%
XII	MAGELCO	30.5	40.4	32.46%	16.4	21.4	30.49%
XII	COTELCO	36.4	42.5	16.76%	18.3	19.4	6.01%
III	PELCO I	64.1	97.9	52.73%	48.1	81.3	69.02%
I	PANELCO III	67.2	88.8	32.14%	49.6	66.6	34.27%
IV	QUEZELCO	60.8	79.9	31.41%	41.8	53.7	28.47%
III	TARLECO I	45.4	58.7	29.30%	31.5	42.1	33.65%
III	TARLECO II	33.8	48.8	44.38%	24.0	32.8	36.67%
IX	ZAMCELCO	150.9	177.2	17.43%	115.0	133.9	16.43%
IX	ZENECO	33.2	41.1	23.80%	16.3	19.4	19.02%
IX	ZAMSURECO I	49.1	62.0	26.27%	29.7	33.3	12.12%
IX	ZAMSURECO II	31.7	37.8	19.24%	14.8	17.6	18.92%
Sub-Total		1,354.1	1,711.5	26.39%	877.9	1,112.7	26.75%
-----							
WITHOUT RATE INCREASE							
VII	CEBECO I	32.9	42.7	29.79%	21.8	27.7	27.06%
VII	CEBECO II	38.8	52.1	34.28%	24.9	34.7	39.36%
VII	CEBECO III	29.6	38.2	29.05%	20.9	25.6	22.49%
VI	CENECO	244.0	298.3	22.25%	192.9	233.8	21.20%
XI	DASURECO	79.0	106.1	34.30%	47.0	57.4	22.13%
X	MORESCO II	36.3	40.9	12.67%	21.5	24.2	12.56%
VI	NOCECO	84.1	102.0	21.28%	56.0	66.1	18.04%
XI	SOCOTECO I	35.5	46.9	32.11%	18.8	24.3	29.26%
XI	SOCOTECO II	109.7	146.0	33.09%	80.6	106.1	31.64%
Sub-Total		689.9	873.2	26.57%	484.4	599.9	23.84%
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Total Compac I & II		2,044.0	2,584.7	26.45%	1,362.3	1,712.6	25.71%

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SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Million Pesos

Region	REC	Non-Power Cost			Operating Margin		
		1989	1990	% Change	1989	1990	% Change
-----							
WITH RATE INCREASE							
X	ANECO	20.8	25.1	20.67%	5.0	8.7	74.00%
X	ASELCO	11.0	13.5	22.73%	.9	3.6	300.00%
V	ALECO III	7.0	7.6	8.57%	.7	1.7	142.86%
IV	BATELEC I	17.9	24.9	39.11%	3.4	7.2	111.76%
VII	BOHECO	8.0	10.7	33.75%	2.1	2.2	4.76%
V	CASURECO II	21.2	26.6	25.47%	4.9	5.0	2.04%
V	CASURECO III	12.7	15.1	18.90%	.4	2.8	600.00%
V	CASURECO IV	5.3	6.1	15.09%	1.7	2.1	23.53%
VI	CAPELCO	22.2	26.0	17.12%	6.9	7.0	1.45%
XI	DASURECO	12.9	15.7	21.71%	8.1	10.2	25.93%
XI	DORECO	8.5	11.6	36.47%	2.6	2.0	-23.08%
I	INEC	14.2	17.7	24.65%	6.2	11.3	82.26%
I	ISECO	21.1	25.7	21.80%	11.0	12.0	9.09%
VI	ILECO	19.8	21.9	10.61%	5.5	4.3	-21.82%
I	LUELCO	14.6	16.2	10.96%	1.6	.9	-43.75%
XII	MAGELCO	11.6	13.8	18.97%	2.5	5.2	108.00%
XII	COTELCO	13.1	16.4	25.19%	5.0	6.7	34.00%
III	PELCO I	11.9	13.9	16.81%	4.1	2.7	-34.15%
I	PANELCO III	17.9	20.8	16.20%	(.4)	1.3	-425.00%
IV	QUEZELCO	16.0	21.3	33.13%	3.0	4.8	60.00%
III	TARLECO I	10.7	13.1	22.43%	3.3	3.4	3.03%
III	TARLECO II	10.1	12.8	26.73%	(.3)	3.2	>>>>>>>
IX	ZAMCELCO	26.1	31.1	19.16%	9.7	12.2	25.77%
IX	ZENECO	12.4	16.6	33.87%	4.6	5.0	8.70%
IX	ZAMSURECO I	17.5	22.8	30.29%	1.9	6.0	215.79%
IX	ZAMSURECO II	12.0	13.6	13.33%	4.9	6.7	36.73%
Sub-Total		376.5	460.6	22.34%	99.3	138.2	39.17%
-----							
WITHOUT RATE INCREASE							
VII	CEBECO I	9.8	9.8	.00%	1.3	5.2	300.00%
VII	CEBECO II	10.4	11.4	9.62%	3.6	6.0	66.67%
VII	CEBECO III	6.7	6.9	2.99%	2.0	5.8	190.00%
VI	CENECO	38.8	54.2	39.69%	12.3	10.3	-16.26%
XI	DASURECO	24.2	36.7	51.65%	7.7	12.1	57.14%
X	MORESCO II	10.8	13.1	21.30%	4.0	3.6	-10.00%
VI	NOCECO	21.1	24.2	14.69%	7.0	11.7	67.14%
XI	SOCOTECO I	13.7	15.3	11.68%	3.1	7.4	138.71%
XI	SOCOTECO II	21.0	25.9	23.33%	8.1	14.0	72.84%
Sub-Total		156.5	197.5	26.20%	49.1	76.1	54.99%
Total Compac I & II		533.0	658.1	23.47%	148.4	214.3	44.41%

SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Million Pesos

Region	REC	Depreciation			Interest Expense		
		1989	1990	% Change	1989	1990	% Change
-----							
WITH RATE INCREASE							
X	ANECO	4.2	4.6	9.52%	1.7	2.0	17.65%
X	ASELCO	1.6	3.0	87.50%	2.4	2.2	-8.33%
V	ALECO III	.9	1.2	33.33%	1.5	1.3	-13.33%
IV	BATELEC I	2.5	2.9	16.00%	2.0	2.4	20.00%
VII	BOHECO	2.1	2.4	14.29%	1.2	1.1	-8.33%
V	CASURECO II	2.0	2.4	20.00%	3.2	2.9	-9.38%
V	CASURECO III	.9	1.2	33.33%	1.4	2.3	64.29%
V	CASURECO IV	1.7	.8	-52.94%	2.1	2.1	.00%
VI	CAPELCO	4.3	4.6	6.98%	3.9	2.1	-46.15%
XI	DASURECO	3.8	4.5	18.42%	1.6	1.4	-12.50%
XI	DORECO	.6	1.0	66.67%	1.3	1.1	-15.38%
I	INEC	2.0	2.3	15.00%	1.6	2.6	62.50%
I	ISECO	2.3	2.5	8.70%	3.1	3.5	12.90%
VI	ILECO	2.2	4.4	100.00%	1.9	1.7	-10.53%
I	LUELCO	1.3	1.4	7.69%	1.1	1.7	54.55%
XII	MAGELCO	1.7	1.9	11.76%	1.3	1.3	.00%
XII	COTELCO	2.3	5.3	130.43%	.8	.8	.00%
III	PELCO I	1.3	1.5	15.38%	2.2	2.2	.00%
I	PANELCO III	1.5	1.3	-13.33%	3.9	2.3	-41.03%
IV	QUEZELCO	2.3	2.5	8.70%	2.3	2.5	8.70%
III	TARLECO I	2.2	1.8	-18.18%	2.2	2.4	9.09%
III	TARLECO II	.4	.7	75.00%	1.6	1.8	12.50%
IX	ZAMCELCO	5.5	8.6	56.36%	2.2	2.2	.00%
IX	ZENECO	3.5	3.7	5.71%	1.4	1.6	14.29%
IX	ZAMSURECO I	1.6	1.6	.00%	1.1	1.3	18.18%
IX	ZAMSURECO II	1.9	2.5	31.58%	1.4	1.4	.00%
Sub-Total		56.6	70.6	24.73%	50.4	50.2	-.40%
-----							
WITHOUT RATE INCREASE							
VII	CEBECO I	1.4	2.4	71.43%	1.0	.7	-30.00%
VII	CEBECO II	1.6	1.8	12.50%	1.8	1.8	.00%
VII	CEBECO III	2.0	2.4	20.00%	1.2	1.1	-8.33%
VI	CENECO	14.2	16.9	19.01%	2.9	3.3	13.79%
XI	DASURECO	4.3	9.0	109.30%	1.8	1.8	.00%
X	MORESCO II	2.5	3.9	56.00%	.7	.6	-14.29%
VI	NOCECO	6.0	6.7	11.67%	1.8	2.0	11.11%
XI	SOCOTECO I	3.7	5.6	51.35%	.8	.7	-12.50%
XI	SOCOTECO II	4.9	5.8	18.37%	1.4	1.6	14.29%
Sub-Total		40.6	54.5	34.24%	13.4	13.6	1.49%
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Total Compac I & II		97.2	125.1	27.9	63.8	63.8	.0

SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Million Pesos

Region	REC	Other Income			Net Margin		
		1989	1990	Change 1/	1989	1990	Change 1/
<b>WITH RATE INCREASE</b>							
X	ANECO	.1	( 1.1)	-1	( .7)	.9	1.6
X	ASELCO	.5	.8	.3	( 2.7)	( .8)	1.9
V	ALECO III	.2	.3	.1	( 1.5)	( .4)	1.1
IV	BATELEC I	1.0	1.5	.5	( .1)	3.4	3.5
VII	BOHECO	1.3	1.5	.2	.2	.1	( .1)
V	CASURECO II	1.5	1.9	.4	1.2	1.5	.3
V	CASURECO III	.4	.8	.4	( 1.5)	.1	1.6
V	CASURECO IV	.0	.7	.7	( 2.2)	( .1)	2.1
VI	CAPELCO	.7	2.0	1.3	( .6)	2.3	2.9
XI	DASURECO	.1	.2	.1	2.8	4.4	1.6
XI	DORECO	.7	.9	.2	1.5	.8	( .7)
I	INEC	.5	.3	( .2)	3.1	6.8	3.7
I	ISECO	.4	.2	( .2)	6.0	6.2	.2
VI	ILECO	.2	.4	.2	1.5	( 1.4)	( 2.9)
I	LUELCO	.2	.2	.0	( .6)	( 2.1)	( 1.5)
XII	MAGELCO	.9	.3	( .6)	.4	2.4	2.0
XII	COTELCO	.2	.2	.0	2.1	.8	( 1.3)
III	PELCO I	2.5	3.7	1.2	3.1	2.8	( .3)
I	PANELCO III	5.5	5.8	.3	( .2)	3.6	3.8
IV	QUEZELCO	1.3	1.3	.0	( .3)	1.1	1.4
III	TARLECO I	2.7	3.1	.4	1.5	2.2	.7
III	TARLECO II	.6	.5	( .1)	( 1.7)	1.2	2.9
IX	ZAMCELCO	1.4	( .5)	( 1.9)	3.4	.9	( 2.5)
IX	ZENECO	.1	.3	.2	( .1)	.0	.1
IX	ZAMSURECO I	.5	1.4	.9	( .2)	4.5	4.7
IX	ZAMSURECO II	.7	.9	.2	2.2	3.6	1.4
	Sub-Total	24.2	27.6	3.4	16.6	44.8	28.2
<b>WITHOUT RATE INCREASE</b>							
VII	CEBECO I	1.2	( 2.1)	( 3.3)	.2	.0	( .2)
VII	CEBECO II	1.6	.3	( 1.3)	1.6	2.8	1.2
VII	CEBECO III	1.1	( 1.9)	( 3.0)	( .1)	.4	.5
VI	CENECO	( .2)	.5	.7	( 5.1)	( 9.4)	( 4.3)
XI	DASURECO	( 1.0)	.0	1.0	.6	1.2	.6
X	MORESCO II	.9	( .7)	( 1.6)	1.7	( 1.7)	( 3.4)
VI	NOCECO	3.5	2.6	( .9)	2.8	5.6	2.8
XI	SOCOTECO I	1.4	1.2	( .2)	.1	2.2	2.1
XI	SOCOTECO II	1.0	1.4	.4	2.7	8.0	5.3
	Sub-Total	9.5	1.3	( 8.2)	4.5	9.1	4.6
	Total Compac I & II	33.7	28.9	( 4.8)	21.1	53.9	32.8

1/ Because Other Income and Net Margin can fluctuate positive and negative, the charge is not converted to percent.

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SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Pesos/kWh

Region	REC	Operating Revenue			Power Cost		
		1989	1990	% Change	1989	1990	% Change
WITH RATE INCREASE							
X	ANECO	1.26	1.36	8.08%	.80	.82	1.80%
X	ASELCO	1.68	1.89	12.43%	.72	.90	25.20%
V	ALECO III	2.20	2.61	18.87%	1.30	1.79	38.10%
IV	BATELEC I	1.72	1.96	14.09%	1.03	1.28	23.82%
VII	BOHECO	2.17	2.54	17.24%	1.21	1.59	30.49%
V	CASURECO II	1.83	2.20	20.09%	1.15	1.58	38.24%
V	CASURECO III	2.33	2.65	13.79%	1.11	1.53	37.64%
V	CASURECO IV	2.26	2.58	14.04%	1.10	1.49	36.14%
VI	CAPELCO	2.25	2.55	13.59%	1.19	1.48	24.66%
XI	DASURECO	1.42	1.52	6.87%	.72	.84	16.85%
XI	DORECO	1.23	1.32	7.58%	.64	.79	23.46%
I	INEC	1.59	1.97	23.63%	1.01	1.31	29.98%
I	ISECO	2.34	2.66	13.59%	1.25	1.66	32.84%
VI	ILECO	2.24	2.55	13.71%	1.36	1.54	13.11%
I	LUELCO	1.98	2.31	16.92%	1.36	1.70	24.54%
XII	MAGELCO	1.49	1.58	6.09%	.64	.84	30.49%
XII	COTELCO	1.72	1.82	6.01%	.78	.83	6.01%
III	PELCO I	1.74	1.87	7.16%	.92	1.55	69.02%
I	PANELCO III	1.98	2.08	5.06%	1.16	1.56	34.27%
IV	QUEZELCO	1.70	2.10	23.71%	1.10	1.41	28.47%
III	TARLECO I	2.06	2.36	14.57%	1.27	1.69	33.65%
III	TARLECO II	1.77	2.31	30.77%	1.14	1.55	36.67%
IX	ZAMCELCO	1.24	1.29	3.40%	.83	.97	16.43%
IX	ZENECO	1.60	1.76	9.75%	.70	.83	19.02%
IX	ZAMSURECO I	1.66	1.73	3.93%	.83	.93	12.12%
IX	ZAMSURECO II	1.68	1.77	5.34%	.69	.82	18.92%
	Sub-Total	47.13	53.33	13.15%	26.01	33.29	27.99%
WITHOUT RATE INCREASE							
VII	CEBECO I	1.81	2.23	23.03%	1.14	1.45	27.06%
VII	CEBECO II	1.95	2.24	14.50%	1.07	1.49	39.36%
VII	CEBECO III	1.73	2.14	23.59%	1.17	1.43	22.49%
VI	CENECO	1.83	2.12	15.99%	1.37	1.56	21.20%
XI	DASURECO	2.32	2.79	20.19%	1.24	1.51	22.13%
X	MORESCO II	1.43	1.49	4.34%	.78	.88	12.56%
VI	NOCECO	1.96	2.33	19.09%	1.28	1.51	18.04%
XI	SOCOTECO I	1.48	1.58	7.32%	.64	.82	29.26%
XI	SOCOTECO II	1.11	1.19	7.15%	.66	.87	31.64%
	Sub-Total	15.62	18.11	15.96%	9.34	11.62	24.40%
	Total Compac I & II	62.75	71.45	13.85%	35.3	44.9	27.04%

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SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Pesos/kWh

Region	REC	Non-Power Cost			Operating Margin		
		1989	1990	% Change	1989	1990	% Change
WITH RATE INCREASE							
X	ANECO	.35	.40	16.84%	.08	.14	68.48%
X	ASELCO	.77	.79	2.74%	.06	.21	234.87%
V	ALECO III	.68	.67	-1.89%	.07	.15	119.45%
IV	BATELEC I	.44	.53	20.24%	.08	.15	83.04%
VII	BOHECO	.65	.79	21.15%	.17	.16	-5.11%
V	CASURECO II	.45	.52	13.31%	.11	.10	-7.85%
V	CASURECO III	.95	.94	-1.08%	.03	.18	482.37%
V	CASURECO IV	.79	.81	2.31%	.25	.28	9.80%
VI	CAPELCO	.76	.85	11.17%	.24	.23	-3.70%
XI	DASURECO	.38	.41	8.91%	.24	.27	12.69%
XI	DORECO	.38	.46	19.73%	.12	.08	-32.52%
I	INEC	.35	.40	15.36%	.15	.26	68.67%
I	ISECO	.62	.68	9.12%	.32	.32	-2.27%
VI	ILECO	.73	.85	15.28%	.20	.17	-18.52%
I	LUELCO	.53	.58	9.52%	.06	.03	-44.48%
XII	MAGELCO	.57	.54	-4.72%	.12	.20	66.60%
XII	COTELCO	.62	.70	13.67%	.24	.29	21.67%
III	PELCO I	.32	.27	-18.05%	.11	.05	-53.80%
I	PANELCO III	.53	.49	-7.61%	-.01	.03	-358.39%
IV	QUEZELCO	.45	.56	25.32%	.08	.13	50.62%
III	TARLECO I	.49	.53	8.49%	.15	.14	-8.70%
III	TARLECO II	.53	.61	14.79%	-.02	.15	>>>>>>>>
IX	ZAMCELCO	.22	.23	4.92%	.08	.09	10.74%
IX	ZENECO	.60	.71	18.68%	.22	.21	-3.64%
IX	ZAMSURECO I	.59	.63	7.23%	.06	.17	159.91%
IX	ZAMSURECO II	.63	.64	.12%	.26	.31	20.79%
Sub-Total		14.38	15.6	8.25%	3.5	4.5	28.46%
WITHOUT RATE INCREASE							
VII	CEBECO I	.54	.51	-5.20%	.07	.27	279.18%
VII	CEBECO II	.52	.49	-6.53%	.18	.26	42.12%
VII	CEBECO III	.39	.39	-1.37%	.12	.32	177.73%
VI	CENECO	.29	.39	32.54%	.09	.07	-20.55%
XI	DASURECO	.71	.97	35.71%	.23	.32	40.63%
X	MORESCO II	.43	.48	12.33%	.16	.13	-16.65%
VI	NOCECO	.49	.55	12.62%	.16	.27	64.12%
XI	SOCOTECO I	.57	.52	-9.28%	.13	.25	93.91%
XI	SOCOTECO II	.21	.21	-.71%	.08	.11	39.15%
Sub-Total		4.2	4.5	8.21%	1.2	2.0	64.65%
Total Compac I & II		18.5	20.1	8.24%	4.7	6.5	37.84%

SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Pesos/kWh

Region	REC	Depreciation			Interest Expense		
		1989	1990	% Change	1989	1990	% Change
-----							
WITH RATE INCREASE							
X	ANECO	.07	.07	6.05%	.03	.03	13.91%
X	ASELCO	.11	.17	56.97%	.17	.13	-23.26%
V	ALECO III	.09	.11	20.48%	.15	.11	-21.69%
IV	BATELEC I	.06	.06	.27%	.05	.05	3.72%
VII	BOHECO	.17	.18	3.52%	.10	.08	-16.97%
V	CASURECO II	.04	.05	8.37%	.07	.06	-18.16%
V	CASURECO III	.07	.08	10.93%	.11	.14	36.68%
V	CASURECO IV	.25	.11	-58.17%	.31	.28	-11.11%
VI	CAPELCO	.15	.15	1.55%	.13	.07	-48.89%
XI	DASURECO	.11	.12	5.97%	.05	.04	-21.70%
XI	DORECO	.03	.04	46.22%	.06	.04	-25.77%
I	INEC	.05	.05	6.43%	.04	.06	50.39%
I	ISECO	.07	.07	-2.62%	.09	.09	1.14%
VI	ILECO	.08	.17	108.45%	.07	.07	-6.75%
I	LUELCO	.05	.05	6.30%	.04	.06	52.54%
XII	MAGELCO	.08	.07	-10.48%	.06	.05	-19.91%
XII	COTELCO	.11	.23	109.23%	.04	.03	-9.20%
III	PELCO I	.04	.03	-19.04%	.06	.04	-29.84%
I	PANELCO III	.04	.03	-31.10%	.11	.05	-53.11%
IV	QUEZELCO	.06	.07	2.32%	.06	.07	2.32%
III	TARLECO I	.10	.07	-27.50%	.10	.10	-3.33%
III	TARLECO II	.02	.03	58.50%	.08	.09	1.90%
IX	ZAMCELCO	.05	.06	37.68%	.02	.02	-11.95%
IX	ZENECO	.17	.16	-6.28%	.07	.07	1.32%
IX	ZAMSURECO I	.05	.04	-17.70%	.04	.04	-2.73%
IX	ZAMSURECO II	.10	.12	16.24%	.07	.07	-11.66%
Sub-Total		2.2	2.4	7.14%	2.2	1.9	-11.48%
-----							
WITHOUT RATE INCREASE							
VII	CEBECO I	.08	.13	62.51%	1.4	.7	-50.00%
VII	CEBECO II	.08	.08	-4.07%	1.8	1.8	.00%
VII	CEBECO III	.12	.13	14.92%	1.2	1.1	-8.33%
VI	CENECO	.11	.12	12.92%	2.9	3.3	13.79%
XI	DASURECO	.13	.24	84.62%	1.8	1.8	.00%
X	MORESCO II	.10	.14	40.00%	.7	.6	-14.29%
VI	NOCECO	.14	.15	7.14%	1.8	2.0	11.11%
XI	SOCOTECO I	.15	.19	26.67%	.8	.7	-12.50%
XI	SOCOTECO II	.05	.05	.00%	1.4	1.6	14.29%
Sub-Total		1.0	1.2	29.04%	13.8	13.6	-1.45%
-----							
Total Compac I & II		3.2	3.6	13.71%	16.0	15.5	-2.82%

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SUMMARY OF OPERATING REVENUE, EXPENSES, AND MARGINS  
FOR COMPAC 1 & 2 RECs FOR 1989 AND 1990  
Rural Electrification Project  
RMA Evaluation Team

II. Operating Revenue and Expenses - Pesos/kWh

Region	REC	Depreciation			Interest Expense		
		1989	1990	Change 1/	1989	1990	Change 1/
<b>WITH RATE INCREASE</b>							
X	ANECO	.00	-.02	.0	-.01	.01	.0
X	ASELCO	.03	.80	.8	-.19	-.05	.1
V	ALECO III	.02	.30	.3	-.15	-.04	.1
IV	BATELEC I	.02	1.50	1.5	.00	.07	.1
VII	BOHECO	.11	1.50	1.4	.02	.01	.0
V	CASURECO II	.03	1.90	1.9	.03	.03	.0
V	CASURECO III	.03	.80	.8	-.11	.01	.1
V	CASURECO IV	.00	.70	.7	-.33	-.01	.3
VI	CAPELCO	.02	2.00	2.0	-.02	.07	.1
XI	DASURECO	.00	.20	.2	.08	.12	.0
XI	DORECO	.03	.90	.9	.07	.03	.0
I	INEC	.01	.30	.3	.08	.15	.1
I	ISECO	.01	.20	.2	.18	.16	.0
VI	ILECO	.01	.40	.4	.06	-.05 (	.1)
I	LUELCO	.01	.20	.2	-.02	-.08 (	.1)
XII	MAGELCO	.04	.30	.3	.02	.09	.1
XII	COTELCO	.01	.20	.2	.10	.03 (	.1)
III	PELCO I	.07	3.70	3.6	.08	.05	.0
I	PANELCO III	.16	5.80	5.6	-.01	.08	.1
IV	QUEZELCO	.04	1.30	1.3	-.01	.03	.1
III	TARLECO I	.12	3.10	3.0	.07	.09	.1
III	TARLECO II	.03	.50	.5	-.09	.06	.1
IX	ZAMCELCO	.01	-.50 (	.5)	.03	.01	.1
IX	ZENECO	.00	.30	.3	.00	.00	.1
IX	ZAMSURECO I	.02	1.40	1.4	-.01	.13	.1
IX	ZAMSURECO II	.04	.90	.9	.12	.17	.1
Sub-Total		.9	28.7	27.8	.0	1.2	1.2
<b>WITHOUT RATE INCREASE</b>							
VII	CEBECO I	.07	.11	.0	.01	.00	.0
VII	CEBECO II	.08	.30	.2	.08	.12	.0
VII	CEBECO III	.06	.30	.2	-.01	.02	.0
VI	CENECO	.00	.30	.3	-.04	-.07	.0
XI	DASURECO	-.03	.30	.3	.02	.03	.0
X	MORESCO II	.04	.30	.3	.07	-.06 (	.1)
VI	NOCECO	.08	.30	.2	.07	.13	.1
XI	SOCOTECO I	.06	.30	.2	.00	.07	.1
XI	SOCOTECO II	.01	.30	.3	.03	.07	.0
Sub-Total		.4	2.5	2.1	.2	.2	.0
Total Compac I & II		1.2	31.2	30.0	.2	1.4	1.2

1/ Because Other Income and Net Margin can fluctuate positive and negative, the charge is not converted to percent.

Rural Electrification Project  
RMA Evaluation Team

RATIO OF AVERAGE MONTHLY PURCHASED POWER EXPENSE  
TO NFC ACCOUNTS PAYABLE FOR COMPAC 1 AND 2 RECS  
DECEMBER 1989 TO JUNE 1991

REC	12/ 31/89	12/31 /90	6 /30/ 91
<u>COMPAC 1:</u>			
Ilocos Norte	N.A.	N.A.	1.01
Quezon I	1.03	1.10	1.29
Zamboanga City	1.03	0.93	1.58
Zamboanga del Norte	1.09	1.15	1.72
Zamboanga del Sur I	2.43	2.22	0.89
Zamboanga del Sur II	1.06	1.18	1.05
Capiz	0.97	0.84	1.17
Central Negros	2.03	1.88	1.90
Iloilo I	1.07	0.90	1.08
Negros Occidental	0.88	0.68	1.06
Bohol I.	1.06	1.10	1.01
Cebu I	0.84	0.65	0.93
Cebu II	1.47	0.90	1.21
Cebu III	0.94	0.53	1.11
Agusan del Norte	2.10	1.96	1.55
Agusan del Sur	1.25	1.23	1.57
Misamis Oriental II	1.11	2.04	3.96
Davao del Norte	4.99	1.15	0.87
Davao del Sur	1.11	1.12	1.36
South Cotobato I	1.13	1.15	1.25
South Cotobato II	1.11	1.19	0.98
Maguindanao	1.13	1.14	1.69
North Cotobato	1.09	1.16	0.97
<u>COMPAC 2:</u>			
La Union	1.05	1.30	1.13
Ilocos Sur	2.34	1.07	N.A.
Pangasinan III	1.04	1.27	1.05
Tarlac II	1.08	1.23	0.89
Pampanga III	1.60	0.76	0.91
Tarlac I	1.08	1.27	0.91
Batangas I	1.15	1.05	N.A.
Camarines Sur IV	0.95	1.13	0.85
Albay III	1.78	2.30	1.09
Camarines Sur III	1.09	1.23	1.08
Camarines Sur II	0.95	1.13	1.04
Davao Oriental	0.74	0.87	1.12
Average <sup>1</sup>	1.35	1.20	1.25

1. Excludes REC's with missing data.

Rural Electrification Project  
RMA Evaluation Team

STATUS OF REC'S PAYMENT TO NEA AS OF  
DECEMBER 31, 1990 AND JUNE 30, 1991  
(Million Pesos)  
(Net of Bail-out Portion)

	As of December 31, 1990					As of June 30, 1991				
	Tot Amt. Due	Re- pymt.	Ar- rears	Pay- ment	%Coll. Eff.	Tot Amt. Due	Re- pymt.	Ar- rears	Pay- ment	%Coll. Eff.
<u>COMPAC 1 &amp; 2</u>										
Construction loans	635	538	97	-	84.7	604	572	29	7	94.7
Restructured loans						18	12	6		66.7
Relending loans	65	52	13		80.0	79	62	18		78.5
Revolving fund loan	6	5	1		83.3	7	6	1		85.7
	<u>706</u>	<u>595</u>	<u>111</u>		<u>84.3</u>	<u>708</u>	<u>652</u>	<u>54</u>	<u>7</u>	<u>92.1</u>
<u>ALL RECS</u>										
Construction loans	1717	975	741	24	56.8	1,730	1,056	676	15	61.0
Restructured loans						40	23	14	1	57.5
Relending loans	233	86	148		36.9	290	99	190		34.1
Revolving fund loan	13	6	7		46.2	14	6	8		42.9
	<u>1963</u>	<u>1067</u>	<u>896</u>	<u>24</u>	<u>54.4</u>	<u>2074</u>	<u>1184</u>	<u>888</u>	<u>16</u>	<u>57.1</u>

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**STATUS OF REC COMPLIANCE WITH CERTAIN FINANCIAL TESTS IN SECTION 4.6  
OF THE CONTRACT FOR LOANS WITH NEA**

<u>Provision</u>	<u>Status</u>
1) Current ratio, current assets of the borrower shall at all times equal or exceed the current liabilities of the borrower.	The REC's in general have maintained sufficient funds to meet current obligations. Current ratios are presently above the contractual requirement of 1.1. (See attached table)
2) Debt service ratio. Internal cash generation of the borrower for each fiscal quarter, commencing with the quarters beginning two years after the end of the quarter in which this contract becomes effective, shall equal or exceed amortization and interest expenses in respect of all indebtedness of the borrower for such quarter.	Compliance with this provision is to commence in the fourth quarter of 1991 in as much as earliest date of contract effectively was September 29, 1989.
3) Net operating margin.	Compliance with this provision is to commence in the fourth quarter of 1991 in as much as earliest date of contract effectively was September 29, 1989.
a. Third year. Net operating margin for the borrower for each fiscal quarter in the twelve month period commencing with the quarter beginning two years after the end of the quarter in which this contract becomes effective shall not be less than zero (0) percent of operating revenue for such quarter.	
b. Fourth year. Net operating margin of the borrower for each period commencing with the quarter beginning three years after the end of the quarter in which this contract becomes effective shall not be less than two and one-half (2.5)	

Rural Electrification Project  
RMA Evaluation Team

**STATUS OF REC COMPLIANCE WITH CERTAIN FINANCIAL TESTS IN SECTION 4.6  
OF THE CONTRACT OF LOAN WITH NEA**

(Continued)

<u>Provision</u>	<u>Status</u>
percent of operating revenue for such quarter.	
c. After fourth year. Net operating margin of the borrower for each fiscal quarter commencing with the quarter beginning four years after the end of the quarter in which this contract becomes effective shall not be less than five (5) percent of operating revenue for such quarter.	
4) Collection efficiency. As of the end of each quarter beginning with the first quarter of 1990, the average monthly uncollected accounts receivable ratio for such quarter shall not exceed ten (10) percent.	Except for the quarter ended September 30, 1990, all quarters exceeded the imposed limit. (See attached table.)
5) Certain Accounts Receivable. The total amount of accounts receivable as of November 30, 1989 shall have been reduced (by collection or by recording as bad debt expense): (i) by at least twenty (20) percent as of December 31, 1990, (ii) by at least forty (40) percent as of December 31, 1991, (iii) by at least sixty (60) percent as of December 31, 1992, (iv) by at least eighty (80) percent as of December 31, 1993, and (v) by one hundred (100) percent as of December 31, 1994.	No data available on the movements of accounts receivable as of November 30, 1989.

Rural Electrification Project  
RMA Evaluation Team

UNCOLLECTED ACCOUNTS RECEIVABLE RATIO  
Quarters Ended March 31, 1990  
to June 30, 1991

Region	R E C	Q U A R T E R				E N D I N G	
		3/31/90	6/30/90	9/30/90	12/31/90	3/31/91	6/30/91
<b>COMPAC I</b>							
I	Ilocos Norte	(106.4)	(97.3)	(149.2)	(218.3)	(100.4)	(13.6)
IV	Quazon I	(22.6)	(25.8)	(24.5)	(44.3)	(79.1)	(103.7)
IX	Zamboanga City	14.6	13.7	9.9	2.0	9.9	12.0
IX	Zamboanga del Norte	(15.5)	(11.8)	(32.4)	(17.8)	(10.9)	(14.4)
IX	Zamboanga del Sur I	60.0	58.5	55.3	44.0	32.5	33.7
IX	Zamboanga del Sur II	(155.6)	(147.7)	(141.3)	(128.4)	(145.0)	(130.3)
VI	Capiz	22.3	20.0	19.8	21.4	18.8	15.0
VI	Central Negros	48.4	52.6	46.7	53.4	42.3	38.1
VI	Iloilo I	8.4	19.1	19.2	16.3	8.0	10.3
VI	Negros Occidental	(60.0)	(70.2)	(71.3)	(15.6)	(41.0)	(40.2)
VII	Bohol I	(29.2)	(18.8)	(28.0)	(13.3)	(20.6)	(15.1)
VII	Cebu I	(19.6)	(13.7)	(12.1)	(8.8)	(5.2)	(8.2)
VII	Cebu II	1.1	0.7	0.3	8.2	16.2	1.0
VII	Cebu III	4.4	5.0	3.8	13.9	36.7	13.2
X	Agusan del Norte	n.a.	4.1	(8.4)	(0.4)	1.1	12.5
X	Agusan del Sur	49.9	45.3	38.8	34.6	29.2	22.1
X	Misamis Oriental II	n.a.	66.4	73.2	67.4	70.4	74.8
XI	Davao del Norte	27.4	32.7	23.7	27.8	29.8	35.0
XI	Davao del Sur	37.0	42.8	42.5	41.9	42.5	49.3
XI	South Cotobato I	(8.0)	9.8	8.5	22.5	22.9	26.2
XI	South Cotobato II	4.2	10.4	9.3	5.4	10.7	20.2
XII	Maguindanao	51.5	42.5	23.3	33.5	41.2	48.9
XII	North Cotobato	20.7	31.6	26.6	19.8	31.2	39.6
<b>COMPAC II</b>							
I	La Union	(25.3)	(41.7)	(48.0)	(89.8)	(77.1)	(68.5)
I	Ilocos Sur	46.7	15.5	(13.0)	n.a.	(9.1)	(84.8)
I	Pangasinan III	(52.0)	(86.6)	(38.1)	24.1	35.2	23.2
III	Tarlac II	45.4	37.1	39.6	34.4	31.8	33.5
III	Pampanga III	54.7	63.5	57.7	41.4	45.5	45.1
III	Tarlac I	62.4	62.4	63.8	65.3	42.5	66.9
IV	Batangas I	57.1	56.6	55.8	47.7	45.9	31.0
V	Camarines Sur IV	41.6	41.6	37.9	43.2	44.0	37.5
V	Albay III	75.7	79.5	74.2	75.2	74.5	67.9
V	Camarines Sur III	75.1	70.8	67.5	69.7	67.5	69.2
V	Camarines Sur II	68.4	65.6	65.3	51.6	50.5	43.5
XI	Davao Oriental	27.4	32.7	23.7	27.3	29.6	35.0
	Total	409.9	487.0	319.7	357.3	419.3	424.0
	Average	12.4	13.9	9.1	10.5	12.0	12.1

Rural Electrification Project  
RMA Evaluation Team

COMPAC 1 AND 2 RECs FINANCIAL DATA CURRENT  
RATIOS  
Quarters Ended March 31, 1990 to  
June 30, 1991

Region	R E C	Q 3/31/90	U 6/30/90	A 9/30/90	T 12/31/90	E 3/31/91	N 6/30/91	D 9/30/91	I 12/31/91	N 3/31/92	G 6/30/92
<u>COMPAC I</u>											
I	Ilocos Norte	0.8	0.9	1.0	1.1	1.4	n.a.				
IV	Quezon I	0.8	1.1	1.9	3.5	2.7	n.a.				
IX	Zamboanga City	0.8	0.9	1.0	1.3	1.3	0.9				
IX	Zamboanga del Norte	1.5	1.4	1.6	1.7	1.6	1.9				
IX	Zamboanga del Sur I	1.8	1.9	2.2	1.7	1.3	1.6				
IX	Zamboanga del Sur II	1.9	2.0	1.8	1.9	2.2	2.2				
VI	Capiz	0.6	0.6	0.6	0.6	0.7	0.8				
VI	Central Negros	1.3	1.4	1.8	1.3	1.2	1.2				
VI	Iloilo I	2.8	3.2	2.0	2.1	2.8	3.1				
VI	Negros Occidental	2.0	1.5	1.6	2.0	1.7	2.0				
VII	Bahal I	2.3	2.3	2.7	2.1	2.5	2.5				
VII	Cebu I	1.0	1.1	1.2	2.0	2.2	2.1				
VII	Cebu II	1.5	2.1	1.7	1.4	1.5	1.5				
VII	Cebu III	2.6	2.2	2.2	3.8	3.5	3.9				
X	Agusan del Norte	0.6	0.7	0.8	0.8	0.3	0.3				
X	Agusan del Sur	1.5	1.5	1.4	1.4	0.2	1.5				
X	Misamis Oriental II	2.7	2.8	2.3	2.3	1.9	0.6				
XI	Davao del Norte	0.4	0.7	0.7	0.6	0.8	0.9				
XI	Davao del Sur	1.9	1.8	1.7	2.1	2.2	1.9				
XI	South Cotabato I	1.5	1.7	1.6	1.8	2.0	1.7				
XI	South Cotabato II	1.3	1.5	1.3	1.3	1.5	1.3				
XII	Maguindanao	2.1	2.4	2.9	2.7	2.7	2.3				
XII	North Cotabato	1.7	1.7	2.2	1.9	1.8	1.6				
<u>COMPAC II</u>											
I	La Union	1.2	1.3	1.7	1.5	1.5	1.5				
I	Ilocos Sur	n.a.	0.5	n.a.	1.4	1.6	2.0				
I	Pangasinan III	0.5	0.5	0.6	0.7	0.7	n.a.				
III	Tarlac II	2.2	1.9	2.1	3.5	4.0	3.8				
III	Pampanga III	2.7	n.a.	2.1	1.7	1.3	3.1				
III	Tarlac I	2.2	1.9	2.1	3.5	4.0	3.8				
IV	Batangas I	1.2	1.8	1.7	1.2	1.1	1.4				
V	Camarines Sur IV	0.4	0.4	0.5	0.4	0.5	0.4				
V	Albay III	2.1	1.9	2.2	1.9	1.8	1.5				
V	Camarines Sur III	1.6	1.4	1.3	1.5	1.4	1.4				
V	Camarines Sur II	2.4	1.9	1.6	1.9	2.0	1.8				
XI	Davao Oriental	1.5	1.9	1.8	2.6	3.2	2.1				
	Average	1.6	1.8	1.8	1.8	1.8	1.8				

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## NEA COMMENTS ON THE DRAFT REPORT OF THE MID-TERM EVALUATION

Page 1-6

Life of Project Budget. Perhaps the coverage of Phase I, the activities included in it and the amounts obligated, expended, etc. should have been outlined. Also the original estimated plan vis-a-vis the proposed redesign could have been presented side by side, for easier understanding.

Page 2-1

The Project in Context. The portion entitled "Assessment of Project Status" seems to imply that the Government and NEA undertook the actions it did in the last two and a half years singularly due to the recommendations contained in a Price Waterhouse (PW) study conducted in 1988. While recognition is made of the value of this study and its precedence in time relative to NEA's actions, it has also to be recognized that these activities were a result of the confluence of positive events at NEA during that period: (a) a dynamic, reform-oriented Board of Administrators was installed in the second quarter of 1988; (b) a purposeful, visionary Administrator was appointed at the helm of NEA in August 1988; and (c) the nucleus of a committed, highly-motivated Management Team was organized in late 1988 on to early 1989. Against this backdrop, the World Bank commenced a rural electrification sector study in November 1988, picked up from the PW paper and prepared a report entitled Philippines Rural Electrification Sector Study: An Integrated Program to Revitalize the Sector in March 1989. This study was followed by a sector loan to the Government which included a provision for an equity transfer to NEA of US\$22.2 million. A US\$91 million follow through loan from the Bank called for a thoroughgoing and meaningful reform which centered around the recommendations of the Sector Study. This effort was assisted to a significant degree by the USAID project consultants.

We believe that it is in this context that the USAID Project must be situated. The "surprisingly rapid rate" of positive institutional changes in NEA noted in the report is proof of the capacity and political will of the present leadership and management team of NEA to seriously undertake reforms with the timely and appropriate assistance of the USAID and the World Bank.

Credits. The report seems to imply in 2.2.3 Financial, that the Investment Guidelines, the Monthly Financial and Statistical Report, and the Financial

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Projection Models are part of the contributions of the project. For the record, let it be stated that the Guidelines were prepared by our Corporate Planning Department under the advice and supervision of the World Bank RE Mission, and that the MFSR has been a fixture in NEA for some years now. The Financial Models were prepared by the World Bank RE Mission, with some refinements provided by a consultant of USAID.

Earlier, in 2.1.3 NEA Action, reference is made to a Statement of Operating Policy, which unfortunately is not credited to any entity. It was a World Bank representative who prepared the Statement in consultation with NEA.

In addition, NEA is proud to lay claim to another achievement, the generic Performance Improvement Program, developed under the guidance of the World Bank R.E. Missions.

Legislation. Add the following: Provides for the conversion of electric cooperatives from non-stock to stock and service oriented cooperatives, with members having their shares not exceeding 20% of their capital.

Page 2-2

The Bail Out Program of NEA by the National Government should have been Item No. 1. The condonation of outstanding REC loans is only a portion of this restructuring program and it is the part where legislation must be passed before implementation can take place. The bail out of NEA needs no legislation and has, in fact, been approved by the Office of the President.

Page 2-4

Direct Connection of Industries. Since this Bill on Direct Connection of Industries is already being deliberated/discussed in Congress (where NEA'S position paper on the matter has been submitted for consideration), there is nothing much that the NEA can do at the moment to reverse whatever decision will be agreed upon.

Page 2-6

Debt Restructuring. On last paragraph: Ten (not thirteen) of the RECs had again fallen into arrears, amounting P15 Million (not P14 Million).

The financial restructuring of NEA and the RECs through the bail out is distinct from the restructuring of RECs' loan arrearages being undertaken by NEA.

Page 2-7

Monthly Financial and Statistical Reports. Monitoring of the PIP is performed in part through the Monthly Financial and Statistical Report (MFSR) being prepared by the Budget Division of the Finance Department at NEA.

Page 2-8

Paragraph 2 Delete Private Development Corporation of the Philippines (PDCP) instead. A banking consultancy will train NEA personnel in the skills and methods required for the performance of this function.

Paragraph 3 Add: REC Investment Analysis Model was developed by CORPLAN E. de Lucia and major input from WB.

Page 2-9

Paragraphs 3 and 4. Is it Corplan?

Alternative Generation. Sentence no. 3 change non-performing to non-operating.

Delete the following sentences: The total value of these assets will be chargeable against the GOP equity to NPC. However, to date, NPC and NEA have not agreed on the valuation of some of these assets (specifically, 69 KV lines and 7 dendro thermal plants). Or treat the issue separate from the Bail Out.

Page 2-10

Paragraph 1 should be CEBECO I instead of CEBECO III. Also this was made clear with the General Manager. There was drain on the limited resources of both the NEA and the RECs.

Page 2-11

Paragraph 2 NRECA was provided an office by NEA with various support staff adjacent to an NEA office building in the Quezon City.

Page 2-12 2.2.3 Financial

Item No. 1 This was prepared by CORPLAN  
Item No. 2 Change standardize to improve

Page 2-13 Item No. 4

The Financial Projection Models developed by WB for NEA and the RECs will enable NEA and the RECs to plan for the future and anticipate potential effects of alternative courses of action.

Engineering Assistance. A point of clarification: Was the statement of work for the USAID's engineering consultants discussed with NEA and the RECs before the work was initiated, and were the roles of both NEA and the consultants clearly defined? If this was done, what was the reason for the difficulties encountered in project implementation? If this was not done, perhaps NEA should make sure that, in the future, it should be thoroughly and intimately involved in drawing up and developing statements of work, not to mention the selection and management, of USAID consultants. This is the best way to ensure that resources are optimized and the project/s successful.

#### 2.2.4 Engineering

1. Expand Engineering Services - it is imperative that the services for long range plans, O and M surveys, sectionalizing studies and mapping are needed not only by NEA Engineering but COREPLAN as well. However, the methodology for implementing these activities should be reviewed and revised if necessary to address the following issue: a) failure to perform least cost analysis (economic evaluation) as pointed out by RMA. Out of the technical assistance component, it may be necessary to conceptualize a method that would interlink technical design and economic desirability. Only on this basis, that a more comprehensive definition of what would cover the activities under the expanded engineering services can be defined.

2. RMA recommends procurement of Engineering software to improve analysis - it is a pity that we have to pay the price for revising REC analysis on AWIA's failure to use NRECA's recommended software. Our concern here is towards joint effort for NEA Engineering and NRECA in doing these analyses. This would ensure that NEA Engineering is aware of what NRECA is doing and would improve coordination in evaluating REC analysis reports.

We subscribe to the idea of requesting AWIA to work in NEA/NRECA premises. Our other concern is that the software should be at least compatible with what we are procuring now under the energy sector project. Another issue for consideration is that RECs with existing computer hardwares may be in the best position to do the analysis when the software is installed at their computers.

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3. Automated Mapping (AM) - Ultimately, it is NEA's objective to establish electronic maps of RECs. In the software we are processing under the energy sector project, we moved one step further. The system will be an automated mapping/facilities Management (AM/FM) software with a special feature to do engineering analysis out of the electronic maps of REC distribution system. We foresee that services for digitizing REC system maps would benefit NEA the most. In fact, we are putting some reservations on the long range plans that will be developed under the expanded engineering services as it might turn out different from the results of simulated analysis under this software. As these plans are long range plans, we might find ourselves confused on what basis shall we define our future plans and investment requirements.

Page 2-14 Paragraph 1

Distribution systems have been poorly constructed - What is the basis of the statement?

Page 2-15

On the reported "reluctance of NRECA/AWIA/NEA to investigate alternative construction techniques and/or approaches," more detail is needed, like what makes RMA state thus, and what alternatives to its restrictions to.

Page 2-16

Paragraph 0 Sentence No. 0 should be - Deleted has 4'888s of the existing PCs are 8088 microprocessor based.

Paragraph 5 Sentence no. 2 - change are expected to, is expected.

On Computerization. The activities under the expanded engineering services should be evaluated in relation to the recently approved SOW of Mr. Jack Hicks which in brief, will define specifications and assist in the procurement of Engineering software and computer equipments for the RECs. This implies that when these activity is in place, the REC will have the capability to do its own engineering analysis. From our preliminary discussions with NRECA, the present budget of about a million dollars for computer technology will cover a complete EBS and GL system and computer equipments for about 10 RECs and integrated GL software for the remaining RECs. We are not aware how the procurement of computers and engineering software under Mr. Hicks SOW would fit in that budget. However, we feel that in order to implement the information system plan of both NEA and RECs, we recommend that this allocation be increased to cover as many RECs the

installation of a complete computer system. NRECA has come up with the Information System Plan for NEA. We recommend the usage of \$568,000 allocated for NEA computers under this project, to kick off implementation of NEA computerization. We believe that REMP should be given utmost priority in terms of implementation. As soon as the REMP is conceptualized, the direction of engineering, financial and institutional long range plans will be placed in a proper perspective. So far, we do not see any integration of all the activities being done under the project relative to our long range objective of the Rural Electrification Program.

Page 2-17

Paragraph 1 a) This is partly because of the delay in the computerization tasks of NRECA, i.e. Information System Plan was not prepared well and done late. This was not given priority in the first place by NRECA. b) Sentence no. 3 change would have to would be.

2.2.6 Training. Last paragraph a) funding not complete b) too many training programs but no coherent/comprehensive curricula - training materials should be developed such as case studies, etc.

Page 2-18

Institutional Commodities. There appears to be a substantial number of consultants to be hired under the Computer Sub-Team Workplan. Specifically, what will they be doing, and is there a possibility of decreasing their number? How will NEA use used to monitor this workplan?

On Findings

- a) Reason is late start - not given priority
- b) no full time or long-term consultant until August.

Page 2-21

On Recommendation No. 3 We need to get more qualified staff. The problem is salary rate.

Page 2-22

On Recommendations what about MIS for NEA? Can this be included?

Page 2-23

Compac 3 - Mobile equipment - specifications are changed.

On Findings No. 4

a) Lack of coordination  
b) The report states that NRECA has established a materials tracking system which "is not used or completely understood by the NEA materials management group." We request that this system be made available to us. Furthermore, we ask: has the NEA materials management group been involved in the development of this system or was it developed by NRECA, or its subcontractor, independent of NEA, such that NEA has not acquired a sense of ownership of the system? Has the NRECA, or its subcontractor, worked closely with the NEA materials management group in the conduct of the procurement for the USAID Compass, or did it undertake this activity by itself? In this light, Item No. 7 of P. 2-23 is more faithful to reality than Item No. 4 will ever be.

Page 2-24

a) Item No. 8

1. Change NRECA to NEA  
2. States that "NRECA is planning to initiate a study of materials handling..." which activity is being funded by the World Bank Energy Sector Loan. Even if indications point to a consultancy with NRECA, the statement is a presumption because the selection process is still being finalized with government. Further, we respectfully declare that it is NEA which is planning to initiate this study with, most probably, NRECA as consultant.

b) Item No. 9 - Loans were granted to NEA to finance the 9% ad valorem tax c) On Recommendations Item No. 1 - not necessarily NRECA.

Page 2-25

No. 2 - speaks of details to be established in the materials handling system. We appreciate their pointing out these details and hope to incorporate these concerns into the detailed work statement of the consultant.  
No. 3 - already done.

Description. Correct the word "identified" to "identified"

Page 2-26

Findings Item No. 2 Sentence No. 3 The Evaluation Team did not investigate these alleged limitations thoroughly, but noted that the comments were not isolated.

On Recommendation No. 3, RECs are allocated maintenance/boom trucks under NE and OECF Projects.

Page 2-27

On REC Capability and Involvement a) AWIA and also NRECA/AWIA should review/improve their methodologies b) Paragraph 2 - this is covered by Bail Out c) Paragraph 3 - Investment guidelines were discussed during the last workshop including the computerized model. But inconsistencies in enforcing/implementing the policies are confusing the RECs d) distinction must be made between the NEA of the past regime and the present NEA administration. While there was substantial top-down dictation by NEA to the RECs in the past, we are trying to rectify the situation at present. Also, we do not agree that GOP/NEA's "heavy hand" weighed down on the RECs with its restrictive equipment procurement policies. There are a good number of vehicles and other equipment procured under the World Bank Energy Sector Project. The fact that NEA and the RECs did not have the needed equipment, materials and vehicles stems, not from policy, but more from a dearth of funds. Perhaps to be considered too is USAID's policy on vehicle procurement.

Page 2-29

Kislap Kuryenta. This program is a brainchild of our present Administrator and should be acknowledged as such.

Page 2-30

Rate Increases. As of September 5, 1991, the rate proposals of around 101 Rural Electric Cooperatives, (including those of the 13 Small Island Rural Electric Cooperatives - SIRECs), have already been approved: 88 of which are increased and 13 others retained (due to margin derived from the 1.4 multiplier). For mainland RECs, the approved rate increases range from 0.9 to 1.1 centavos per kwh. The increases vary from 23.7 centavos to P2,185 per kwh. Out of the 13 more RECs without approval, 13 are expected to submit the necessary endorsements to facilitate approval and the remaining five are scheduled for final discussion.

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Page 2-31

Appendix O is not attached in the report (and others).

Page 2-33

Conclusions of Mid Project Evaluation Item No. 4 - ultimate success will also depend on consistency in implementing policies.

Page 2-39 Item No. 5(d)

Noteworthy USAID assistance for training of NEA and REC personnel abroad should be mentioned.

Page 3-1

Other Donor Projects. No mention is made of the US\$22.2 Million World Bank Energy Sector Project, which contributed to improvement of NEA and REC operations in a significant way.

Page 3-2

Item No. 2-b - this is not quite correct. There are no warehouses.

Page 3-5

The categories enumerated under the OECF NEA Rural Electrification Project -- rehabilitation, add-ons and expansion -- are not exclusive to this project. Further, the paper is not very clear about what "Common Items" means. Perhaps the topic should not be discussed under the OECF Project since such trainings can also be found under the USAID Rural Electrification and World Bank Energy Sector Projects. Banking and finance technical assistance is under the WB Energy Sector Project, with notable contributions for USAID Project's consultants.

Page 3-7

Negotiations will be done primarily by NEA, not GOP, especially as far as the points raised in the paper are concerned.

Page 4-1

What actually does this consist of? How many consultants are we talking about in the extension of the services? Furthermore, there is need to determine if this assistance will really be needed once NEA's computer hardware and software arrive. Both the WB Energy Sector and the OECF Projects have computer HW and

SW procurement packages which include training for NEA staff. Will the C and M studies and other activities still have to be done by an engineering consultant? What will be the role of NEA in this endeavor? Will technology transfer not take place? NEA should work closely with AWIA in completing the consultant's services in the remaining 24 RECs and pick up from where the work is left off. If consultancies of this kind are extended ad infinitum, NEA will never have the engineering skills it should have and will, therefore, continue to be dependant on highly-paid consultants.

Page 4-3

On Expand Engineering Services. To increase manpower, not to extend period.

Item No. 2 Paragraph 1 These can be done under the present contract.

Page 4-4

Item No. 3 - Isn't this covered by Jack Hick's Statement of Work?

Page 4-5

For all of these trainings, it would most probably be helpful and fruitful to NEA if resources of local institutions -- like the UP College of Engineering, Meralco, DAP or other such entities -- could be tapped. Costs would probably be not as high and more people could probably be invited to attend. NEA has to determine what needs to be done, what it should and can do directly, and what it can contract out. Also, the USAID could probably conduct or sponsor local training courses for a substantial number of NEA, REC, OEA, NPC, etc. participants (like the USAID-DA training at UP Los Baños, which was conducted by the Harvard Institute for International Development).

As far as Philreca is concerned, much as there is agreement that NEA should support this fledgling organization, it has to be recognized that Philreca is just that: a fledgling organization. Though the vision is for Philreca to eventually conduct trainings for NEA and the RECs, the present reality is that it has no manpower, skills, and overall capability at the moment to assume this role.

Page 4-6

Paragraph 1 - to include NEA

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Page 4-7

Long-term Training Advisor (45 mo.) - May not be expatriate and may be tapered off

Master Planning. The plan should indicate how we should proceed to know what we need to know and go where we want to go. As outlined in the report, the Master Plan seems to start at the middle, meaning some steps at the where we are and where we want to go have been skipped or presumed. Perhaps some benchmark data have to be established first. Methodology is already a how, a later step. So is pricing.

Page 4-8

Paragraph 1 - Is this in conjunction with the Investment Plan?

Paragraph 3 - It seems that engineering and the socio-economic objectives are the ultimate organization goals of NEA and the RECs. We are supposed to be an interested lender.

Page 4-9

On Vehicle Procurement - should be done earlier than 1995

Page 4-11

Commodity procurement can perhaps be discussed in a meeting called for this purpose.

Page 4-12

On Computers - are 94 RECs covered by present?

Page 4-13

Perhaps NEA can be allowed to be more active in the selection of USAID consultants of the project. If not, NEA should be able to manage these consultants, or should be ever conscious that it should manage the consultants.

As far as training consultancy is concerned, we believe that it can be undertaken by another organization.

Appendix E.

It is surprising to note that a very important document, the World Bank-NEA's Philippine Rural Electrification Sector Study: An Integrated Program to Revitalize the Sector, was not among those reviewed by the consultants.

Additional Comments

The findings of the team are somewhat hypothetical and cannot just be concluded as divorced to other concerned departments. Please take note that when these improvements were adopted to our present operation, all operational manuals, i.e. Investment Guidelines, Loan Policies, Tariff, etc. are going along in the conduct of the NRECA-AWIA O and M survey

Manuals were easily drafted and subsequently been approved without yet the output of the O and M survey. Thus, the output of this survey was not utilized as reference in the development of the Investment Guidelines nor in the analysis of the annual workplan. The result of the survey just indicate the actual requirements of the RECs but does not reflect which of the requirements are of the direct operation and maintenance expense nor the capitalized expense. Thus, we are further reviewing the output for integration to the RECs investment.

On the present capacity of the Engineering Department, where we don't have yet the modern computer based technology in the systems analysis, our contribution in the preparation of the mid-term and long-term planning can only be considered as rough estimates only. Our analytical capability can only reflect the present and immediate needs and hardly project and analyze the future needs of the facilities.

Therefore, on the emphasis on Project redesigning if this will push through, the Agency should review and consider the role of the consultants in parallel to the efforts being made by NEA:

- to cope up with the Engineering analysis requirements of all RECs distribution network, the Team should study the adequacy of the computer hardware and software being procured by NEA funded by WB and supplement this according to the needs;

- where the Engineering has the responsibilities of reviewing the output of the consultants as well as the proposal of the RECs, the proposed improvement in the

consultant's engineering methodology be redirected in parallel with the WIA engineering department. The process of having these undertaken by both will then result in the transfer of technology being eyed in this project:

- a generous provision in the procurement of additional equipments, vehicles, machineries and supplies to reinforce the on-going implementation of putting up of Zonal Repair Centers and the possible financing of the construction of the buildings.

## WORLD BANK AND OVERSEAS ECONOMIC COOPERATIVE FUND RURAL ELECTRIFICATION PROJECTS

*Note: Information provided in this section has been extracted directly from the World Bank's Staff Appraisal Report Philippines Rural Electrification Project (Yellow Paper), dated July 26, 1991.*

### WORLD BANK PROJECT

#### X.1.1. PROJECT OBJECTIVES

*Ref: Page 16 of Yellow Paper*

The proposed World Bank project aims at supporting the revitalization program by 1) enhancing NEAs capability to function as an effective core agency for the RE sector through its application of sound strategies for evaluating and selecting investments, supervising the implementation of schemes, and financing for the RECs; 2) encouraging operational and financial reforms among the RECs through NEAs judicious use of conditionality; 3) improving the availability of reliable electricity supply in rural areas by financing a portion of NEAs 1992-95 investment program; and 4) providing technical assistance and training for NEA and the RECs needed for institutional development. The following descriptions and cost estimates are extracted from the World Bank "Yellow Paper" report. It should be noted that the project definition is subject to change to reflect accommodate the proposed parallel financing arrangement discussed in Sections 3.3 and 4.0.

#### X.1.2 PROJECT DESCRIPTION

*Ref: Pages 16 and 17 of Yellow Paper*

The proposed project consists of two urgently needed components: 1) an institutional development component aimed at restructuring NEA and the RECs, and 2) an investment component aimed at providing urgently needed new facilities or upgrades to existing facilities:

1. The Institutional Development Component would be implemented through 1) application of conditionality on NEA's future loans to the RECs, and 2) technical assistance and training to be provided under the proposed project, including "inter alia" a provision to complete the REMP that was recently begun with USAID financing.
2. The Investment Component consists of specific projects from the NEAs 1992-95 investment program, and was structured to enable the Bank to monitor all aspects of NEA's project cycle. Activities being financed under this component include - 1) system rehabilitation and reinforcements, including needed upgrades to substations, feeder lines, secondaries, branches, and service drops as necessary to improve the reliability of power supply and customer service, 2) connection of prospective consumers within a reasonable distance of existing lines, and 3) economically justified distribution system

The proposed loan would finance the purchase and installation of materials and equipment as well as services for the following endeavors:

1. REC Distribution System

- a. Construction of twenty-seven 69/13.2 kV substations of 5 or 10 MVA each at approximately 19 RECs, and upgrading of 12 substations at approximately four other RECs. The total additional transformer capacity would be approximately 280 MVA;
- b. Construction of approximately 3,500 km of 13.2/7 kV three phase and single phase primary lines, and approximately 1,800 km of 220/110 volts secondary lines. The installation of approximately 17,000 distribution transformers with a total capacity of around 331 MVA at about 50 RECs;
- c. Materials for connecting approximately 285,165 consumers, including service connections, meters and approximately 1,450 low voltage capacitors (around 85,475 kVAR) at approximately 50 RECs.

2. Support Facilities

- a. Support equipment, including tools, service vehicles, and testing equipment, office and communication equipment for approximately 50 RECs; and
- b. Infrastructure and support facilities for NEA, including regional offices, a training center, a workshop, and warehouses, the equipment needed for those facilities including "inter alia" computer hardware, mobile substations, etc.<sup>1</sup>

3. Training and Technical Assistance

Consulting services and training to assist NEA and the RECs in project execution, operation and management (including upgrading of technical and financial skills).

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1. NEA has commented that warehouses are not included.

X.1.3. TECHNICAL ASSISTANCE AND TRAINING  
Ref: Page 16 of Yellow Paper

The technical assistance and training program included in the proposed project would consist of three main components:

1. Strengthening the Planning Capabilities of NEA and the REC. NEA's current planning methodology is adequate for now, when many RECs have a backlog of justifiable investments. However, the initial planning exercise has revealed the need to focus more on load forecasting, network mapping and design and the definition of technical parameters. More importantly, future plans will need to rely more heavily on inputs from the RECs themselves, with ground truthing to be performed by NEA and RECs need to be strengthened, and the network for the medium term need to be established.
2. Extending to all RECs the Institutional Assistance Being Provided to the Beneficiaries of the Ongoing USAID Project. This includes 1) developing accounting manuals, and providing training to the users, 2) adjusting existing budgetary systems to enable the more effective management of REC operations, 3) introducing a computerized billing system adaptable to an integrated information system, 4) recommending adjustments to existing rate setting processes based on the provisions of the tariff manual, and 5) developing training to meet managerial, operational, maintenance and administrative needs.
3. Zonal Maintenance Centers. This technical assistance would include the design, preparation of specifications for the purchase of equipment and tools, and training during start-up operations for NEA's seven major repair and maintenance centers.

Altogether, implementation of this technical assistance and training program is expected to require approximately 200 person-months of consulting for the preparation of documents and manuals, field training, courses and study tours. USAID, which would parallel finance this project component, is preparing the scope of work and terms of reference for these activities based on discussions with the World Bank. Procurement with regard to this component would follow USAID procedures.

x.1.4 PROJECT COSTS

Ref: Page 19 of Yellow Paper

The Projects estimated cost including physical and price contingencies as well as duties and taxes, is US \$100.4 million (based on March 1991 price). This includes US \$84.8 million of foreign exchange, and US \$15.6 million in local costs (including US \$6.3 million in taxes and duties). Physical contingencies of 10 percent are assumed for equipment, materials and services, based on previous experience with rural electrification projects. Price contingencies for foreign costs are assumed at 3.6% per year throughout the project implementation period, and for local costs at 11% for 1991, and 10% each year thereafter. The cost estimates for the World Bank project are summarized as follows:

World Banks Project Cost Summary

	LOCAL (Peso Million)	FOREIGN (Peso Million)	TOTAL (Peso Million)	LOCAL (US\$ Million)	FOREIGN (US\$ Million)	TOTAL (US\$ Million)	FOREIGN EXCHANGE COST (%)
<b>REC DISTRIBUTION SYSTEM</b>							
Rehabilitaion	109.8	992.0	1,101.8	3.9	35.4	39.3	90.1
Add-on	11.2	113.2	124.4	0.4	4.0	4.4	90.9
Expansion	80.4	480.0	560.4	2.9	17.1	20.0	85.5
Sub-total	201.4	1,585.2	1,786.6	7.2	56.6	63.8	88.7
<b>SUPPORT FACILITIES</b>							
REC	0.0	88.5	88.5	0.0	3.1	3.2	100.0
Mobile Substation	0.0	56.0	56.0	0.0	2.0	2.0	100.0
Zonal Repair Center	56.0	56.0	112.0	2.0	2.0	4.0	50.0
NEA	0.0	70.0	70.0	0.0	2.5	2.5	100.0
Sub-total	56.0	270.5	326.5	2.0	9.7	11.7	82.9
<b>TRAINING &amp; TECH. ASSISTANCE</b>							
	28.0	140.0	168.0	1.0	5.0	6.0	83.3
<b>ADMINISTRATION</b>							
	28.0	0.0	28.0	1.0	0.0	1.0	0.0
<b>TOTAL BASE</b>							
	313.4	1,995.7	2,309.1	11.2	71.3	82.5	0.0
Physical Contingencies	31.3	199.6	230.9	1.1	7.1	8.2	86.4
Price Contingencies	114.5	226.1	340.6	3.3	6.4	9.7	66.0
Total	459.2	2,421.4	2,880.6	15.6	84.8	100.4	84.5
<b>INTEREST DURING CONSTRUCTION</b>							
	99.0	119.0	218.0	3.0	3.6	6.6	54.6
<b>TOTAL FINANCING REQUIRED</b>							
	558.2	2,540.4	3,098.6	18.6	88.4	107.0	0.8

extensions.

**X.1.5 PROJECT FINANCING PLAN**

*Ref: Page 20 of Yellow Paper*

The total financing requirement, including interest during construction (IDC), amounts to U.S. \$107.0 million, including U.S. \$18.6 million in local funds and U.S. \$88.4 million in foreign exchange. A proposed Bank loan of U.S. \$80 million equivalent would finance about 90% of the foreign exchange requirement, and about 82% of the total net of local taxes, duties and IDC. The proposed Bank loan of U.S. \$80.0 million would be lent to NEA for 20 years, including five years of grace on repayment of principal, at the Bank's standard variable interest rate. USAID has indicated a willingness to finance in parallel the training and technical assistance component, representing about 6% of the foreign exchange requirements and about 5% of local currency requirements. Effectiveness of the USAID parallel financing would be a condition of effectiveness of the proposed loan. The remaining U.S \$21 million which represents about 19.6% of the total financing required (including duties,taxes and IDC), would be covered by NEA (U.S. \$12 million or 11.2% of the total) and by the RECs (U.S. \$ 9 million or 8.4% of the total). This financing plan is summarized in the following table. Should the cost of materials and equipment purchased for foreign exchange increase substantially; cost overruns in local currency would be borne by NEA and the RECs.

PROJECT FINANCING PLAN

	<u>LOCAL</u>	<u>FOREIGN</u>	<u>TOTAL</u>
Proposed IBRD Loan	0.0	80.0	80.0
USAID Parallel Financing	1.0	5.0	6.0
NEA	8.6	3.4	12.0
RECs	9.0	0.0	9.0
Total	<u>18.6</u>	<u>88.4</u>	<u>107.0</u>

An on-lending agreement between NEA and each of the beneficiary RECs would need to be signed before NEA orders goods and equipment on their behalf. The amount of the onward loan would be based on the CIF/ex-factory cost of equipment and material, custom duties and taxes, if any, in-country transportation (on a cost plus basis), plus an add-on of 5% to cover NEA's cost of materials handling. Where NEA takes responsibility for civil and erection works, the loan amount would also include a provision to cover those costs based on an estimate of either the contract price or force account charges (para. 4.21). NEA has been asked to bring to negotiations a draft of a generic on-lending agreement for the Bank's review and comment. NEA would bear the foreign exchange risk (para. 5.12). The parameters of on-lending are discussed in paras. 5.14 and 5.20 (a). At negotiations, NEA

will be asked to agree that it will furnish to the Bank a copy of each on-lending agreement not later than one month following its signature.

#### **X.1.6 CONDITIONALITIES**

*Ref: Pages 42 and 43 of Yellow Paper*

The World Bank establishes the following conditions relating to its proposed loan to NEA:

- a) Furnish to the Bank ten satisfactory Scheme Evaluation Reports (Para. 4.9); and
- b) Nominate a Project Director, with qualifications satisfactory to the Bank, (para. 4.23).

Assurances would be sought at negotiations that NEA would:

- a) Not amend, abridge, or repeal the SOP, or any annex thereto, without obtaining the Bank's prior consent (para. 2.12);
- b) Furnish to the Bank by June 30 of each year, its annual financial statements certified by an acceptable auditor (para. 2.12);
- c) (i) conduct jointly with the Bank an annual review of its investment program for the next five years and its investment accomplishments for the last two years, and (ii) adopt any mutually acceptable adjustments (para. 4.3);
- d) Furnish the remaining Evaluation Reports to the Bank for review and comment (para. 4.9);
- e) Furnish to the Bank a copy of each on-lending agreement not later than one month following its signature (para. 4.14); and
- f) Have its activities in relation to the Special Account, as well as the Statement of Expenditures being maintained for disbursement purposes, audited in conjunction with the audit of its annual accounts (para. 4.18)

At negotiations, undertakings would be sought that the Government and NEA would:

- a) Utilize resources accumulated in Foreign Exchange Trust Fund only for the purpose of covering NEA against further foreign exchange losses (para. 5.12); and
- b) Use their combined efforts to ensure that necessary legislation to increase NEA's authorized capital to 20 billion is enacted by the end of 1992 (para. 5.18)

The following would be conditions of effectiveness of the proposed loan:

- a) NEA's retention of consultants to conduct a technical assistance effort in the area of materials handling (para. 2.5)
- b) NEA's retention of consultants to provide assistance with NEA's loan administration function (Para. 2.10); and
- c) Effectiveness of the USAID parallel financing (para. 4.13).

## X.2 OECF PROJECT

The proposed project is structured to support upgrading of RECs facilities, and selected expansion of RECs services. It complements the USAID and World Bank Rural Electrification Programs. The OECF project assistance can be classified into the following categories:

### 1. Rehabilitation

Rehabilitation can generally be defined as improvements to the existing system (e.g., reconditioning, meter recalibration, transformer replacement, voltage regulation, other reinforcement investments, and replacement of failed or dilapidated equipment). The specific need for rehabilitation may be to address system inefficiency, to provide preventive maintenance, or to relieve capacity constraints.

### 2. Add-on

Add-on projects as defined by NEA represent the connection of new consumers along existing distribution lines. Theoretically these projects might also include short new lines which bring power to new groups of customers. As defined, the only incremental cost of add-on connections is the service drop, metering and transformer.

### 3. Expansion

System expansion refers to the extension of the existing system, through new feeders and/or substations, or through the extension of existing feeders.

### 4. Common Items

#### a. Training

The trainings for NEA and RECs shall include:

#### 1. Management and Development Program

The program consists of the formulation and implementation of management development program for an effective and efficient management of NEA and the RECs.

#### 2. Technical and Electrical Trades

The program aims to upgrade the technical skills of NEA and RECs employees.

3. Regular Training

The training program consists of financial, technical, and institutional types of training for the department heads, rank and file employees of the RECs.

4. Computer Courses

The computer courses cover the basic computer operations, Lotus 1-2-3, disk operating system (DOS) and Word Star operations.

5. Banking and Finance

The program consists of courses that will equip NEA staff the skills needed when NEA ultimately functions as financial intermediary discharging its lending operations. Its objective is to reorient the staff on NEA's focus towards loan programming, credit analysis and loan administration, among others.

6. Foreign and Local Scholarship

The objective of the program is to further upgrade the technical skills of NEA staff. The staff should have the necessary technical expertise to support the RECs.

b. Zonal Repair Facilities

The six (6) mobile zonal repair facilities shall be established in six (6) strategic locations and readily accessible to all RECs covered by each zone. They shall be mounted in vans equipped with the necessary testing equipment in order to provide the normal range of services and can handle the repair and rewinding of power transformers.

c. Others

Providing the RECs with the necessary support facilities will enhance their performance in the maintenance, construction and testing of equipment. In effect, systems loss will be reduced and the reliability of service shall be improved.

The QECF project is loosely defined in the final report of their consultant, however, the project goals and objectives closely parallel the World Bank and USAID projects.

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SCOPE OF WORK FOR THE RURAL ELECTRIFICATION PROJECT

Attachment A  
PIO/T No.492-0429-3-10118

PROJECT EVALUATION  
Scope of Work

I. ACTIVITY TO BE EVALUATED:

Project Title : Rural Electrification Project  
Project Number : 492-0429  
LOP Dates : September 28, 1988 - September 30, 1993

II. PURPOSE OF THE EVALUATION:

The purpose of the evaluation is to review progress on the implementation of Phase 1 of the Rural Electrification Project, assess on-going plans and options, and develop an implementation plan for the future of the Project if the evaluation recommends continuation. Detailed plans for the future of the project will be based on progress to date towards meeting the goal and purpose of the Project, and the extent to which the National Electrification Administration (NEA) and the RECs remain committed to restructuring and improving the Philippine rural electrification system.

The review of on-going plans for the future of the Project includes the following four general categories of options for development of the Phase 2 implementation plan.

- A. Continue the project as planned, retaining the project scope but making specific changes for improved performance;
- B. Continue the project as planned, but change the project scope;
- C. Limit, revise or otherwise sharpen project scope and implementation;
- D. Terminate the project.

The evaluation is in accordance with the planned mid-project review of the Project Paper.

III. BACKGROUND:

The Rural Electrification Project Grant Agreement was signed on September 28, 1988. The goal of the project is to increase the reliability of electric power service in rural areas of the Philippines. The purpose of the project is to achieve commercial viability of selected rural electric cooperatives (RECs) by addressing institutional, policy and technical weaknesses of the rural electrification system. Under the project, USAID agreed to provide up to \$40 million for technical assistance, training

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and commodities to support NEA and REC institutional reforms component), and for commodities needed by participating RECs to reduce system losses (systems loss component). The National Electrification Administration (NEA) has primary responsibility for project implementation.

The project is structured in 2 phases. In Phase 1, the project is providing commodities to 35 RECS, and technical assistance to NEA and the RECs. The total funding for Phase 1 is approximately \$16 million. Continuation of the project and funding for Phase 2 is contingent on a satisfactory mid-project review.

All Conditions Precedent (CPs) to Disbursement under the Project Grant Agreement were met on March 19, 1990, one year after the original terminal date for CPs. The delays in meeting CPs were in large part due to an underestimation of the time required to meet them. The most difficult CPs were the preparation of loan documents between NEA and the participating RECs, and the completion of financial analyses of beneficiary RECs and the signing of loan agreements for the commodities. The National Rural Electric Cooperative Association (NRECA) was contracted by USAID on May 21, 1990 after all CPs were met to provide technical assistance for project implementation. NRECA was also contracted to do most of the procurement of commodities funded by USAID under the project.

Project progress through April, 1991 appears to be positive. Institutionally, NEA is being financially restructured to restore solvency (requiring legislative approval). This is well advanced. NEA is also rapidly reorienting itself as an "interested lender" to the RECs, and is adopting policies and procedures which will financially and operationally reform and improve the sector. REC operations and maintenance (O&M) surveys which will provide data for plans for electrical distribution system improvements are nearing completion for the 35 RECS participating in Phase 1 of the Project. Participating RECs have shown progressive reductions in systems losses and electricity tariffs have been increased dramatically, thus improving their financial viability. New REC Accounting and Budgeting Manuals, automated customer billing systems, non-technical systems loss reduction programs, restructuring of loan arrearages, and other financial and institutional initiatives are also underway.

Regarding the commodity support for rehabilitation of the distribution of participating RECs, contracts for about \$13 million in Phase 1 commodities have been awarded and about \$3.2 million worth (poles, conductors, kilowatt-hour meters, distribution transformers and test equipment) have been delivered to the RECs. Full delivery of Phase 1 commodities is estimated to be completed by September, 1991.

In addition to the above-mentioned procurement of commodities, project funds have also been committed to finance transformers, conductors and kilowatt-hour meters in response to NEA requests for disaster assistance as a result of damage from a July 16, 1990 earthquake and a November 12, 1990 typhoon. Contracts for commodity disaster assistance for 25 RECs amounting to approximately \$580,000 have been executed with various suppliers.

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Finally, the World Bank and OECF are planning loan fund support to NEA in the rural electrification sector starting in 1992. The goal and purpose of the USAID, World Bank and OECF projects are compatible, and the institutional and policy issues being addressed by the USAID Project have been supportive and are being coordinated with the other donors. The Bank and OECF project assistance will be in the range of about \$80 million each, and as a result of this proposed additional support for the rural electrification sector, USAID and the World Bank are exploring and developing plans for parallel financing of the sector.

In March 1991, USAID contracted the firm of Energy Resources International (ERI) to review the status of the Rural Electrification project and assess options for Phase 2 project implementation under a parallel financing mechanism with the proposed World Bank project. The ERI report (Project Status and Future Options, dated May 24, 1991) concluded that the project is proceeding satisfactorily and presented four options with a recommendation for USAID to proceed with Option #4 for the balance of the project under a parallel financing arrangement with the World Bank. The Mission has reviewed the ERI report and has conceptually approved proceeding with development of the detailed analyses and plans for Option #4 with the World Bank.

In the event the proposed evaluation recommends continuation of the project as planned - for a Phase 2 parallel financed arrangement along the lines of Option #4 of the ERI report - the contractor will be required to provide a detailed design with supporting analyses for a Phase 2 parallel financed program, in consultation with the Mission. This detailed design should be sufficiently adequate to serve as the basis for a Project Paper and Project Agreement Amendment.

#### IV. STATEMENT OF WORK

##### A. Review and Assessment of Project Progress

The contractor shall review the status and implementation of the project towards meeting objectives. The contractor will particularly address the following:

- (1) Assess GOP/NEA continued commitment to achieving the commercial viability of the Philippine REC system.
  - Review and assess policies and actions taken by the GOP/NEA in support of the independent commercial viability of RECS, including:
  - Actions undertaken regarding the turn-over of all National Power Corporation direct connected non-utility customers to the distribution utilities holding the area coverage franchises.

- Actions undertaken by NEA and the RECs to cease all activities which are unrelated to rural electrification, such as the BLISS program, TANGLAW, LIVELIHHOD projects, etc.
  - Actions undertaken regarding discontinuation of all generation and transmission activities by the RECs, i.e., dendro thermal and mini-hydro power plants.
  - Review and assess progress on development and implementation of GOP/NEA guidelines/rules which would require RECs to be more financially responsible. Assess adequacy and significance for REC commercial viability, and identify other possible needed actions.
- (2) Assess status and effectiveness of all activities, contracts and staffing for meeting project objectives. This includes technical assistance, USAID and counterpart staff, training, policy agenda/plans, commodity procurement, delivery and installation, and NEA and REC financial, accounting and engineering operations.
- Has NEA established a sufficient capacity to implement the project, specifically technical staff, management direction, administrative support and facilities?
  - Assess responsiveness of technical assistance to the needs of the project. Is the technical assistance properly staffed? Is the technical assistance sufficient to support the need for project success? Do project plans/actions require modification in view of current economic conditions or project experience in order to meet project objectives?
- (3) Identify and assess activities which contribute to progress at the REC level towards solving managerial, operational and technical deficiencies, specifically the following.
- Plans and activities for zonal repair facilities for RECs.
  - Plans and activities related to the system and O&M studies to determine REC system operating requirements, system improvements and rehabilitation plans.
  - Plans and activities for the design and implementation of a microcomputer-based billing and customer accounting system.
  - Plans and activities for technical and non-technical measures to minimize system losses.

- (4) Assess measures implemented by NEA to improve its managerial and administrative effectiveness, specifically the following.
  - Reorganization plans and activities for NEA to streamline and improve overall operations.
  - Implementation of measures to improve and strengthen NEA's support of the RECs.
  - NEA and REC staff training program development and implementation.
- (5) Assess the status and effectiveness of the commodity procurement activities of the project, specifically the following.
  - Was Phase 1 commodity procurement timely and were types and quantities of commodities adequate to meet objectives?
  - Identify problems with procurement, delivery, and use of commodities, including monitoring systems.
  - Assess adequacy of operational systems and accountability for delivery and use of commodities.
  - Vehicles were added to the project through a Project Agreement Amendment. Assess the usefulness, results and need for such support.
- (6) Assess progress and potential of participating RECs to meet agreed-upon performance targets, specifically the following.
  - Reduce REC system losses to 15%.
  - Improve REC power load factors to 95%.
  - Improve REC collection efficiency.
  - Improve REC financial operations and reduce operating expenses per kilowat hour.
  - Reduce REC power outtages.
  - Are RECs keeping current with NEA and NPC payments?
  - Improve financial ratios as provided for in the loan contracts between NEA and the RECS.
- (7) Assess status of host country contributions toward project objectives.

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- (8) Assess donor coordination and progress in attracting additional donor financing for the program. This would include an assessment of on-going and planned donor projects in the sector.
- (9) Review and assess plans for Phase 2 of the USAID Project and World Bank parallel financing arrangement along the lines of Option #4 as contained in the ERI report - Project Status & Future Options.

#### B. Project Redesign Requirements

Assuming that the evaluation confirms the continuation of the project as planned - along the lines of Option #4 of the ERI report - the contractor should provide a detailed redesign of the project plan with supporting analyses for Phase 2 of the project. This would include particular attention to issues the Mission has identified under Option #4. These issues are discussed in an Action Memorandum for the Mission Director dated June 19, 1991, which provides approval for the Project Officer to proceed with developing a parallel financing arrangement for Phase 2 of the project with the World Bank.

The project design for Phase 2 should include a detailed description with supporting analyses, an implementation plan, and a detailed budget breakdown for the balance of the project sufficient for use by the Mission for a Project Paper and Project Agreement Amendment.

#### V. METHODS AND PROCEDURES

In carrying out the evaluation, the following activities are included:

- A. Review Documents
  - 1. Project Paper and Project Agreement.
  - 2. National Rural Electric Cooperative Association (NRECA) technical assistance contract, work program, progress reports and files.
  - 3. NRECA short-term consultant reports.
  - 4. Project Implementation Letters and USAID Project Files.
  - 5. Energy Resources International Report of Project Status and Future Options.
  - 6. Tentative Plan for USAID/World Bank parallel financing.
  - 7. World Bank Appraisal Reports and OECF Program documents.

B. Interview Key Personnel

1. NEA Administrator

Deputy Administrators  
Project Committee Members  
Regional Electrification Managers

2. USAID -

Project Officer  
Project Manager  
Project committee  
Chief, Office of Capital Projects

3. NRECA -

Institutional Advisor  
Engineering Advisor  
Sub-Team Leaders  
Local sub-contractors  
Short-term consultants

4. Selected Participating RECs -

Board Members  
General Managers  
Engineering Managers  
Finance Managers

5. Selected Commodity Suppliers- Managers/Representatives

VI. REPORTING REQUIREMENTS

1. Submission of Reports and Schedule - The contractor will brief USAID and NEA on progress of the evaluation and will prepare and provide USAID and NEA briefings and reports in accordance with the following schedule.

BEFORE END OF 4TH WEEK - Contractor briefs USAID on the status of the evaluation and preliminary findings and recommendations for the future of the project.

BY END OF 5TH WEEK- Contractor submits Draft Report and briefs USAID.

- USAID/NEA provide written comments to contractor on draft report within 2 Weeks.

BY END OF 9TH WEEK - Submittal of Final Report. The contractor will finalize and submit 20 copies of a final report to USAID within two weeks from the date the contractor receives USAID and NEA comments on the draft.

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2. Format of the Report

The evaluation team should prepare a written report containing the following sections:

Basic Project Identification Data Sheet - See outline in Attachment D.

Executive Summary - The summary should state the development objectives of the project; purpose of the evaluation; study methods; findings, conclusions, and recommendations; and lessons learned about the design and implementation of the various activities. The summary should be no more than three pages, single space. See outline in Attachment E.

Body of the Report - This should include a discussion of (1) the purpose of the evaluation and project activities and objectives/targets; (2) the economic, political and social context of the project; (3) summary of team composition and study methods; (4) evidence/findings of the assessment of project activities and progress towards meeting purpose and goal; (5) conclusions drawn from the findings; and (6) detailed recommendations with supporting analyses, and project implementation plan and budget based on the study findings and conclusions. The body of the report should be no more than 40 pages. The detailed discussions of methodology or other issues should be placed in appendixes.

Appendixes - This should include a copy of the evaluation scope of work, the Logical Framework, and a list of the documents reviewed and individuals and agencies contacted.

Additional appendixes may include a discussion of evaluation methodology, technical topics, and analyses as necessary.

The evaluation team should complete abstract and narrative sections of the A.I.D. Evaluation Summary Form. See outline in Attachment F.

VII. COMPOSITION OF EVALUATION TEAM

The contractor evaluation team is proposed to comprise of four individuals, including a Project Development Specialist (TEAM Leader), a Policy Specialist with expertise concerning rural electric cooperative operations in developing countries, a Finance/Accounting Specialist with experience with financial planning and operation of rural electric cooperatives, an Electrical Distribution Engineer. The inclusion of local personnel on the team may be useful.

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The contractor personnel should have experience in international development projects, with broad work experience in rural electrification operations. The team should be capable of performing the work independently, competently and on the schedule required. The contractor should have no vested interest in the project.

VIII. FUNDING

Estimated cost of the evaluation is charged to project funds.

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