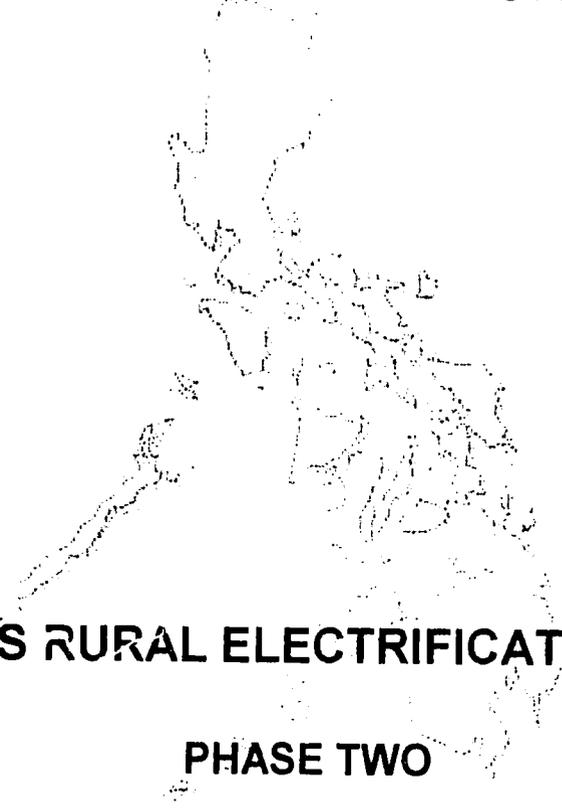


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EVALUATION REPORT



PHILIPPINES RURAL ELECTRIFICATION PROJECT

PHASE TWO



INTERNATIONAL RESOURCES GROUP, INC.

FEBRUARY, 1994

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TABLE OF CONTENTS		page
LIST OF ACRONYMS		i
PROGRAM CHRONOLOGY		iii
PROJECT IDENTIFICATION DATA SHEET		v
1. EXECUTIVE SUMMARY		1-1
2. PROGRAM BACKGROUND		2-1
2.1 USAID/Manila Strategy		2-1
2.2 Donor/International Financial Institutions (IFI) Interest and Support		2-1
2.3 Other Relevant Factors		2-2
3. PROJECT BACKGROUND		3-1
3.1 Economics, Political and Social Context		3-1
3.2 Project Description		3-1
3.3 Purpose of Evaluation		3-2
3.4 Team Composition		3-2
3.5 Evaluation Methodology		3-3
3.6 Project History: Mid-term Evaluation and Contract Amendments		3-3
3.7 Status of NRECA RE Project contract and IIE REPTAT at Phase Two Evaluation		3-7
4. RURAL ELECTRIFICATION PROJECT EVALUATION		4-1
4.1 Engineering Technical Assistance		4-1
4.2 NEA and EC Institutional Improvements		4-2
4.3 Training		4-3
4.4 Policy Agenda and Plans		4-5
4.5 USAID Financed Commodity Procurement, Delivery and Installation		4-10
4.6 Coordination of USAID's World Bank, and OECF Financed Activities		4-11
4.7 GoP/NEA Commitment to Commercial Viability of RECs		4-11
4.8 Contribution of Specific Activities to Project Goal and Purpose ...		4-14
4.9 NEA 1993 Reorganization		4-17
4.10 Progress of ECs to Meet Performance Targets		4-17

TABLE OF CONTENTS		page
5.	EVALUATION RECOMMENDATIONS	5-1
5.1	Plan and Implement an Orderly Transition from the NRECA Contract	5-1
5.2	Training Contract	5-4
5.3	Continue Supporting Policy/Institutional Changes to Achieve Project Goal and Purpose	5-5
5.4	Exit While Maintaining USAID Goodwill	5-7
6.	BUDGET AND TIMELINE	6-1
ANNEX I:	EVALUATION SCOPE OF WORK	AI-1
ANNEX II:	PROJECT LOGICAL FRAMEWORK REVIEW	AII-1
ANNEX III:	BIBLIOGRAPHY	AIII-1
ANNEX IV:	AGENCIES/PERSONNEL CONTACTED	AIV-1
ANNEX V:	BRIEF SCOPES OF WORK FOR PROPOSED STUDIES	AV-1

LIST OF TABLES		page
Table 3.1:	NRECA Contract Deliverables	3-9
Table 4.1:	Financial Impact of Anti-Pilferage Bill	4-6
Table 4.2:	Pro-forma Financial Statements	4-8
Table 4.3:	Performance Standards for NEA Re-lending Program	4-18
Table 4.4:	Key Performance Indicators for ECs	4-19
Table 4.5:	Operating Expenses of ECs	4-20
Table 5.1:	Cost of SAFETY PAC Commodity Packages	5-8
Table 6.1:	Budget Calculations: Marginal Methodology	6-2
Table 6.2:	RE Project Timeline	6-3

LIST OF ACRONYMS

ADB	Asian Development Bank
A.I.D.	Agency for International Development
BOO	Build, Operate, Own
BOT	Build, Operate, Transfer
CADD	Computer Aided Drafting and Design
CDA	Cooperative Development Authority
COMPAC	Commodity Procurement Packages
DOE	Department of Energy
EBS	Electronic Billing System
EC	Electric Cooperatives
ERB	Energy Regulatory Board
FAPO	Foreign Assistance Projects Office, NEA
FY	Fiscal Year
GoP	Government of the Philippines
GTSI	Government Technology Services Inc.
GWh	Gigawatt hours
HRD	Human Resources Development
IFB	Invitation for Bids
IFI	International Financial Institution
IIE	Institute of International Education
IMF	International Monetary Fund
IRG	International Resources Group Ltd.
ITC	International Training Center
kWh	kilowatt hour
LAN	Local Area Network
MHP	Mini Hydro-power
MIS	Management Information System
MOU	Memorandum of Understanding
NEA	National Electrification Administration
NPC	National Power Corporation
NRECA	National Rural Electric Cooperatives Association, U.S.A.
O&M	Operation & Maintenance
OECF	Overseas Economic Cooperation Fund, Japan
P	Pesos
PACD	Project Assistance Completion Date
PHILRECA	Philippine Rural Electric Cooperatives Association, Inc.
PIP	Performance Improvement Program
PW	Price Waterhouse

LIST OF ACRONYMS

RE	Rural Electrification
REC	Rural Electric Cooperatives
REPTAT	Rural Electrification Project Technical Assistance for Training
RERP	Rural Electrification Revitalization Project (World Bank)
RFP	Request for Proposal
SOW	Scope of Work
SPR	System Planning Report
TA	Technical Assistance
TOR	Terms of Reference
USAID	United States Agency for International Development
WB	World Bank

PROGRAM CHRONOLOGY

1960	Rural Electrification Program launched in the Philippines
1964	USAID initiates assistance to the Philippines RE Program
1969	National Electrification Administration (NEA) established
1971	First REC was energized
Dec 1986	USAID Study to analyze technical, financial, and management status of NEA and the ECs
May 1988	Agreement with NPC for NPC takeover of REC-owned 69 kV lines
Sep 28, 1988	Rural Electrification (RE) Project authorization date
1989	World Bank provided \$22.2 Million to NEA under the Energy Sector Project
Oct 1989	RFP issued for RE Project
May 21, 1990	USAID/Manila signed RE Project contract with NRECA
Jun 1, 1990	NRECA long-term advisors arrive in Manila to implement contract
Oct 1991	Mid-term Evaluation of Rural Electrification Project Phase I completed
Feb 26, 1992	USAID/Manila approval of RE Project Phase Two and extension of PACD to Dec 31, 1995
Feb 28, 1992	Memorandum of Understanding signed between USAID/Manila and the World Bank for parallel financing program to the RE Project
Feb 1993	Long-term Planning Advisor under NRECA contract arrives in Manila
March 1993	USAID signed contract with IIE for RE Project Technical Assistance for Training (REPTAT) Contract
April 1993	IIE long-term advisor arrives in Manila to implement REPTAT
Nov/Dec 1993	IRG Evaluation of RE Project Phase Two
Mar 31, 1994	Official NRECA contract completion date (for all activities except supervision of computer hardware and software installation)

Jun 30, 1994	Official NRECA contract completion date for computer procurement and installation supervision
1995	Target date for all ECs to fully comply with CDA Law
Dec 31, 1995	USAID Rural Electrification Project official end-date as well as IIE REPTAT contract completion date
2010	Government of Philippines' target date for total electrification of the country, in terms of geographical coverage

BASIC PROJECT IDENTIFICATION DATA

1. **Country:** PHILIPPINES

2. **Project Title:** RURAL ELECTRIFICATION PROJECT

3. **Project Number:** 492-0429

4. **Project Dates:**
 - a. First Project Agreement: September 28, 1988
 - b. Most Recent Project Assistance Completion Date (PACD): December 31, 1995

5. **Project Funding:**

A.I.D. Bilateral Funding \$40 million (authorized LOP)

6. **Mode of Implementation:** A.I.D. direct contract

National Rural Electric Cooperative Association (NRECA)
Institute of International Education (IIF)

7. **Responsible Mission Officials:**
 - a. Mission Director(s): Thomas W. Stukel
 - b. Project Officer(s): Alex Sundermann, Earl Gast

8. **Previous Evaluations:** October 1991

1. EXECUTIVE SUMMARY

The Government of the Philippines (GoP) is committed to total electrification of the country by the year 2010, and has consistently supported rural electrification. The Electric Cooperatives (ECs) play a major role in rural electrification by distributing power to residential, commercial, and industrial consumers within their service areas. As of November 1993, there were 119 ECs operating in the rural areas, covering 35,592 barangays in 1,424 towns and cities and providing electricity to an aggregate of 3.6 million households, industries, and commercial establishments. Today, the ECs' share of total connections in the country is over 57%, in a country that has over 7,100 islands and difficult terrain. The National Electrification Administration (NEA) plays an essential role in providing finance, technical assistance, and training to the ECs as well as serving as the regulatory authority.

The U.S. Agency for International Development (USAID) has been supporting the Rural Electrification (RE) Sector in the Philippines since 1964, when it first conducted a feasibility study of the sector. USAID's commitment to the upliftment of the rural areas and populations of the Philippines has had a significant impact through the RE Sector. USAID should be credited with continuous involvement and assistance in rural electrification in the days when there was considerable disarray and mismanagement in the sector; its assistance has now leveraged substantial funding from the World Bank and the Overseas Economic Cooperation Fund (OECF) of Japan.

USAID approved the Rural Electrification (RE) Project in 1988 and signed a contract with the National Rural Electric Cooperatives Association (NRECA) to implement the project. The project was designed to achieve commercial viability of selected ECs by addressing institutional, policy, and technical weaknesses of the rural electrification system. The RE Project was amended three times, and the Project Assistance Completion Date (PACD) extended until June 30, 1994 for computer procurement and installation support and March 31, 1994 for all other activities. In March 1993, USAID signed a contract with the Institute of International Education to provide training related assistance to the NEA; the PACD for this contract is December 31, 1995.

In November/December 1993, USAID signed a contract with a two-person Team from International Resources Group (IRG) to conduct an evaluation of Phase Two of the Rural Electrification Project. USAID approved Phase Two of the Project on February 26, 1992; at the same time, the PACD was extended to December 31, 1995. The purpose of the current evaluation is to review progress on the implementation of Phase Two of the Rural Electrification Project, assess project requirements, and identify any changes that may be needed to complete the project as planned by the Project Assistance Completion Date (PACD) of December 31, 1995. The evaluation focused largely on the NRECA contract, since it was too early to evaluate the IIE contract. The Team did review the training contract and made recommendations regarding its future implementation. The Team focused on providing constructive critiques and implementable solutions.

Several factors serve as important background elements to the RE Project Phase Two evaluation. First, and most important, is the budgetary constraints and limitations of USAID/Manila. Mission funds have been reduced from a peak of \$400 million in fiscal year (FY) 1990 to approximately \$31 million in FY93, of which 50% is mandated for family planning

activities. Mission management has decided to focus efforts on addressing basic development needs, and to stop infrastructure financing and balance-of-payments support. In the energy sector, USAID is interested in providing assistance to the Department of Energy (DOE) at a policy level. USAID has made the decision to reduce and withdraw its involvement in rural electrification.

Other pertinent factors include substantial World Bank and OECF commitment to provide financial support to the RE Sector over the long-term and the new Cooperative Development Authority (CDA) Law, which requires the ECs to transition from a non-stock, not-for-profit status to a for-profit, stock company by 1995. The potential transfer of the 69 kV lines from the National Power Corporation (NPC) back to the ECs and the role of NEA as an "interested lender" remain as issues.

Overall, the RE Project was well implemented as a "products-oriented project". The Project was designed to focus upon products and deliverables, rather than upon process, and a large number of deliverables were produced, as illustrated in Table 3.1. NRECA has assisted NEA and the ECs with rate reports; preparation of IFBs, including those for computers, COMPACs, Cebu Pilot Project, and boom trucks; system planning reports for 99 designated ECs; manuals on tariff policy, loan policy, accounting, budget, engineering; studies on zonal repair centers, financing, management information system, and enhancement of an electronic billing system.

The Team's overall impression was that the Project addressed the technical weaknesses of the NEA and the ECs, and not the institutional or policy weaknesses, despite the project purpose of addressing all three constraints to the commercial viability of the ECs. Although many of the studies were "institutional" in nature, the Team's view was that addressing institutional weaknesses involves much more than studies to that of technology transfer. The Project was heavily engineering-driven, and it focused upon micro problems at the NEA and the EC level, perhaps at the expense of macro problems and solutions. In many respects, the technical assistance provided was more appropriate for an "engineering" project rather than a "development" project. The Team believes that the heavy commodity procurement emphasis of the NRECA contract, World Bank Rural Electrification Revitalization Project (RERP), and possibly the OECF project should ensure that the technical needs of most ECs are adequately met to ensure commercial viability.

The Team was concerned that not enough was done to address the policy issues, which are the foundation for ensuring the commercial viability of the ECs. An operational and financial analysis of many of the ECs shows the difficulty of achieving commercial viability in the face of low and dispersed loads, responsibility without the authority to curtail non-technical system losses, and financial constraints to rehabilitation or expansion of the system. Table 4.1 is an analysis of the financial impact on the ECs of a strong and implementable anti-pilferage bill, which has been pending for many years. As the table shows, a decrease in system losses to a more reasonable 12% level would have added 11% or \$32.14 million to the revenue base of the ECs. This analysis pertains to all the ECs, and a more in-depth analysis of individual ECs would show wide variations among them. Similarly, Table 4.2 shows the financial impact of the transfer of NPC direct-connect customers to the ECs. In 1992, the ECs' collective revenues would have increased from \$292.2 million to \$590.1 million and the net margin would have increased from the present 2.86% to 13.94%.

Taken together, the impact of both system loss reduction to 12% and transfer of NPC direct-connects to the ECs would have been highly dramatic. The revenues would have increased from \$292.2 million to \$622.2 million, a 213% increase; operating margin would have increased by 541% and net margin by 1,369%; and the free cash flow for each EC on the average would have increased from \$70,823 to \$969,261. Clearly, these two policy changes would have contributed significantly to the commercial viability of the ECs. However, little attention, whether by design or default, was focused by the Project upon being a catalyst to such changes.

Another critical policy change required is that of free market operations. The ECs should not be restrained from market operations, such as mergers, buyouts, or consolidation if that results in better service for the customers at a reasonable cost. Without studying the matter in-depth, it seems that there are a number of candidate ECs, whether because of economies of scale or managerial ineffectiveness, which would have a difficult time making the transition to commercial viability. Free market operations would allow consolidation or mergers to take place, thus enhancing the effects of economies of scale and introducing effective management.

Lastly, because the RE Project has been heavily product rather than process driven, technology transfer is an issue of concern. The focus on deliverables and the need to complete the product by the designated timetable has forced technology transfer to take a backseat, and the capability of NEA or the ECs to continue to effectively undertake many of the improvements that have been introduced by NRECA is of some doubt. The Team has recommended that some of the technology transfer that was not possible to date be accomplished through training programs during 1994 and 1995.

The newly designed "Technical Assistance to the Department of Energy" project goes a long way in addressing the policy level technical assistance needs of the energy sector. The Team encourages USAID to broaden the project scope of work to include policy issues of rural electrification as part of this new project.

The Team's recommendations to NEA and USAID, discussed in more detail in Section 5, are primarily designed to ensure a smooth transition for USAID from the RE Sector. The Team recommends:

1. Implement an orderly transition from the NRECA Contract.
 - procure more computers for training purposes: 20 each for the two International Training Centers and 10 each for 3 ECs to serve as regional training sites. These ECs will be selected based upon criteria described in Section 5.1.1.
 - continue computer installation and procurement support upto June 30, 1994.
 - purchase a two-year computer services contract for NEA and ECs, with USAID funding 75% and 50% respectively of the total costs for 1995 and 1996.

- ensure a smooth transition of planning functions. Produce a draft Master Plan by January 31, 1994 and open discussions with the World Bank for continued assistance. Do not initiate assistance to the Strategic Plan. Refine Investment Planning Model and complete Co-Op Planning Model.
 - complete all NRECA activities by March 31, 1994, except the computer installation and procurement support to be completed by June 30, 1994.
2. Continue with the IIE Training Contract (REPTAT) and support institutionalization of various improvements introduced under the RE Project.
- all training activities of NRECA should be immediately transferred to the NEA Training Program, being coordinated by the IIE contract.
 - evaluate and, if deemed more efficient, encourage consolidation of the two NEA training divisions.
 - support NEA training activities by funding the 1994 and 1995 Training Fund, but on a graduated cost-sharing basis to wean NEA away from USAID finance.
 - conduct a training needs assessment on software requirements and applications for NEA and the ECs.
 - focus training on institutional development and computer skills.
 - allow more flexibility in changes and reallocation of budget line items for NEA training.
3. Continue to support Policy/Institutional changes to achieve the RE Project goal and purpose.
- use the "Technical Assistance to the Department of Energy" contract to support the following policy changes:
 - ▶ transfer of NPC direct-connect customers to the ECs;
 - ▶ passage of a strong and implementable anti-pilferage Bill;
 - ▶ formulation of rules and regulations to allow market operations in the RE sector.
 - conduct a study on policy/institutional measures to ensure long-term commercial viability of the ECs.
 - conduct a feasibility study on a sample of the 20 "non-viable" ECs that are not included in USAID, World Bank, or OECF support.

- conduct a study of the CDA Law impact upon the ECs, identifying options and making recommendations for transitioning to a new structure.
 - evaluate possible EC incentive systems. Integrate the Performance Improvement Program with a sound incentive/disincentive structure.
4. Implement an orderly exit for USAID from the RE sector, while maintaining goodwill.
- procure "SAFETY PACs" for each of the 119 ECs.
 - implement a "Think Safety" campaign.

Taken together, these recommendations will ensure a smooth transition from USAID funding for NEA and the ECs. Also, the recommendations are designed to leverage to the maximum extent USAID experience and expertise in the RE Sector, prior to the RE Project completion.

2. PROGRAM BACKGROUND

There are several important factors that directly or indirectly affect the Rural Electrification (RE) Project, and therefore the present evaluation.

2.1 USAID/Manila Strategy

The most critical context for the RE Program, and therefore for this evaluation, is the decision by USAID to end its involvement in the RE sector. USAID/Manila has been undergoing a severe financial cutback, from approximately \$400 million in FY 1990 to around \$31 million in FY1993. This has necessitated a drastic cutback of the Mission's overall portfolio and a focus on activities where USAID perceives the largest marginal impact. The Mission intends to exit from two types of assistance -- infrastructure financing and performance-based balance-of-payments support - and instead concentrate upon "playing the role of facilitator and intellectual leader, focussing on policy formulation and helping to increase the efficiency of the Philippines in mobilizing resources from existing domestic and foreign sources and addressing basic development needs".¹ The November 1993 revised strategy statement identifies the four objectives of the Mission as:

- more responsive selected democratic institutions;
- reduced population growth rate and improved health;
- increasing productive investment; and
- enhanced management of renewable natural resources.

USAID/Manila has made the decision to remain in the energy sector, but only at a policy and institutional development level, working mostly with the newly created Department of Energy (DOE). The Evaluation Team regarded the Mission's decision to pull out of the RE Sector as a given, and thereby focused on implementing an orderly transition.

2.2 Donor/International Financial Institution (IFI) Interest and Support

To its credit, USAID/Manila has been extremely successful in its efforts to reform the RE Sector. When USAID began its involvement in 1964 with the first feasibility study of the sector, the sector was in such disarray that other donor and financial agencies preferred to keep their distance. Before the RE Project, USAID had already invested \$86 million in the RE Program. USAID assistance has made a substantial difference in the performance of the RE Sector, and now a number of financial agencies are interested in providing long-term assistance.

The World Bank has already approved the Rural Electrification Revitalization Project (RERP), a \$91.3M loan to the NEA, and the first Invitation for Bids (IFB) has been advertised. The loan package consists mostly of commodities and funds for construction. In the Team's conversations with the Bank, it was apparent that they are committed to a long-term involvement

¹ USAID/Philippines. "Philippine Assistance Strategy: 1993 to 1998." May 1993.

in the sector and are already conceptualizing another \$100 million loan as a follow-up to the RE Revitalization Project. Additionally, the Bank envisages a series of loans to continually assist in the rehabilitation and expansion of rural electrification.

The OECF also has virtually approved a \$80.7 million loan package to the NEA. The major hurdle is one loan conditionality which requires an IMF economic restructuring agreement with the Government of the Philippines (GoP) before loan disbursement. At the time of the Team's visit in November-December 1993, it seemed likely that the IMF would reach agreement with the GoP sometime in early 1994. Like the Bank, the OECF is interested in maintaining a strong presence in the RE sector for the long-term.

2.3 Other Relevant Factors

2.3.1 NEA as an "Interested Lender"

In late 1989, as a result of a World Bank Energy Sector Study, NEA's mandate was changed from that of strictly a "development organization" to that of an "interested lender". It was apparent to the Team that there was much uncertainty within NEA about what it meant to be an "interested lender". There was also considerable disagreement about NEA's role of a traditional banker, if that was what an "interested lender" meant.

The Team believes that the very existence of NEA depends upon it being a "development organization". It seems illogical for NEA to become strictly a banker, with only 119 customers, since other existing banks could easily do the job. The RE Sector certainly requires considerable attention, assistance, and government intervention, whether in the form of subsidies or other incentives. The more pertinent question, therefore, is what are the various organizational roles and responsibilities that are required and who fulfills them; if NEA is to be strictly a banking institution, then which organization, if any, provides technical assistance, regulatory supervision, training, and other forms of assistance?

2.3.2 Cooperative Development Authority (CDA) Law

In 1992, the GoP approved a new CDA Law that requires the Electric Cooperatives (ECs) to be registered under the CDA, thereby effectively transferring the regulatory supervision of the ECs from NEA to the CDA. Also, the law mandates two changes of tremendous scope: (1) that the ECs register and qualify as stock cooperatives, and (2) that the ECs become for-profit entities. The law provides a three-year timetable, i.e. until 1995, for the ECs to effect these changes.

The Team was concerned about the lack of understanding about this law and its requirements, especially at the EC level. In the Team's experience, tremendous changes are required to transition from a not-for-profit entity to a for-profit one; these changes include the logistical as well as, more importantly, the wholesale change in the "way of doing business". Given that the changes are to be effected by 1995, the ECs will require substantial assistance both in making the transition and in assisting them in the first few years of the transition.

2.3.3 69 kV Line Transfer

While the Team was in-country, there was quite a bit of talk and speculation about the transfer of NPC's 69 kV lines to the ECs, whether to individual ECs within their franchise areas or to new ECs formed specifically to operate and maintain these lines. As a matter of history, these 69 kV lines were taken over by NPC from the ECs in 1988, with the rationale that the ECs were not capable of operating and maintaining them. That transfer has not yet been fully completed on the financial and accounting side, with the ECs and NPC still negotiating the terms of the transfer.

The possible transfer of the 69 kV lines poses a host of questions regarding the terms of the transfer, operations and maintenance capability, and post-transfer organizational structure. Although the transfer, if it does go forward, seems to be a number of years away, the pros and cons of the transfer need to be examined closely.

3. PROJECT BACKGROUND

3.1 Economic, Political and Social Context

The Filipinos have made significant gains in democracy, culminating with the success of the 1986 "People's Revolution". The Aquino government took power in 1986 and, despite numerous challenges, remained for the full length of term. In 1992, there was a peaceful democratic transition of government after elections, in which President Ramos won with 23% of the popular votes. The Ramos government has maintained liberal economic policies and has managed to find a workable relationship with the legislature. The government encourages foreign investment, has lowered tariffs, brought inflation to below 8%, and freed foreign exchange regulations.

In the energy sector, the government has adopted emergency powers, and is moving rapidly to address the severe shortages that have resulted in economic losses estimated at \$700 million to \$1.2 billion annually. In December 1993, Luzon was experiencing very few brownouts; just a few months earlier the island was facing brownouts of 8-10 hours a day. Some BOT/BOO projects have been completed, and many are under construction; in fact, some experts are projecting a significant electricity surplus for the country by 1997.

Rural electrification (RE) continues to be an area of focus for the government. Rural electrification is pursued for economic as well as social reasons. Also, many Filipinos see the RE sector as proving grounds at the local level for true "people democracy", empowering rural populations by conferring ownership rights upon them. The government continues to pursue the goal of electrifying the whole country on a geographic basis by the year 2010.

3.2 Project Description

In December 1986, USAID contracted a study to analyze the technical, financial, and management status of NEA and the ECs.² The purpose of the study was to assess the status of the ECs, analyze the financial and operational problems they faced and make recommendations to address those problems. The Price Waterhouse (PW) study made a number of recommendations with regard to GoP policy, NEA, and the ECs; this study was well received by the Government. Based upon the study recommendations and the GoP's interest in rehabilitating the RE sector, USAID proceeded to design the Rural Electrification Project.

On September 28, 1988, USAID authorized the RE Project to "increase the reliability of electric power service in rural areas of the Philippines".³ Rural electrification would contribute to rural economic growth and employment. The project provides \$40 million as a grant to the GoP over a five-year period, and focuses upon rehabilitation of the existing system rather than on expansion. The project has two components: institutional development and system loss

² Price Waterhouse. "National Electrification Administration and Rural Electric Cooperatives Financial, Organizational and Technical Assessment." March 1987.

³ "Project Grant Agreement Between The Republic Of The Philippines And The United States Of America For The Rural Electrification Project" and "Project Paper," both dated September 1988.

reduction, both designed to overcome constraints to commercial viability of the ECs. Under the institutional development component, the project was to focus upon increasing the managerial effectiveness of NEA, installing an improved MIS, and transferring knowledge to the EC level. Under the system loss reduction component, commodity packages were to be provided to selected ECs to address the line loss problems by providing equipment for system rehabilitation, but not system expansion. The RE Project purpose is: "To achieve commercial viability of selected ECs by addressing institutional, policy, and technical weaknesses of the Rural Electrification System."

The desired end-of-project status of the RE Project is: "A Majority of the participating ECs will be commercially viable distributors of electric power in their service areas; and all participating ECs will demonstrate: increased collection efficiency, decreased operating expenses per kWh, reduced power outages."

3.3 Purpose of Evaluation

Given the impending expiration of NRECA's contract, USAID's intention of departing from the RE Sector, and the need to implement a smooth transition, USAID/Manila contracted with International Resources Group (IRG), a management consulting firm headquartered in Washington, D.C., to perform an evaluation of the RE Project. The purpose of the evaluation is "to review progress on the implementation of Phase Two of the Rural Electrification Project, assess project requirements and identify any changes that may be needed to complete the project as planned by the Project Assistance Completion Date (PACD) of December 31, 1995".⁴

The Scope of Work for this evaluation is attached as Annex I.

3.4 Team Composition

The IRG Team was composed of Peter Borgo, Team Leader, and Arun Banskota, the Corporate Vice President of IRG. Mr. Borgo is an electrical engineer who has worked extensively with USAID, the World Bank, and various U.S. national laboratories on field projects and evaluations in the rural electrification sector. Mr. Banskota is an economist/financial specialist with extensive experience in the energy sector, specifically the policy, strategic planning, power sector, and privatization aspects.

The Team was originally composed of four specialists: Mr. Borgo, Mr. Banskota, and two local experts. However, due to potential conflict-of-interest reasons, the two local specialists had to withdraw their participation. Consequently, the two-person Team undertook the completion of the scope of work, which remained unchanged.

3.5 Evaluation Methodology

⁴ *From the Project Evaluation Scope of Work.*

The RE Project is implemented by NRECA, the technical assistance contractor, and IIE, the training contractor. USAID/Manila and NRECA signed the contract for the Project in May 1990, and NRECA began contract implementation in June 1990. USAID/Manila awarded the Training contract to IIE, and IIE began contract implementation in April 1993. Most of the evaluation focused upon the much larger NRECA contract, which is in the process of being phased down, given the completion date of June 30, 1994 for computer installation services and March 31, 1994 for all other technical assistance. The Team does look into training as an integral part of the overall contract, but does not formally evaluate the IIE contract since it is too early to assess project results.

The Team reviewed an extensive number of documents, listed under Annex III. The Team worked on the project for five weeks, of which approximately three and a half was in the Philippines. The Team contacted and interviewed over 75 people, and visited six ECs. Extensive discussions were held with NEA, USAID, and the two implementation contractors, NRECA and IIE. Before returning from the Philippines, the Team made slide presentations before NEA and USAID.

Lastly, the Team focused upon providing constructive feedback and implementable solutions. For example, the Team would have liked USAID to maintain its involvement as a catalyst in the RE Sector, especially given the opportunity to leverage as much as \$300 million of other donor financing in the sector. This recommendation is not made in light of the Mission's commitment to focus its efforts on energy sector policy and planning and end participation in the RE Sector.

3.6 Project History: Mid-term Evaluation and Contract Amendments

RE Project Mid-term Evaluation

The mid-term evaluation of the Rural Electrification (RE) Project was completed in October 1991. Under the original RE Project Agreement, Phase Two of the RE Project was contingent on a satisfactory mid-term evaluation. In the initial Project design, Phase Two would expand the number of Rural Electric Cooperatives (ECs) covered. The evaluation findings supported continuation of the RE Project with some changes. The Government of the Philippines (GoP) was to pursue and pass then pending legislation on the NEA Charter, the coordination of loans bill, the recapitalization of NEA bill, and a proposed anti-pilferage bill. The GoP was also to direct the National Power Corporation (NPC) to transfer direct-connect customers to the ECs. The NEA was to fully implement operational and policy changes that were then in draft form. NRECA was to incorporate several changes in the technical assistance (TA) being provided, i.e.:

- expend greater effort to involve the ECs in the planning process;
- include alternatives in economic evaluation and update load flow simulation models;
- investigate alternative construction techniques and/or materials; and
- increase the training budget to meet the needs of NEA and the ECs.

The evaluation recommended that commodity procurement be changed to better integrate with the WB and OECF programs, i.e., materials handling needed improvement if NEA was to efficiently handle increased commodity procurement; communication among NEA, NRECA, and

the ECs needed improvement; computerization of the ECs was essential; and the ECs needed vehicles.

The mid-term evaluation recommended assistance to more ECs through USAID entering into a parallel financing arrangement with the World Bank in support of the Bank's Rural Electrification Revitalization Project (RERP) and signing a Memorandum of Understanding (MOU) with the Overseas Economic Cooperation Fund (OECF) loan project.

The World Bank and OECF loan programs are essentially commodity funding mechanisms for EC rehabilitation and expansion. Each loan also contains provision for some degree of Technical Assistance (TA). The USAID RE Project focuses on providing selected commodity procurement and TA in support of the WB/OECF procurement. The USAID efforts were intended to support reduction in technical system losses and institutional development of the ECs. While the overall objective of the three programs/projects is similar, the USAID Project has some functional differences. The World Bank's RERP includes funding for EC expansion where the USAID RE Project does not. The OECF loan program includes consideration of support for the development of rural areas based on social needs whereas the USAID RE Project only funds efforts towards achievement of commercial viability for the ECs.

The Phase Two re-design that was recommended by the mid-term evaluation extended the PACD at no cost by approximately two years to coincide with a December 1995 end date for the WB and OECF programs. Increased TA would be provided by shifting the bulk of the USAID remaining commodity procurement to the WB and OECF and re-programming those funds for TA to NEA and the ECs. Improved engineering methods and computer aided drafting and design (CADD) systems for automated mapping were to be incorporated into the USAID Project. Two additional long-term advisors were recommended; one for development of an RE Master Plan that would address integrated development of rural electrification in the Philippines, and a second for development and implementation of training programs throughout the EC system.

The mid-term evaluation recommended that USAID drop COMPAC-2b and COMPAC-4 commodity packages and let the WB/OECF fund them. Procurement by USAID of additional computers, kilowatt-hour meters and pole treatment chemicals was recommended. The purchase of additional vehicles was to be a jointly coordinated procurement with the WB/OECF programs. USAID was to turn over all commodity procurement support activities to NEA and the WB/OECF programs, but to closely monitor their activities to ensure sufficient technical support.

Contractually, the mid-term evaluation recommended that the NRECA contract be continued and amended to include: (1) extension of Financial/Institutional activities through the new PACD of December 1995, and (2) expanded development of a RE Master Plan. USAID was to let two new contracts for the other Phase Two TA activities, i.e., training and additional engineering support.

Amendment 1 to the Rural Electrification Project

Amendment 1 to the RE Project was approved on February 26, 1992. This amendment officially implemented Phase Two of the Rural Electrification (RE) Project under a parallel financing arrangement with the World Bank's RERP. Specific actions under the Amendment were based on recommendations of the Mid-term Evaluation completed in October 1991. The newly

amended RE Project tied-in to, but did not duplicate, major new initiatives of the World Bank and the Japan OECF. Specific action broadened coverage of the institutional development technical assistance component of the RE Project to all 122 ECs (including the 99 World Bank and OECF ECs), but no longer funded commodity assistance under the systems loss component and other commodity support (i.e., rehabilitation, etc.) components listed in the original contract. The revised technical assistance supported improvements planned under the World Bank and OECF projects for master planning, financial and institutional improvements, human resource development and training, computer equipment, and equipment for improved recurring maintenance operations. The existing Project Assistance Completion Date (PACD) of September 30, 1993 was extended to December 31, 1995 to coincide with the World Bank and OECF projects.

Amendment 2 to Initial NRECA Work Statement

USAID's actual implementation of Phase Two under the NRECA contract was to: (1) provide more direct institutional and engineering support to an increased number of ECs, (2) expand support for a master planning effort, and (3) reduce training support requirements for the balance of the project. USAID elected to not extend the NRECA contract to December 31, 1995, i.e., Amendment 2 of the NRECA contract revised the SOW and provided funds to cover an additional level of effort from July 1, 1992 to March 31, 1994. In addition, Amendment 2 specified that a separate competitive contract for comprehensive human resources development (i.e., training) was to be let and that NRECA should ensure close coordination with the selected training contractor. A separate contract was not let for additional engineering TA support.

The modified SOW expanded the institutional component to include some training by NRECA and continued TA for financial and institutional improvements and human resource development for all ECs; and the purchase of computer equipment, maintenance tools and equipment for improved recurring maintenance improvements for the 99 ECs to be covered by the planned WB/OECF projects. Specifically, the modified SOW changed NRECA's duties as follows:

Training - NRECA was to assist in developing courses and in implementing training courses as requested by NEA and USAID.

Electric Distribution Engineering - NRECA was to assist NEA in developing specifications for equipment, tools, service vehicles and other support facilities to be provided by the WB/OECF programs and to conduct a feasibility study for zonal service centers, prepare equipment inventories, identify EC service needs, and analyze and identify options for providing equipment servicing on a regular basis. Coverage by these services was extended to all 99 ECs included in the WB/OECF programs.

Rural Electrification Master Plan - the completion of an RE Master Plan was included in the initial NRECA contract. Phase Two specifically added that a 'comprehensive management, operations, and investment plan' be included in the master planning effort. Further, the requirement to formulate a manpower development plan was deleted. Two requirements were added: (1) development and implementation of procedures for distribution planning, including demand and energy forecasting at the EC level; (2) development of self-sustaining NEA and EC plans and programs to (a) assess and address routine and periodic maintenance and operation

needs, (b) assess requirements for system rehabilitation and/or upgrade; and (3) address extension planning and implementation.

Commodity Procurement Services for NEA and ECs - the commodity procurement requirements for COMPAC-2b and COMPAC-4 were deleted. Computer hardware and software previously required for NEA was to be procured for NEA and a total of 99 ECs (an increase from 93 ECs previously). An additional requirement was specified for procurement of selected maintenance equipment to support improved EC recurring maintenance operations.

Amendment 3 to Initial NRECA Work Statement

On July 30, 1993, NRECA and NEA accepted the bid of Government Technology Services, Inc. (GTSI) for the supply of selected computer equipment and installation by its subcontractor, IBM-Philippines. Effective July 15, 1993, USAID issued Amendment 3 to the NRECA contract with the purpose of extending the estimated completion date of NRECA's contract from March 31, 1994 to June 30, 1994 and to increase funding appropriately for a specified additional level of effort. The modified SOW added the following requirements for NRECA under "Commodities Procurement Services for NEA and RECs": (1) NRECA shall monitor compliance of the computer installation work program of GTSI and its IBM-Philippines subcontractor, and (2) assess performance of installation and make recommendations to USAID for acceptance and payment to GTSI.

USAID Phase Two Training Contract

Effective March 15, 1993, USAID awarded a contract to the Institute of International Education (IIE) for the Rural Electrification Project Technical Assistance for Training (REPTAT). The end date of the contract is December 31, 1995 to coincide with the RE Project PACD. IIE has enlisted the assistance of Resource Management International of the United States and several Filipino subcontractors; the University of the Philippines National Engineering Center, SGV Consulting, Associated Resources for Management and Development, and MERALCO Training and Development Division. The objectives of the training program are:

- Establish the RE sector training needs, available Philippine resources, and required supplemental foreign expertise and resources;
- Develop and implement short- and long-term plans for training and development of NEA and EC staff;
- Build a base of Philippine rural electrification talent and establish a training program which can be continued by NEA, the ECs, and other training entities.

The REPTAT is divided into three principal human resources development components:

Technical - training in routine equipment maintenance, safety, equipment installation, power system design, demand forecasting, technical software, and development of technical standards.

Administrative - training in billing, collections, general ledger, investments, materials procurement, inventory control, investment strategy, project feasibility analysis, cost control, and asset management.

Managerial - training in basic management techniques for supervisors and managers.

IIE is to address these training components in one integrated plan for human resources development. The plan shall include three tasks:

- Reconnaissance - to identify training needs and available resources;
- Implementation - for institutional, organizational, operational and policy changes; schedules for specific RE sectors; descriptions of training elements; and schedules and Terms of Reference for short-term training consultants; and
- Institutional Development - for a self-sustaining training capability in the RE sector specifically identifying those entities needing training and setting performance goals as a measure-of-merit for monitoring and evaluation.

3.7 Status of NRECA RE Project contract and IIE REPTAT at Phase Two Evaluation

The Phase Two evaluation used the NRECA Progress Report for the month ended October 31, 1993 (which includes detailed SOW task status from initiation of the contract) as the basis for review of progress, assessment of project requirements, and identification of any changes needed to complete the project as planned by the December 31, 1995 PACD. Similarly, monthly reports from May 1993 through October 1993 were used to review outputs of the IIE REPTAT.

NRECA RE Project Contract Status

A chronology of deliverables under the NRECA contract is included in Table 3.1.

Technical Services for Finance and Accounting: NRECA developed an Accounting Manual for ECs, and evaluated it at eight geographically diverse ECs. NRECA and NEA are validating the existing accounting guidelines and procedures and are completing the account description for an Accounting Manual for NEA. A Loan Policy Manual for NEA is completed and Loan Procedures and Borrower's Manuals for use by the ECs are drafted and being validated by NEA. A draft report that reviews policies and methods for establishing materials costs, shipping charges, and storage fees for commodities is being validated at NEA. A restructuring program for EC loan amortization and methodologies for determining realistic EC repayment schedules and conditionalities was developed. All COMPAC 1 and 2a loans to ECs have been restructured using this product, although some are again lapsing into arrears.

TABLE 3.1
NRECA Contract Deliverables

DATE	DELIVERABLES
Oct 1990 1990/91/93	Rate Report IFBs for COMPACs 1, 2, 3; Boom Trucks; Cebu Pilot Project; Countrywide Computers; IFB72 for World Bank RERP
1991	Zonal Repair Centers
Mar 1991	Assessment Report on DCI's MIS Plan for the NEA (DRAFT)
Jul 1991	Loan Policy Manual
Sep 1991	Information System Plan for the NEA
Oct 1991	Information System Effectiveness Review Of The REC Electric Billing System Implementation (DRAFT)
Nov 1991	Financing Strategy
1992	System Planning Reports (99 by PACD)
Jun 1992	Tariff Policy Manual
Jun 1992	Accounting Manual
Jun 1992	Budget Manual
Oct 1992	Cebeco III Pilot Project Report
Nov 1992	Computer Automation and Implementation Strategy for the NEA
Nov 1992	Nationwide REC Automation Technical Specification And Implementation Overview
1993	System Planning Reports (99 by PACD)
Mar 1993	Procurement Report, COMPAC Commodities
Mar 1993	REC Computerization Project: General Managers' Awareness and Change Readiness Workshop
Aug 1993	Engineering Bulletins (4 Volumes)
Sep 1993	Strategy For The Enhancement Of The Electric Billing System
Oct 1993	Business Requirements Definition Of Enhanced Electricity Billing System

Work on design and installation of an EC Monthly Financial and Statistical Report data base is complete and NEA is continuing to input historical data. A Financing Strategy to improve the loan portfolio of NEA was completed and was approved by the NEA Board of Administrators in November 1991. An investment plan was developed and is in use by NEA. A Budget Manual for control and monitoring of operations and an Accounting Manual were completed for ECs and training for EC personnel was conducted during November-December 1992.

Management Systems: A comprehensive restructuring program consistent with the World Bank study of the RE Sector was prepared by NEA, reviewed by NRECA, submitted to the NEA Department of Finance and approved by the GoP Cabinet. A comprehensive study of NEA and EC operating systems was completed which addressed emergency rate relief, non-technical systems loss reduction, and collection techniques. An assessment report was completed on the DCI Management Information System (MIS) Plan for the NEA and a revised Information System Plan was written. The System Study Report prepared by the Development Bank of the Philippines for NEA in May 1988 was reviewed.

Appropriate software for management information systems (MIS) and technical information systems was identified or developed. Additional software for billing and collection-related requirements will be developed by early 1994. An Information System Effectiveness Review of the EC Electric Billing System Implementation was completed (NEA had automated customer accounting systems for 55 ECs using ADB loan funds. Another 12 ECs separately procured the same Electronic Billing System (EBS) software.) NRECA is developing an enhanced EBS and will test the software at CEBECO III in early 1994. The enhanced EBS software will be available to all ECs by March 31, 1994.

NRECA Training: NRECA is supporting several areas of the draft 1993 NEA Training Program being developed by IIE and NEA. NRECA developed a 4-volume set of Engineering Bulletins in support of NEA/EC training efforts. A General Managers' Awareness and Change Readiness Workshop was held in support of the EC computerization initiatives. Additional presentations have been made by NRECA to NEA and EC audiences on an "as requested" basis to support training requirements.

Engineering Technical Assistance: A feasibility study of the need for Zonal Service Centers to meet EC equipment repair and supply requirements was completed in October 1990. Equipment inventories were conducted in 12 EC regions. Options were identified for equipment servicing. A report summarizing this activity was accepted by the NEA Board of Administrators in May 1991.

System Planning Reports (SPRs) which include load forecasting, sectionalization studies, and general EC equipment and facility requirements have been completed for 76 of a scheduled 99 ECs covered by the World Bank's RERP and the OECF RE Project. As part of the SPR effort, detailed maps of electrical distribution systems of the ECs for use in system rehabilitation and operations and maintenance activities are being produced. As of December 1993, operations and maintenance (O&M) surveys and other data gathering is complete for all of the ECs involved in the RE Project.⁵ Development of an Operations and Maintenance Manual was initiated in October 1993.

Rate-Setting Studies: A rate-setting study was completed and issued in final form after NEA comment. The study supported the call for immediate rate increases, consistent with the World Bank's RE Sector Study recommendations. A Rates Manual was approved by the NEA Board at their June 1992 meeting.

⁵ The O&M survey is still in progress for BATELEC II; the December 1993 accomplishment report shows a completion of 57% of the task.

Rural Electrification Planning: A first phase methodology for investment planning and evaluation is complete. The ECs and NEA Engineering Departments, and NEA's CORPLAN and Accounts Management Group used the investment plan for 54 ECs that will receive World Bank funding. They are now working on investment plans for ECs that will receive OECF funding.

Preparation of an indicative nationwide investment and lending program and development of a sound pricing schedule and suggested tariffs for each EC are underway. Work has begun on development and implementation of procedures for distribution planning, including demand and energy forecasting at the EC level. Development of self-sustaining NEA and EC plans and programs for periodic maintenance and operation needs, system rehabilitation and upgrade, and extension planning and implementation has begun.

Comments were received from NEA and USAID on findings of the Coop Ownership, Coop Consolidation/Merger, and Service Area Integrity Studies. A Coop Planning Manual is under development and will be completed by March 31, 1994.

Commodity Procurement Services for NEA and ECs: NRECA assisted NEA in developing specifications for commodity procurement under the World Bank's RERP and the OECF RE Project. A first draft IFB was given to the World Bank in July 1993. A revised seven volume IFB No. 72 was published in December 1993. Additional IFB packages were prepared for EC commodity procurement, i.e., COMPACs 1, 2a, and 3; thirty-five boom trucks; the CEBECO III Computer Billing System Pilot Project; and procurement of over 800 personal computers. All commodity delivery is complete and a Procurement Report was written for the COMPAC commodities. Engineers from NRECA's local staff, when visiting the ECs, monitored the installation of COMPAC materials. This monitoring activity closed at the end of September 1993, although all equipment had not yet been installed. (See Section 4.8.2 for further details.)

All computer hardware and software for local area network (LAN) systems at NEA and 119 ECs have cleared customs and are being stored and tested at the IBM warehouse in Alabang. The first LAN installation was completed at FLECO in October 1993. No LAN installations have been accepted to date and a hold has been placed on further installations until procedures are standardized and proper installation can be demonstrated.

Institute of International Education (IIE) REPTAT Status

IIE and NEA collected and reviewed information about human resource and training issues and policies in NEA. IIE training staff visited four ECs (CEBECO II and III, CENECO and NOCECO) to gain a perspective on EC operations, maintenance and management activities. IIE worked with NEA in-house training, human resources development, and personnel specialists to assess the NEA performance appraisal system. IIE identified local training resources for NEA and the ECs, and training courses available throughout government, non-government and private organizations for the Philippine RE System Training Catalog. IIE and NEA developed the 1993 - 1994 work plan to support NEA and EC employee training and development requirements and submitted it to NEA and USAID for review and comment. IIE assisted NEA in preparing course descriptions for 1993 training activities.

IIE assisted NRECA to develop a SOW for a computer specialist to assist NEA in preparation of a computer training plan, program, and curriculum and to conduct several sessions of

workshops on computer implementation strategy and plan development. IIE and NRECA have identified training requirements and activities for the Nationwide Computerization Project.

The first NEA Human Resource Development and Training (HRD/T) Workshop was held on August 9-13, 1993 at the MERALCO Technical Training Center. Together with NEA, IIE published:

- the first issue of the NEA and EC Training Focus Newsletter titled "Poles and Volts";
- a Training Needs Assessment Report (during this activity, 17 ECs were visited and General Managers and their staff were interviewed);
- the first Philippines Rural Electrification System Training Catalog; and
- training materials for the Engineering Bulletin Orientation Training Program.

4. RURAL ELECTRIFICATION PROJECT EVALUATION

This section closely follows the requirements of the USAID Scope of Work presented to the IRG Evaluation Team. The Team evaluated the technical, institutional, policy, management, technology transfer, and economic/financial aspects of the RE Project, with much of the focus on the NRECA contract. The Team also assessed the training requirements of the rural electrification program.

4.1 Engineering Technical Assistance

The RE Project has been well implemented in terms of deliverables. Six major manuals have been developed, six IFBs were written and advertised, thirteen major reports/strategy documents have been published, a four volume Engineering Bulletin has been published and distributed to all ECs, and 76 of 99 System Planning Reports have been completed to date. The vast majority of this output is being put to a useful purpose within NEA and the ECs.

Over 800 computers have been procured and are being installed. An Enhanced Electronic Billing System is developed, will be tested in a pilot project in early 1994, and will be implemented throughout the ECs by March 31, 1994.

In general, the Team believes that the engineering technical assistance (TA) has contributed directly to the achievement of RE Project success. NRECA has in the vast majority of cases properly staffed TA Teams and, together with subcontractors and short-term consultants, has sufficiently met the statement of work requirements for engineering technical assistance. However, the Team found that while the engineering TA has been directed to support the RE Project objectives, many of the faults itemized in the Mid-term Evaluation in October 1991 were still somewhat valid, e.g., engineering TA was found lacking in providing for enough involvement of NEA and EC personnel in planning, economic evaluation, simulated load flow analysis, alternative construction techniques, and engineering methods. Therefore, the Team has some concern relative to the amount of technology transfer from engineering TA, both with regard to substantive interaction between the respective contractor and the host organization personnel and in training provided under the NRECA contract.⁶

Throughout most of this engineering technical assistance, technology transfer has not been as high as expected. In essence, the RE Project has been approached as an "engineering project" rather than a "development project." Timely completion of project deliverables was often a driving consideration in how the specific activity was conducted. In some cases strict adherence to planned delivery schedules and costs had a detrimental effect on technology transfer/training elements of the activity. Many of the NRECA contract project outputs still require substantial and continuing technology transfer and associated training. As a result, the sustainability of some of the RE Project initiatives is of concern.

⁶ Details are provided in various sections, including Section 4.8.2.

NRECA wrote an "Information Systems Plan (ISP) for NEA" in 1991. The ISP proposed the creation of an Information Systems Office within NEA. The ISP also provided for an alternate strategy wherein NEA would have each major functional area create its own Management Information System (MIS) unit. NEA has decided that the MIS Division of the Deputy Administrator for Administration, Planning and Human Resources Development Department will be the lead unit to oversee MIS implementation throughout NEA. The staff of each major functional area will be responsible in the maintenance of their MIS in coordination with the MIS Division.

While much of NEA is "computerized" to some extent, the Team is concerned that computer skills are not widespread throughout NEA, especially with regard to a new MIS. NEA has recognized this possible problem. In August 1993, NEA submitted a Terms of Reference (TOR) for a consultant to assist in the implementation of the MIS and provide initial training for NEA staff. No action has been taken on this request as of December 1993.

Over 800 personal computers have been procured for the ECs under the RE Project. A one year warranty is part of the USAID/NRECA RE Project computer purchase contract. The warranty is in effect for one year after acceptance of the installation. After that time, maintenance becomes the responsibility of the NEA or the ECs. The Team is concerned that by that time the great majority of the ECs will not have sufficiently skilled personnel to perform their own computer maintenance nor the financial resources to procure maintenance contracts.

A computer local area network (LAN) was installed at CEBECO III in a pilot project and operated to prove system design. LAN systems will be installed in NEA and 119 ECs by June 30, 1994. So far 25 have been installed, but not yet officially accepted, and an additional 62 have been shipped to their respective EC sites. A hold was placed until the installation contractor established an acceptable standard procedure for installations and can prove that the field teams can successfully complete the procedure. As of early December 1993, the installation contractor had successfully demonstrated installation procedures "in the laboratory," i.e., in a storage warehouse setting. The Team believes that NRECA is carefully monitoring the work and there is every reason to believe that the installations will be completed on-time.

NEA has a staff of eight personnel to support the LAN installation in the organization and in 119 ECs, but these personnel have not yet been trained. Two potential problems exist; (1) the LAN installation contract carries a one year warranty, and (2) the NRECA contract ends before follow-up training or any significant technical assistance can be provided.

4.2 NEA and EC Institutional Improvements

There have been a large number of improvements in the management practices and effectiveness of NEA and the ECs. NEA and some of the ECs are utilizing the Investment Planning Model effectively; in fact, both the World Bank and the OECF projects relied upon the model runs to select investments that were financially viable. The manuals on loan policy, financing, tariff policy, accounting, and budgets serve as very useful guidelines. The large-scale computerization of every EC promises tremendous scope in improving productivity. The Electronic Billing System (EBS) has already made significant strides in increasing collection efficiency and the enhanced EBS being developed promises further improvements.

The Performance Improvement Program (PIP) has proved to be a very good monitoring and evaluation tool for the performance of individual ECs. It also provides the basis for benchmarking.

In summary, a large number of improvements have been developed under the RE Project; it is important to ensure that all of these tools are effectively institutionalized.

4.3 Training

NRECA Training Activity

The NRECA SOW specifically addresses training in two areas; (1) "on-the-job" type training as an integral part of an activity to develop a contract deliverable (e.g., ...develop accounting policy and procedural manuals and provide training in their use), and (2) general support for NEA and the ECs to implement training courses when no local training institution or entity has the capability to conduct the course. The mid-term evaluation recommended that the training component be expanded under a re-designed project.

The Team believes that training provided by NRECA has been good although often limited due to specific deliverable implementation schedules. This will become a more apparent limitation as the NRECA contract approaches the March 31 and June 30, 1994 end dates. The second amendment to the NRECA contract, which implemented the re-designed Phase Two of the RE Project, changed the NRECA training requirement to one of coordination of institutional support efforts with the new human resources development contractor, IIE, and of providing assistance in development of training materials and/or conduct of training courses on an "as requested" basis.

The NRECA approved work program⁷ of August 1992 specifies training activities designed to support NEA's implementation of its approved training program and that NRECA will closely interact with a separately procured human resources development contractor as soon as their team is in place. Since April 1993 when the IIE training team began to implement the USAID training contract, NRECA has held coordinating discussions, participated in mostly computer-related training activities, and completed a major training-type initiative, i.e. completion of a four volume Engineering Bulletin and an orientation program and workshop for EC personnel. The Team believes that coordination between NRECA and the IIE/NEA training team should continue. The Team also believes that while training activity for specific NRECA-contract products under the USAID RE Project should consider the unique contribution of NRECA, its subcontractors and short-term consultants as the product developers, implementation of all training programs should be transferred to the NEA Training Program being coordinated by IIE. This is especially true for computer-related activities (Enhanced Electronic Billing System, Local Area Network installations, NEA MIS implementation, etc.) that will be completed very near to the end of the NRECA contract.

⁷ NRECA. "Work Program Through Contract Completion for the Period July 1, 1992 - March 31, 1994." August 1992.

21

IIE Training Contract

The IIE Rural Electrification Project Technical Assistance for Training (REPTAT) started in late April 1993. The Team believes that it is too early to evaluate the contract but that some observations, comments and suggestions for future activity, gained from discussion with personnel involved with day-to-day training contract efforts, are justified, especially with regard to a smooth transition as the NRECA contract ends.

The IIE training contract major activities to date include completion of a training needs assessment, compilation of a training catalog which describes course offerings in 48 specific training activities, and publication of a monthly newsletter. Major training programs include a Human Resources Development and Training Workshop and an Orientation Program for Use of Engineering Bulletins. A Work Plan for 1993-1994 has been completed and is circulating for comment. The aim is to provide NEA and EC human resources development (HRD) and training staff with (1) active involvement to support increased training activity, and (2) coaching, consulting, and training for development of sustainable training planning and presentation after the December 1995 PACD.

The Team supports the major objectives and activities of the 1993-1994 Work Plan:

- develop and support presentation of regional and central training;
- regional apprenticeship training programs for linemen and substation personnel;
- member services training and consumer education programs;
- support of yearly training planning and programming;
- establishment of an effective maintenance management program;
- leadership development within NEA and the ECs;
- establishment of a HRD and training information center; and
- establishment of a HRD organization.

The Team found that NEA and the ECs are very satisfied with progress of the IIE Team to date. There has been good technology transfer as the IIE Team is co-located with and well integrated with NEA. Coordination with both NEA training divisions, the Information & Training Services Division and the In-House Training Services Division, is a prime concern of the IIE Chief-of-Party and very specific initiatives have been made to ensure that coordination is maximized.

There appears to be a lack of sufficient training sites and facilities to adequately handle increasing activity with (1) management and organizational training programs as NEA restructures and reorganizes; (2) "on-the-job" training at the ECs as various operational and maintenance commodities are delivered; and (3) "hands-on" functional training programs as the NEA and ECs are "computerized." The Team is concerned that the IIE training program is focused on institutional development and that hands-on, in-the-field technical training necessary to ensure proper and continuing use of field equipment and software may not get adequate support. There also appears to be a need for more flexibility with USAID procedures regarding planning, course update, and budgeting for NEA training initiatives once yearly plans are established.

The World Bank has a training component under the Rural Electrification Revitalization Project (RERP) estimated to require about 200 person-months of consulting for preparation of

2.3

documents and manuals, field training, courses and study tours.⁸ Three main areas are considered: (1) strengthening the planning capabilities of NEA and the ECs, (2) extending to all ECs the institutional assistance being provided under the USAID RE Project, and (3) technical assistance to establish NEA zonal maintenance centers. USAID has supported this initiative under the parallel financing agreement with the World Bank using the NPECA contract to develop various manuals, computerized billing systems, rate setting processes, focussed training for users, etc. USAID has informed the World Bank that it can no longer continue funding support for engineering technical assistance under the parallel financing agreement but that the current IIE training contract can support training initiatives through December 1995.

The Team was informed that the World Bank has expressed disinterest in working with, or even discussing specifics of the training program, with IIE, the USAID training contractor. The World Bank has scheduled a re-appraisal of the RERP for March 1994. A Training Consultant is expected to be a member of the Re-appraisal Mission that will visit the Philippines. The Team believes that it would be in the best interest of the NEA and the participating ECs under the RERP for the World Bank and IIE to coordinate training and other technical assistance (which has training components). USAID should encourage the World Bank to join in a coordinated training program for NEA and the ECs.

4.4 Policy Agenda and Plans

Although the stated RE Project purpose is "to achieve the commercial viability of selected RECs by addressing institutional, policy, and technical weaknesses of the rural electrification system", it is fair to say that the RE Project has concentrated mostly on technical weaknesses. Very little has been done under the project with regard to policy issues. This is unfortunate, given that under the current legislations, policies, and practices governing the ECs, any amount of technical upgrading may not make them commercially viable.

For a number of years, NEA and the ECs have been pursuing several policies that would have a tremendous positive impact upon the commercial viability of the ECs. These include:

- passage of a strong and implementable anti-pilferage bill;
- transfer of NPC direct-connects to the ECs;
- increase of NEA capitalization by P20 billion;
- bail-out plan for the ECs.

EC System Losses and Passage of Anti-Pilferage Bill

System losses at the EC level are fairly high; the figures for 1990, 1991, and 1992 are 21.56%, 20.97%, and 20.72%, respectively. System losses are categorized as technical and non-technical, the latter consisting of pilferage. Various estimates have been made regarding the extent of average non-technical losses, ranging from 5% to 15%. The ECs as well as other privately owned distribution utilities are seriously hampered in their efforts to control pilferage by current laws that put the burden of proof upon the utilities. Also, non-circumstantial evidence

⁸ World Bank. "Staff Appraisal Report: Rural Electrification Revitalization Project". December 1991.

211

is not allowed in the Courts; thus, even revealing a tampered meter is considered insufficient to convict the offenders. Currently, there is an anti-pilferage legislation proposed in the Congress, although energy sector experts are already despairing about the strength of the Bill.

Passage of an anti-pilferage bill and strong implementation measures are essential if ECs are to become commercially viable entities. With a 20.72% system loss, it becomes extremely difficult and, indeed, wrong to pass on the added cost to all consumers, offenders and others alike. A cursory analysis of EC finances over the last three years showed that, if the ECs were able to bring system losses down to a somewhat reasonable figure of approximately 12%, their annual revenues would have increased by around US \$32 million in 1992, which is 12% of total revenues.

TABLE 4.1
Financial Impact of Anti-Pilferage Bill

	1992	1991	1990
Power Sales Revenue (Pesos)	8,182,000,000	7,718,000,000	5,660,000,000
In \$	292,214,286	275,642,857	202,142,857
Systems Loss (%)	20.72%	20.97%	21.56%
Revenue @ 0% Systems Loss	368,585,123	348,782,560	257,703,795
Revenue @ 12% Systems Loss	324,354,908	306,928,653	226,779,340
Additional Revenues	32,140,623	31,285,796	24,636,483
as % of Total Revenues	11.00%	11.35%	12.19%

Table 4.1 shows the financial impact of a reduction of system losses to a reasonable 12% level. The Table provides power sales revenues, in Pesos and US dollars, for each of the three years (1990, 1991, 1992). The actual system loss percentage is given. The analysis then shows what the revenue for each of the three years would have been with a 0% system loss, which is a technical impossibility. The next line item includes revenue for the ECs for each of the three years, if system losses had been 12%, instead of the actual higher losses. As the figure shows, the ECs accrue a significantly higher revenue -- an additional 11.00% in 1992, 11.35% in 1991, and 12.19% in 1990 -- had they managed to control their system losses at a reasonable 12% level. In absolute terms, in 1992 the ECs would have additional revenues of \$32 million if they had reduced 20.72% system losses to a 12% level.

It is strongly recommended that USAID and other donors to the Philippines RE Program condition their continued assistance to passage of an implementable anti-pilferage bill. Obviously, simple passage of the Bill will not result in system loss reduction; however, the ECs will have the authority and the enforcement power to curb non-technical losses.

NPC Direct-Connects

The ECs are awarded service areas to distribute electricity. However, a significant number of industries and commercial customers within EC franchise areas are served directly by the National Power Corporation (NPC); these customers are designated as "NPC direct-connects". The latest figures from NPC and NEA for 1992 showed that NPC sold approximately 3,000 GWh to these direct-connects. The result is that ECs are limited to supplying residential and small commercial loads, and consequently do not have sufficient loads to ensure financial viability.

Table 4.2 is an analysis of the financial impact of a transfer of direct connects to the ECs. This Table is a pro-forma financial statement for the ECs. The first column shows 1992 financial figures for the ECs. The second column shows 1992 financial statements, assuming the ECs together had an average 12% system loss. The third column represents 1992 financial statements, assuming the NPC direct-connect revenues accrued to the ECs. The fourth column is a financial statement for the ECs for 1992, assuming both a 12% system loss reduction and direct-connect revenues for the ECs.

In 1992, NPC sold approximately 3,000 GWh to industries and commercial establishments within EC service areas. If the ECs had directly served the NPC direct-connects, EC collective operating revenues would have increased to \$590 million, more than double the current revenues of \$292 million. Power costs for the ECs would also have increased, since ECs now have to purchase this power from NPC. Similarly, the operations and maintenance costs would increase.⁹ The total operating margin of the ECs would be approximately \$98 million, an increase of \$74 million from the 1992 actual figures of \$24 million. The net margin would have been \$82 million, instead of the actual 1992 figures of \$8 million. This represents a ten-fold increase in net margin for the ECs.

Column 4 shows the financial effects of both transfer of NPC direct-connect customers to the ECs and reduction of system loss to 12%. For 1992, operating revenues would have been \$622 million, operating margin \$130 million, and net margin \$114 million. The percentage increase figures are shown in the last column. Operating revenues would increase by 213%, operating margin by 541% and net margin by 1,369% over the corresponding actual figures for 1992. Most importantly, each EC's disposable income (or free cash flow) would increase from an average of \$70,823 per EC to \$969,261 per EC. Sustainability refers to the ability to have the resources to make allocation decisions that allow the entity to operate in a profitable manner over the long-term; this level of free cash flow would allow the ECs to become commercially viable.

⁹ Table 4.2 does not attempt an analysis of O&M cost for operation of the 69 kV lines. However, much of this increased cost may be covered under the more than doubled O&M line item in Column, 3 and 4.

TABLE 4.2
Pro-forma Financial Statements
(In US \$)

	1 Actual 1992	2 Actual w/ 12% Loss	3 Actual w/ DC Revenue	4 Actual w/ Both Changes	5 % Increase
Operating Revenue	292,214,286	324,354,908	590,071,429	622,212,051	213%
Operating Expenses					
Power Cost (67%)*	197,142,857	196,142,857	395,347,857	395,347,857	202%
Operations (3%)	9,035,714	10,029,552	17,702,143	17,702,143	
Maintenance (5%)	13,392,857	14,865,936	29,503,571	29,503,571	
Consumer Accounts (7%)	19,000,000	19,000,000	19,000,000	19,000,000	
Administration & General (10%)	30,607,143	30,607,143	30,607,143	30,607,143	
Operating Margin	24,035,714	53,709,420	97,910,714	130,051,337	541%
Depreciation (4%)	12,178,571	12,178,571	12,178,571	12,178,571	
Interest Expense (3%)	9,714,286	9,714,286	9,714,286	9,714,286	
Other Expenses (1%)	1,928,571	1,928,571	1,928,571	1,928,571	
Other Income (3%)	8,142,857	8,142,857	8,142,857	8,142,857	
Net Margin	8,357,143	38,030,849	82,232,143	114,372,766	1369%
%	2.86%	11.73%	13.94%	18.38%	
Per EC	70,823			969,261	

NOTE: Column 1: These are actual 1992 financial figures for the ECs.
Column 2: Represents 1992 finances, if ECs had average system losses of 12%.
Column 3: Represents 1992 figures, with ECs serving the NPC direct-connects.
Column 4: Represents 1992 figures with both changes, i.e. losses of 12% and ECs serving direct-connects.
Column 5: Represents % increase of revenue and expenses with both changes over 1992 actual figures.
* % figures represents line item as a percentage of Operating Revenues

The transfer of direct-connect customers to the ECs has been recommended in energy sector documents dating back at least to 1986. The GoP, NEA, ECs, and even the NPC support the service area integrity of the ECs in supplying these customers; however, the direct-connect customers are receiving favorable tariffs and have mounted an effective lobbying effort to thwart transfer efforts. If the ECs are to be commercially viable entities, it is imperative that the large industrial and commercial customer loads also be served by the ECs. NEA, the ECs, USAID, and international donor agencies should strongly encourage that this transfer takes place as soon as possible.

At present, President Ramos has directed the establishment of an impartial body to analyze the issue of NPC direct-connects and present recommendations to him.

NEA Capitalization Increase

The GoP has to date authorized a P5 billion (approx. US \$178.6 million) capitalization for the NEA; this is woefully inadequate to serve the needs of the RE Sector. The NEA has requested a capitalization increase of P20 billion, and this has been discussed for several years now. By January 1994, the bill had passed its third reading in the House, with 87 co-authors, and is now in the Senate. The President has certified the Bill as a priority. NEA is fairly confident that this time the Bill will be passed. The increased NEA capitalization would allow substantially more liquidity into the RE Sector for the financially constrained ECs.

Bail-out Plan for the ECs

At present, there is a Bill in the House regarding a bail-out plan of the ECs. The Bill would forgive many of the EC loans, especially those forced upon the ECs by past administrations for non-electrification activities, such as BLISS, TANGLAW, and LIVELIHOOD. The Cabinet approved the Plan on January 10, 1991, and the Office of the President subsequently endorsed the Plan on January 23, 1991. The Plan's major components include:

- relief for ECs from payment to the government for government advances made on foreign loans;
- write-off of accounts receivables from remote and non-viable ECs;
- relief from participation in past non-energy distribution activities and related loans for the ECs;
- assumption by the government of all NEA foreign loans and conversion into equity.

Many of the ECs currently are very highly leveraged, and quite a few have negative equities. Forgiveness of the earlier loans will contribute significantly to the financial position of the ECs.

At the time of the Phase Two evaluation in December 1993, it seemed that the Bill could pass in the House, but its passage seemed more difficult in the Senate. The Bill has yet to be deliberated either in the House or Senate; also, the President has not yet endorsed this Bill to Congress as a priority measure.

4.5 USAID Financed Commodity Procurement, Delivery and Installation

The majority of the NRECA contract funding was for commodity procurement. NRECA served as the procurement agency through seven ECs acting as consignees, clearing the commodities through customs and warehousing equipment for the specific recipient ECs until turnover. The commodity procurement activity is essentially complete and it appears to have gone well.

As of October 31, 1993, Certificates of Performance were issued for all commodities under the NRECA contract, i.e., all of the COMPAC materials, 35 boom-trucks, and computers for the CEBECO III Pilot Project. The last shipment of equipment and software under the country-wide computer installation project (the GTSI contract) arrived in the Philippines in September 1993. All hardware and software is being stored in the local installer's warehouse until shipment to specific EC sites. Installations began in October 1993 and have been temporarily suspended pending review of installation practices and procedures of the contractor.

NEA has requested the procurement of test, maintenance, and safety equipment for all ECs. This request was recently updated (November 26, 1993) and re-structured to reflect anticipated USAID budget reductions. Under the USAID/World Bank parallel financing agreement, the Bank is to fund commodities that include most heavy equipment that the ECs need and other items identified as "Testing Equipment" and "Lineman's Tool". IFB No. 72 was advertised in the Development Forum of October 16, 1993. Bank procedures require a minimum of 60 days exposure, so sale of bid documents was made on December 16, 1993. Expected deliveries of IFB No. 72 are expected to start during the last quarter of 1994 and to extend for at least 15 months. The World Bank's estimated disbursement schedule for IFB No. 72 does not include a line item for safety equipment.

A Materials Handling Study Phase I was funded by the World Bank and completed by NRECA, with portions of the study subcontracted to AWIA, a local engineering consulting organization. The study assessed the capability of selected ECs to implement system rehabilitation and/or construction projects that were expected to receive significant World Bank funding support under the World Bank's RERP.¹⁰ The capability of 12 selected ECs was assessed with regard to the ability to implement the projects. ECs were chosen based on the classification of the ECs, the road and terrain conditions and the representation of Luzon, Visayas and Mindanao.

General findings of the surveys indicated that all but one of the 12 ECs did not have an existing program on safety. Only guidelines on accident prevention were given verbally during construction activities, although some ECs conducted yearly in-house seminars on safety. Most safety equipment was either worn out, damaged or not available. There was a noticeable deficiency in safety procedures and practices along with the lack of necessary safety tools and devices.

During visits to 5 ECs, the Team found the results of this World Bank survey of 12 different ECs to be generally valid. ECs visited employ capable and experienced engineers and linemen. However, they need safety equipment to protect them in the performance of their work.

¹⁰ "Materials Handling Study, Volume 3, Electric Cooperative Construction Capability Evaluation," April 1993. World Bank funded study by Adrian Wilson International Associates, Inc. under subcontract to NRECA International, Ltd.

4.6 Coordination of USAID, World Bank, and OECF Financed Activities

USAID has historically been the largest donor in the Philippines' RE Sector. The World Bank started their assistance program in this sector relatively recently, and the OECF is planning a large loan project. As the RE Project was originally conceived, USAID would provide the grant funding in the form of technical assistance to support major loans from the World Bank and OECF. All three agencies would design their respective projects with the same purpose in mind, i.e. long-term commercial viability of the ECs. For USAID, the project rationale was very sound and logical since relatively small amounts of technical assistance funds could leverage approximately \$170 million of debt finance from other agencies.

Given the changed budgetary realities and strategies of the USAID Mission, rural electrification is no longer a high-priority sector, and the Mission cannot continue its involvement. Moreover, USAID, through its long-term commitment, succeeded in leveraging other donor financing into a sector that at one time was in such disarray that no bilateral or multilateral funding agency would risk any of their funds. A well-planned and orchestrated exit for USAID from the RE Program is thus being planned.

On February 28, 1992, USAID signed a Memorandum of Understanding (MOU) with the World Bank to cooperate in the RE sector. Given USAID's funding constraints and a reformulation of strategy, Bank representatives have indicated, in recent discussions with USAID and NEA, their willingness to pick up any equipment supplies and technical assistance that USAID cannot or will not fund hereon. With USAID's limited involvement in the RE Sector both in terms of time and grant funding, the MOU is thus rendered null and void, although this has not been officially done. Similarly, USAID had conducted successful negotiations with OECF regarding a MOU for coordination of efforts in rural electrification, but the need for this has been taken over by events. Also, the OECF loan implementation has been delayed several times, since the financing is conditioned upon approval of an economic restructuring program for the Philippines by the IMF.

The IRG Evaluation Team has recommended that USAID continue with the Rural Electrification Project Technical Assistance for Training (REPTAT) until the project completion date of December 31, 1995. The Team strongly recommends that USAID ensure there is coordination with the World Bank and the OECF regarding the training needs of NEA and the ECs and the technical assistance requirements.

4.7 GoP/NEA Commitment to Commercial Viability of RECs

4.7.1 Cessation of Activities Unrelated to Rural Electrification (e.g. BLISS, TANGLAW, LIVELIHOOD)

During the Marcos regime, the rural electrification sector was highly politicized; NEA and the ECs were required to participate in numerous rural programs that had little or no bearing on electrification. Some of these programs include BLISS, TANGLAW, and LIVELIHOOD.

At present, NEA and the ECs have extricated themselves from many of the "social" programs in the rural areas, although some ECs are still participants in the LIVELIHOOD program. The

transition of the ECs into for-profit stock companies as well as operation of NEA as an "interested lender" requires them to focus on their core business and avoid committing financial resources to social programs that have little or no bearing on the core business.

4.7.2 Cessation of all Generation and Transmission Activities by the ECs (e.g. dendro-thermal and mini-hydro)

In late 1981, NEA and selected consultants prepared feasibility studies for 95 potential sites for mini-hydropower plants with a total capacity of 193 megawatts. NEA began procurement of mini-hydropower (MHP) equipment from England, France, and the People's Republic of China (PRC) through commodity loans. The poor economic condition of the country in the mid-1980s and low gasoline prices shifted government priorities regarding fuel use. Hence, NEA was only able to complete 19 MHP projects and rehabilitated two old projects with a total capacity of 24 megawatts over a period of 12 years. As time went on, hydrology studies became dated, watershed denudation affected water flows, and typhoons and an earthquake affected expected energy generation. The ECs were not able to pay amortization of loans to NEA. Grace periods have expired and NEA has had to start paying amortization even for uninstalled MHP equipment. As of late 1990, NEA had on its books about \$150 million in loans to finance uneconomic mini-hydro and dendro-thermal investments.

The implementation of the MHP program has also been affected by the World Bank's energy sector study in February-November 1989 which suggested that NEA become an "interested lender" in providing financing and technical support to ECs. To perform this role effectively, NEA has asked the Government of the Philippines (GoP) to enable NEA to divest itself of functions that are not related to electricity distribution or lending. Part of this request is a "bail out" from the MHP and dendro-thermal loans. This bill should pass the House soon and is a priority of the Ramos Administration. NEA also asked the National Power Company (NPC) to take over these generation facilities since it is responsible for power generation activities. NPC has hesitated because the size of the projects make them financially unattractive.

NEA has studied ways to encourage the private sector to engage in MHP development using the stored equipment. The Team knows of no private company interest due in part to a host of GoP regulations which slow down project implementation. Options considered were:

- direct sale of equipment to interested parties after bidding and negotiation;
- project implementation through grant financing;
- build-operate-transfer (BOT) schemes; and
- build and transfer (B&T) schemes.

Of the 156 MHP units delivered, 52 units (24 megawatts) for 19 sites have been installed. the rest of this equipment (total of 52 megawatts capacity) is currently stored in Manila, the warehouse of the Pampanga Electric Cooperative, and at three project sites. The total appraised 1990 value of the equipment is \$10,500,000. Much of this equipment is exposed to the weather. It is necessary to assess the extent of refurbishing required before the equipment could be effectively used.

On September 12, 1991, the GoP passed Republic Act (RA) No. 7156, an "Act Granting Incentives to Mini-Hydroelectric Power Developers and for Other Purposes". The Act mandates

that the Department of Energy (DOE) be the sole and exclusive authority responsible for the regulation, promotion, and administration of MHP development and the implementation of the provisions of the Act. An inter-agency task force (which includes NEA and NPC) was organized to assist the DOE in the formulation of implementing rules and regulations for the RA No. 7156. These took effect on August 11, 1992. To date, DOE has issued three reconnaissance permits and 14 contracts to developers in various parts of the country.

Augmenting this DOE program is the NEA program to install the MHP equipment presently stored in the country. A Memorandum of Agreement was signed among the NEA, the Development Bank of the Philippines, the Land Bank of the Philippines, the Government Service Insurance System and the Social Security System on April 5, 1993 for the rehabilitation and installation of the 104 uninstalled MHP units for 39 sites. The four financing institutions are to provide approximately \$80 million for this activity.

NEA prepared a schedule to install the MHP equipment in five packages (10 to 20 megawatts each) with the first installation completed in the first quarter of 1994 and all packages installed by the end of 1996. Installation of the first package of 13 megawatt capacity was not initiated due to funding constraints.

Finally, during bilateral talks in China on April 26, 1993 (during President Ramos' visit), China extended \$25 million in credit to the GoP for the development of its MHP projects. It was reported that the loan would involve the importation of additional power generation equipment to that already stored in the Philippines.

The financial feasibility of MHP projects is very site specific. Given the amount of time that has passed since feasibility studies were completed for the 95 sites mentioned in the NEA program, and the uncertainty with regard to the condition of the MHP equipment, there is no question that a comprehensive re-assessment and specific system design update will have to be completed before any private investor considers involvement. The implementation of MHP projects can be attractive however. The Philippines/ German Special Energy Program (SEP) and the NEA jointly financed a 720 kilowatt MHP plant at Matutinao on the island-province of Cebu. The plant provides 25 percent of CEBECO I's energy needs, yet the capacity of the plant is only partially used because the falls from which the plant operates are a tourist attraction. The power generated costs consumers \$0.10 per kilowatt-hour instead of \$0.14 per kilowatt-hour for power purchased from NPC. The SEP has terminated MHP activities due to constraints of NEA in further MHP implementation.

4.7.3 Implementation of GoP/NEA Guidelines and Rules for Financial Viability and Responsibility of the ECs

The NEA has set guidelines for ECs to become financially responsible; the Performance Improvement Program (PIP) serves as the monitoring tool. The ECs have to report monthly to the NEA their figures on collection efficiency, system losses, accounts payables, and different financial ratios. The PIP serves as a sound foundation for monitoring and evaluation of the ECs as well as a basis for benchmarking.

The PIP will be a much more powerful tool if it is linked with a clearly structured incentive/disincentive package. Bonuses and other incentive/disincentive schemes should be linked with

the categorization of the ECs, so that EC management and staff have the incentive to do better. The Team has recommended in Section 5 that a study be conducted in order to link the PIP with a good incentive/disincentive structure.

4.8 Contribution of Specific Activities to Project Goal and Purpose

4.8.1 Zonal Repair Facilities for ECs

Some ECs have poor records for operation and maintenance of their facilities. NEA is developing repair shops and testing facilities strategically located throughout the country. These centers are intended to provide the ECs with specialized services, such as meter calibration and transformer re-winding, on a fee-for-service basis.

In 1989, the World Bank provided NEA with \$22.2 million under the Energy Sector Project to support: (1) the rehabilitation requirements of 12 ECs, (2) power supply upgrades for eight other ECs, and (3) substantial institutional development for NEA. This project was the forerunner to the USAID RE Project and is the catalyst for the World Bank RERP. The RERP loan finances the purchase and installation of materials and equipment as well as technical services and training for a number of interventions, one of which is infrastructure support facilities for NEA - including physical structures and support equipment for regional offices, zonal repair facilities, a training center, and a workshop. Specifically, technical assistance and training for "Zonal Maintenance Centers" includes 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.

A specific deliverable of the USAID NRECA contract was to "conduct a feasibility study of zonal service centers to meet EC equipment repair and supply". The study is comprehensive in addressing the number of service units required, location options, potential to combine repair and parts supply facilities, need/options for implementing regularly scheduled preventive maintenance, alternative financing schemes, implementation schedules, and training requirements. The study's field work was completed in October 1990. A draft report was distributed to USAID and NEA for comment. The report was presented to, and accepted by, the NEA Board of Administrators in May 1991.

4.8.2 System and O&M Studies Activities

Completion of comprehensive system studies and operations and maintenance (O&M) surveys was a deliverable under the USAID NRECA contract. Specific content of these studies included working with EC personnel on detailed maps of EC electrical distribution systems; identification of material/equipment requirements; evaluation of O&M procedures; development of distribution system rehabilitation programs; 5- and 10-year load demand forecasts including identification of required system improvements and estimated cost in the time frame; sectionalizing studies on the existing system, the 5- and 10-year projected systems, and identification of sectionalizing equipment requirements; and determination of general plant requirements (headquarters, facilities, transportation equipment, tools/maintenance equipment, etc.) with estimated costs for current operations and the 5/10-year projections.

Specific results of these efforts were incorporated into "System Planning Reports" (SPRs) for each EC. The primary purpose was to develop a plan for the orderly expansion of the EC system which is cost effective and capable of maintaining quality service. The SPR was to balance the investment requirements of various service alternatives to supply the needed system capacity, the quality/reliability of the service offered by each plan, and determine evaluated costs for each plan.

As reported in the October 31, 1993 Monthly Progress Report, the O&M survey activity is almost complete with all Phase I and II ECs and 39 of 41 Phase III ECs reporting completed and confirmed surveys. Except for one EC, the NRECA subcontractor field teams are nearly completed with information gathering for completion of SPRs. The first "sign-off" of an SPR was performed in January 1992. Since then 65 more have been signed-off and 11 are in final form ready for the EC General Manager's approval. A total of 99 SPRs are to be completed by March 31, 1994. The Team was assured that the remaining 23 SPRs would be completed and that this contract deliverable would be met within the cost and schedule of the NRECA contract.

The Team found mixed opinions of the usefulness of the SPRs in discussions with NEA and EC personnel. In general, most respondents agreed that the SPR is a good data source that presents a "snapshot" of the current condition and equipment/maintenance needs of the EC. The process of completing the SPRs involved over 2000 EC personnel and required them to physically "walk the lines" in completing the O&M surveys. This provided a benefit for the ECs to understand the condition of their distribution systems and equipment and to engage them in the process of rehabilitation. Some of the ECs visited by the Team have used the "current status" portion of the SPR as a starting point to identify needs and to structure plans to obtain funding for the purchase of needed equipment. An outstanding feature of the SPRs was the uniform mapping effort, with nearly 1,600 vellums produced.

The Team found the major problems with the SPRs in the completion process itself (i.e. a lack of technology transfer) and in the planning elements of the document. The EC General Manager and Engineering Manager; and NEA Engineering, CORPLAN and Account Management Groups are invited to be involved in the SPR process. However, the completion of an SPR is basically an "in-house" process by the NRECA subcontractor. Once the data collection phase is completed, EC personnel are not involved again until a "pre-draft" document is ready for review. All distribution system maps, development of distribution system rehabilitation programs, 5- and 10-year load demand forecasts, and sectionalizing work is completed by the subcontractor. Technology transfer in this development process is minimal. The Team believes (and most personnel interviewed agree) that EC personnel will not be able to update the SPR, a vital activity if the document is to serve its intended function as a planning tool.

Further, the planning elements of the SPR (the 5/10 year forecast and the estimated costs) were not well developed. Alternative options were not addressed and economic estimates were not included. The load forecasting methodology used is simplistic, i.e., based on essentially straight-line projections of historical load demand growth trends. Thus, the SPR is relatively inflexible to changing needs of the EC and does not offer insight into ways to accommodate those changes. A strictly engineering approach was taken to identify system rehabilitation requirements. The SPRs are not "planning documents" - they are essentially "engineering studies".

USAID and NRECA have discussed the need to update four of the SPRs to reflect the incorporation by the ECs of recently delivered 20 MVA substations and one other SPR to incorporate changes due to resettlement caused by the Mt. Pinatubo eruption. The Team does not recommend that this be done at this stage of the NRECA contract, considering the limited usefulness of the document as a planning tool and the fact that the World Bank will re-assess the needs of these ECs as a part of the RERP.

Finally, as a part of the O&M Survey, a detailed listing of needed repairs for EC distribution systems was completed. The use of COMPAC materials to address these needs is consistent with the objectives of the USAID RE Project as long as the materials are not used for system expansion. An NRECA subcontractor monitors how the equipment is being used. NRECA closed this activity at the end of September 1993, "in accordance with our approved work program". However, all COMPAC equipment has not yet been installed. The Team believes that the intent of the "approved (NRECA) work program" is to monitor the use of all COMPAC equipment and that the activity should not end merely because the previously scheduled completion date has been reached.

4.8.3 Support for the 20 "Non-viable" ECs

The objective of the USAID RE Project is to assist the NEA and the ECs to strengthen their institutional capability and to upgrade the physical infrastructure of the ECs to ensure commercial viability. However, the broader mandate for the Agency is to alleviate poverty and assist in providing for the basic social needs of rural populations. Twenty ECs were not included in the USAID RE Project or the World Bank/OECF initiatives. As the Agency phases out its support of the rural electrification sector of the Philippines, the Team believes that there is an opportunity through selected engineering studies at some of these ECs to leverage the limited amount of engineering TA funding remaining and provide the NEA with an opportunity to attract significant funding from other bi-lateral and multi-lateral financing agencies for commodity and TA support to the most needy ECs.

4.8.4 Design and Implementation of a Micro-Computer Based Billing and Customer Accounting System

An electronic billing system (EBS) was developed under Asian Development Bank funding for the NEA. Under the USAID RE Project, the EBS was to be "enhanced," i.e., expanded from a stand-alone system to one that operates on the LAN. Major objectives for the expansion of the EBS are to provide:

- a multi-user capability;
- a programming language to facilitate maintenance by NEA staff;
- improved recovery facilities from minor or major breakdowns;
- flexibility for differences between EC operations; and
- an information structure to enable better reporting capabilities.

Installation of the enhanced EBS is planned for January 1994 at CEBECO II and III as a pilot project. By March 31, 1994, the enhanced EBS will be operational for implementation at all ECs. The Team believes that this is a "success oriented" schedule, but there is every indication that

it can be met. The Team is concerned about physical implementation at each EC and that the need for a comprehensive training program be adequately addressed.

An Accounting Manual has been developed under the NRECA contract and is now being used by NEA and the ECs. Training programs were held to acquaint users with the system. All indications are that the new system has met with approval and constitutes a major success of the RE Project. The Team is concerned, however, about the level of sophistication of the accounting software (PLATINUM). The very capable, computer-literate staff at CEBECO III took nearly 6-months to get comfortable with PLATINUM. While the "learning curve" should be steep, many EC Accounting Department personnel may not be very familiar with computer-based systems and certainly not with a very sophisticated one.

4.9 NEA 1993 Reorganization

In 1993, Administrator Sanchez reorganized the NEA. A Deputy Administrator for Administration was added to the three existing Deputy Administrators. A Strategic Planning Division was also created and staffed. Lastly, the Foreign Assistance Projects Office (FAPO) was staffed. Taken together, the reorganization was not a drastic variation from the existing organization framework; it was more, in the Administrator's words, "moving the right people into the right jobs".

The Team believes that the major effect of all the changes was to substantially boost morale within NEA. The past policies and actions of the previous administration had resulted in considerable turmoil at NEA, and this has clearly been reversed.

4.10 Progress of ECs to Meet Performance Targets

A World Bank conditionality for NEA on-lending under the proposed RERP loan is that NEA seek the EC's agreement to implement 3-year Performance Improvement Programs (PIPs), specifically tailored to each EC, to: (1) reduce non-power costs, (2) reduce technical and non-technical losses, and (3) improve collection efficiency. The PIPs include a series of concrete measures to improve EC performance. They will define precise action steps, implementation schedules, deployment of manpower and other resources needed, and quantitative targets for the various categories of measures. Implementation of PIPs would be followed closely by the NEA through an appropriate monitoring program. Performance standards established for the NEA re-lending program are:

TABLE 4.3
Performance Standards for NEA Re-lending Program

<u>Key Performance Area</u>	<u>Desired Level</u>
NEA Amortization payment	current
NPC Power Account	current
System Loss	15 percent or below
Collection Efficiency	99 percent
Accounts Receivable	< 2-months sales
Advances to Officers and Employees	p50,000 and below
Distribution Expense-Operation Maintenance	p100 per kilometer
Consumer Account Expense	p7.00 per customer
Administrative and General Expense:	
2,000 MWH sales and above/month	p0.11 per kWh sold
1,000 to 1,999 MWH sales/month	p0.17 per kWh sold
Less than 1,000 MWH sales/month	p0.23 per kWh sold
Signed Up Membership	80 percent
Involvement in Annual Meeting	16 percent
Involvement in District Elections	80 percent

TABLE 4.4
Key Performance Indicators for ECs

ELECTRIC COOPERATIVES	1987	1988	1989	1990	1991	1992
Total Margin (M Pesos)	(22)	(8)	(35)	15	376	234
System Loss (%)	24.9%	23.7%	23.1%	21.56%	20.97%	20.72%
Collection Efficiency (%)	85.0%	87.0%	90.0%	90.0%	92.0%	93.0%
Connection per Employee				134	144	153
EC Categorization:						
- Category A			44	46	35	49
- Category B			28	38	27	20
- Category C				23	13	11
- Category D				11	43	37
Liabilities/Assets				111%		102%
Current Ratio				0.82	1.01	1.11
Debt/Equity Ratio				~ 17.94	~ 31.54	~ 19.78

The ECs have made significant progress in many of the key performance areas. Table 4.4 presents a historical description of some of the EC performance indicators.

4.10.1 Reduce System Losses to 15 Percent

System losses at the ECs have two major components: (1) technical losses due to old equipment and networks, overloaded transformers, improper wire sizing, over-long distribution lines, etc.; and (2) non-technical losses due mainly to pilferage. The average system loss across all ECs has declined from 24.9 percent in 1987 to a 1992 value of 20.72 percent (see Table 4.4). However, system losses vary considerably among the ECs. Nearly one-third of the 99 ECs affected by the USAID, World Bank and OECF projects have current system losses at or below 15 percent.

The Team believes that the technical capability to address technical system losses exists at the great majority of ECs. The USAID RE Project through the COMPAC procurements, and the upcoming commodity procurement under the World Bank RERP and OECF Projects will provide sufficient equipment to upgrade old networks and install proper equipment to ensure that technical losses are minimized. If the ECs can establish firm control over pilferage, the vast majority of them should be able to bring total system losses below 15 percent.

4.10.2 Improve EC Collection Efficiency

The ECs have made a marked improvement in their collection efficiency (see Table 4.4). In 1992, collection efficiency was 93%; in comparison, it was 90% and 92% in 1990 and 1991, respectively. Improved management, a computerized electronic billing system, and better monitoring of accounts receivables by NEA have contributed to more efficient collection. However, the target collection efficiency remains at 99% (95% in the RE Project logframe), and the ECs need to continue the improvement trend.

4.10.3 Improve Financial Operations and Reduce Operating Expenses per kWh

As Table 4.5 below illustrates, operating expenses per kWh have in fact increased over the last several years.

TABLE 4.5
Operating Expenses of ECs

CATEGORY	1990	1991	1992
Total kWh Sold (000)	2,868,675	3,036,500	2,938,941
Operating Expenses (Million Pesos)	5,306	6,998	7,509
Operating Expenses per kWh (Pesos)	1.85	2.54	2.78

The major reasons for increased operating costs per kWh seems to be increased operating costs, despite the decreased number of kWh sold by the ECs in 1992. Among the cost components, the administrative and general expenses have increased at the highest rate. Operating costs per kWh is one of the key factors that determine financial performance; the non-power costs are also within the control of the ECs, and thus implies managerial effectiveness. The ECs and NEA should continue to monitor this figure closely and reverse the present trend of increasing operating costs per kWh.

The connections per employees has shown improvements from 134 in 1990 to 153 in 1992, which is within the 150-200 connections per employee standard.

The ECs' overall financial health seems to be improving. As an indication, the liabilities to assets ratio has decreased from 111% to 102%; although this is nowhere close to a healthy situation, the trend is in the right direction. The current ratio has also improved from 0.82 in 1990 to 1.11 in 1992. The total margin for all the ECs has improved from negative figures in 1987-89 to positive figures in 1990-92.

The ECs continue to be highly leveraged, and quite a number of them have negative equities. Thus, the debt/equity ratio is very misleading, since the ratio for many of the regions would be infinite, given their negative equities. As an indication, for 1992, the debt/equity ratio for some of the 12 regions ranged from 11.76 to a high of 27.84; in Table 4.4, the average figure of 31.54 is given. The main reason for this unhealthy financial situation is the low equity base of the ECs, which currently consists of the P5.00 membership fee.

4.10.4 Reduce EC Power Outages

The major causes of power outages at the ECs have been inadequate and unreliable power supply from NPC as well as old distribution networks, dilapidated substation equipment, and overloaded transformers at the ECs. The USAID RE Project COMPAC procurements, the World Bank RERP, and the OECF Project are specifically addressing the rehabilitation needs of the ECs. Power outages at the ECs have been greatly reduced over the past few years, and, with further commodity loans from World Bank and OECF as well as increased reliability of NPC power supply, the improvements are projected to continue.

4.10.5 Accounts Payable to NEA and NPC

The ECs are generally current on their accounts payable to NPC, due to the strict payment schedule set and adhered to by NPC. For a number of the ECs, NEA in the past had to take over their accounts payables to NPC and convert them to a NEA loan for the ECs to remain current in their payments to NPC.

NEA's collection efficiency on EC loans varies widely, depending upon the region and the type of loan. On construction loans, arrearages range from a low of P5 million for Region IX to a high of P462 million for Region III. Collection efficiency ranges from 29% to 100% for the various regions, and the average is 73%. On loans other than construction, the collection efficiency is deplorable; it ranges from a low of 0% on dendro-thermal to 9% for mini-hydro to a high of 23% for "other loans" category. Although there is some rationale for the low or non-payment of the latter loans, even the 73% collection efficiency on construction loans is very low.

5.0 EVALUATION RECOMMENDATIONS

As stated at the outset, the Team focused on providing constructive feedback and implementable recommendations. The Team's objective was to ensure a graceful exit from the RE Sector that had seen USAID involvement since the 1960s and to implement a transition to support from other donors and financing agencies.

5.1 Plan and Implement an Orderly Transition from the NRECA Contract

The major portion of the NRECA contract, other than the computer installation supervision, will end in March 1994. The Project has procured a lot of equipment and produced numerous deliverables, and it is essential that the last months of the contract ensure maximum utilization of the equipment and deliverables for the long-term.

5.1.1 Procure More Computers for Training Purposes

Under the Project, approximately \$8.2 million has been spent on computer equipment, and computers packages have been provided to all the 119 ECs in the country. Over 800 personal computers (PCs) have been procured. This is likely to lead to huge productivity improvements if the computers are properly utilized.

Despite the number of computers provided, there is a shortage of computers for training purposes. Since the ECs are so scattered, it is necessary to have several regional sites where NEA and EC personnel can come together for training purposes.

In the 1970s, USAID provided grants to construct two International Training Centers (ITCs), one in Luzon and the other in Mindanao. Although the Team was not able to visit these sites, the ITCs apparently have very good facilities, but do not have computers. Since a lot of training activities are already conducted at these Centers, the Team recommends that 20 computers be provided to each of the two ITCs.

Some of the ECs, e.g. CEBECO III, are already serving as computer training sites for EC personnel. CEBECO III organizes courses that are repeatedly over-subscribed and the EC sees a huge potential of the training center as an alternative revenue source. In order to ensure alternative training sites, the Team proposes that 10 computers each be provided to CEBECO III, Cebu as well as one EC each in Luzon and Mindanao. The ECs in Luzon and Mindanao should be selected based upon: geographical location and easy access, capability of the EC to perform as a training center, past experience, and availability of resources. The condition under which these computers will be provided is that the equipment will continue to belong to the ECs in perpetuity and that at least 50% of the trainees should be from the ECs.

5.1.2 Fund Computer Procurement/Installation Support

NRECA's contract, as amended, provides computer procurement and installation support through June 30, 1994. The Team concurs with this arrangement.

Given the large number of computers and the lack of computer skills at most of the ECs, an intensive training program is necessary. The Team proposes that all computer-related training be a priority under the NEA Training Program for 1994 and 1995. The supporting IIE contract runs through the end of 1995, and the continuity is essential to ensure a level of computer proficiency that results in maximum productivity increases.

5.1.3 Purchase Two-year Computer Service Contract for NEA/ECs

The computers are covered by warranty for one year from the date of approval of computer installation, therefore the ECs will not incur any maintenance cost in 1994. A "rule-of-thumb" for computer service contract cost is approximately 10% of the computer hardware cost; this cost can be a significant burden upon the ECs, and the Team's concern is that some of the ECs may not purchase a service contract, and let the computer equipment go unused if maintenance is required.

The Team proposes that USAID cover a portion of the computer service costs for NEA and the ECs for an additional two years. In Year 1, these costs are covered under the warranty; in Year 2 and 3, the Team proposes that the RE Project fund 75% and 50% respectively of the service contract costs. The sliding percentage scale is proposed to ensure that NEA and the ECs begin to fund the service costs under their budget and take increasing responsibility for the maintenance of their equipment.

5.1.4 Implement Planning Transition

Several planning functions have been conducted or are ongoing under the NRECA contract. These include: the draft Master Plan, the proposed Strategic Plan, Investment Planning Model, and Co-op Planning Manual. Many of the planning activities started towards the latter part of the NRECA contract, and the Team is now concerned with the completion and utilization of the deliverables. Given the impending contract completion date, the Team recommends that no new planning activities be undertaken.

The NRECA contract required the development of a Rural Electrification Sector Master Plan; however, the level of effort was perceived inadequate to commence the exercise at the initial stages of the project. Consequently, USAID amended the NRECA contract to add the services of a long-term planning expert, and the advisor arrived at post in February 1993. To date, a Master Plan Guideline has been produced and a concept sheet for the Plan has been circulated among the various NEA managers. The concept sheet is an outline of the program key result areas, key tasks, goals, and objectives of the Plan.

Master Plans involve much more than a report. First, a Master Plan should be undertaken by an agency that has the political backing and the authority to bring the various parties together. In the Philippines, NEA, ECs, NPC, ERB, DOE all are involved in one way or another in rural

electrification. Government policy is the responsibility of the DOE. From a protocol standpoint, it is the DOE that has the authority to call the various parties together to arrive at a consensus. Second, much of the Master Planning effort goes into producing a workable consensus among the various parties about their roles and responsibilities and the future course of action. It is useful to have an external catalytic agent to move the process along; often, outside agencies such as USAID or the World Bank serve as catalysts. The role of a catalyst is made more effective if the agency has a certain amount of leverage, usually in the form of grants or loans. It is illogical for USAID, which is presently focused on exiting from the RE sector and has little, if any, leverage to produce a Master Plan. Third, a Master Plan is a "rolling" document, in that it has to be updated in a timely fashion. Thus, the process of producing a Master Plan is often more important than the document itself. With the little time remaining under the NRECA contract, it is not possible to produce a document in which the various agencies have major inputs and thus feel ownership. Also, due to time constraints, it may not be feasible to transfer the process whereby the Master Plan is produced and updated.

For the above reasons, the Team strongly recommends that a preliminary draft Master Plan be produced by January 31, 1994 and handed over to NEA in a draft form. NEA should open a dialogue with the various other agencies as well as IFIs, such as the World Bank, about assistance in proceeding with the Plan. The Team recommends that the Bank, as the major financing agency in the sector, take over assistance to the NEA in developing the Master Plan.

NEA is developing a Strategic Plan, which is useful in setting goals, objectives, and directions. However, for many of the same reasons stated for the Master Plan, it is not appropriate for USAID or NRECA to initiate technical assistance at this late stage. At present, senior NEA managers have taken it upon themselves to produce this document, and it is recommended that they continue the effort. Any technical assistance required may be more appropriately funded by the World Bank, under the RERP.

Handing over a draft Master Plan by January 31, 1994 and not undertaking involvement in the Strategic Plan will result in savings to the NRECA contract, since related technical assistance services will no longer be required after January 31, 1994. USAID should open a dialogue as soon as possible with the World Bank in order to ensure that the upcoming Bank project does take over the technical assistance to the planning functions.

The Investment Planning Model has proved very useful to both NEA and the ECs. The model is being utilized to evaluate the economic and financial viability of projects; the Bank relied upon this model's outputs for selection of projects to be funded by the RERP. There is a small amount of effort required to refine the model. This activity, which can be accomplished by January or February of 1994, should be continued.

NRECA is also in the process of developing a Co-op Planning Manual, which will be completed by March 1994. This will serve as a useful tool for the ECs, and should be completed. Unfortunately, due to time limitations, the ECs cannot be fully involved in its development. This manual needs to be institutionalized within the planning departments of the ECs. The Team recommends that this be accomplished through training programs under the NEA Training Program; NEA could, if deemed necessary, contract separately with the NRECA specialists developing the Manual after March 31, 1994.

5.2 Training Contract

5.2.1 Transfer all Training Activities to the NEA Training Program, Assisted by the IIE Contract

All training activities under the NRECA contract should be transferred to the NEA Training Program. Coordination should continue with specific NRECA activities until their contract completion dates of March 31 and June 30, 1994 respectively to ensure that NEA and EC training needs are met. Competitive procurement of training materials, course preparation, and course presentation should include NRECA as a potential participant where appropriate.

USAID should ensure close interaction between NRECA and IIE with regard to specific training needs related to hands-on, in-the-field technical training necessary to ensure proper and continuing use of field equipment and software. It is critical that USAID intervene between the World Bank and IIE to ensure that the training programs of each organization are coordinated to prevent confusion among NEA and the ECs and to ensure that a consistent training program adequately meets all requirements. USAID should work with the NEA to ensure that initial interaction take place during the World Bank's Re-appraisal Mission scheduled in March 1994.

5.2.2 Evaluate/Encourage Consolidation of Two NEA Training Divisions

IIE has instituted good coordination between the two NEA training divisions, i.e. the Information & Training Services Division under the Coop Services Department and the In-House Training Services Division under the Human Resources Management Department. Using an impartial institutional training specialist under the IIE contract, USAID should evaluate the usefulness of two separate NEA training divisions, one for EC-related training and one for in-house programs. As the ECs become commercially sustainable and their operating functions become standardized (electronic billing, accounting systems, etc.), the Team believes that many of their training needs will be similar to those required of in-house NEA staff. If appropriate, USAID should encourage consolidation of the two training divisions within NEA.

5.2.3 Support NEA Training Activities by Funding 1995 Training Fund

USAID should continue support for NEA training activities by funding the NEA Training Fund for both 1994 and 1995. However, USAID should begin to "cost-share" with NEA in those training activities to "wean" NEA away from USAID support and to begin to develop a financially sustainable training program within NEA and the ECs.

5.2.4 Conduct a Study on Software Needs and Applications for NEA and ECs

A large amount of software has been procured under the RE Project to date. The NEA has requested the purchase of additional software, both for office functions and for engineering support. A training assessment study should be conducted under the IIE contract to identify and quantify (with regard to functional requirements such as data handling, input volume, report

frequency, etc.) the operational requirements of NEA and specific ECs, given the use of new procedures and policies instituted since January 1993. These necessary functional applications should be matched with commercially available software packages to justify the need for the purchase of additional software.

5.2.5 Focus Training on Institutional Development and Computers

The IIE training program should equally focus on institutional development (business management, strategic planning, and budgets and financial planning) and computer training (both hardware and software) at NEA and the ECs. Emphasis should be placed on computer training through upgraded International Training Centers in Luzon and Mindanao and computer training centers established at selected, strategically located, Category "A" ECs (BENECO in Luzon, CEBECO III in Visayas, and DANECO in Mindanao). In the near-term, the IIE training program should provide: (1) training for all ECS in the Enhanced Electronic Billing System, operation of the Local Area Networks, and the PLATINUM accounting software, and (2) increased capability for NEA and EC staff participation in follow-on training in general office computer software (word processing, spreadsheets, E-mail, etc.).

5.2.6 Allow More Flexibility in Training Plan Changes and Reallocation of Budget Line Items for NEA

More flexibility is required with USAID procedures regarding planning, course update, and budgeting for NEA training initiatives once yearly plans are established. USAID should establish a mechanism for re-programming of finances under the NEA Training Fund to accommodate these needs.

5.3 Continue Supporting Policy/Institutional Changes to Achieve Project Goal and Purpose

USAID is interested in keeping its involvement in the energy sector, but limiting it to more policy level technical assistance to the newly-formed Department of Energy. USAID has been involved in the rural electrification sector since the 1960s and has, by far, the most institutional experience and expertise regarding the sector. The Team strongly recommends that at the policy level, the rural electrification sector remain a priority.

5.3.1 Support Policy/Institutional Changes In the RE Sector through the New "Technical Assistance to the Department of Energy" Contract

Currently, USAID is in the process of awarding the "Technical Assistance to the Department of Energy" contract, and various bids are being evaluated. This new contract will assist the DOE by providing long- and short-term technical assistance for such policy issues as privatization, market operations, regulation, and pricing. The Team strongly recommends that technical assistance under the new Project also be provided for the following policy-level activities:

- transfer of NPC direct-connects to the ECs;
- passage of a strong and implementable anti-pilferage Bill;
- formulation of rules and regulations that allow the Market to operate in terms of mergers, acquisitions, employee buyouts, etc.

5.3.2 Conduct Policy/Institutional Studies under the RE Project

In order to fully capitalize upon its extensive experience in the RE Sector and to implement an effective transition to other donors, the Team recommends that USAID conduct a number of short studies between now and the end of the RE Project in 1995. It is recommended that these studies be conducted outside of the NRECA or IIE contracts. Brief study descriptions, approaches, level-of-effort, and outputs are included in Annex V.

a. Study on Policy/Institutional Measures to Ensure long-term Commercial Viability of ECs

The Team has presented a number of analyses to show the large-scale positive financial impact on the ECs of some policy measures. In order to persuade various GoP agencies and other interested parties, it is necessary to conduct a more in-depth study of policy and institutional measure that would ensure long-term commercial viability and sustainability of the ECs.

b. Feasibility Studies on a sample of the 20 "Non-viable" Co-ops

Some 20 ECs have been deemed "non-viable" due to lack of sufficient loads and economies of scale. Given the ability of the ECs to charge tariffs based upon the cost of providing the service, none of the ECs can be termed inherently "non-viable". The cost of providing service to remote islands and small residential loads will obviously be higher than for less rural settings, but this can be recovered through an appropriate tariff structure.

The consequence of being classified "non-viable" is that none of the international financial institutions (IFIs) have provided any assistance to these 20 ECs. The USAID, World Bank, and OECF projects virtually bypass these ECs, except for a minimal package of computer equipment provided by USAID's RE Project.

It is essential that a feasibility study of the 20 ECs, or a sample thereof, be conducted to analyze how they can be made commercially viable. This study should culminate in presentations to various agencies, including NEA, DOE, USAID, the World Bank, OECF, Asian Development Bank, DANIDA, and other interested entities. For example, DANIDA is already interested in possibly financing the rehabilitation of seven of these 20 ECs; this feasibility study can provide a good basis for financial agencies to proceed with assistance projects.

- c. Study of CDA Law impact upon ECs, laying out options for transitioning to new structure and recommending best option

As already pointed out in Section 2.3.2, the CDA Law represents a wholesale change in the way ECs conduct business. However, there is presently very little understanding of the law and its impacts, let alone the process of complying with the terms of the law, e.g. the transfer from a non-stock to a stock entity.

The Team recommends a study to analyze the impact of the CDA Law upon the ECs. The study should lay out the various options for transitioning to the new structure mandated under the law, and recommend the best option. Moreover, the study should go into detail about the specific process to transition from the present to the new structure.

- d. Evaluate EC Incentive System, and Integrate PIP with a sound Incentive/Disincentive Structure

Section 4.10 discusses the Performance Improvement Program (PIP) and Table 4.3 represents some of the results of the PIP. The PIP represents a very sound basis for monitoring & evaluating the performance of the ECs. The effectiveness of the PIP will be much more enhanced if it were accompanied by a well-structured incentive/disincentive program.

The Team recommends a study of the present incentive/disincentive system for the ECs. The study should recommend a well-structure incentive/disincentive system that is linked with performance under the PIP.

5.4 Exit While Maintaining USAID Goodwill

USAID has already made the decision to exit from the RE Sector after the end of the RE Project. USAID has to date invested substantial funds, approximately \$126 million, as grants to the sector.

USAID assistance has directly improved the performance of the ECs by the provision of commodities to reduce line losses, computers, and various planning and engineering documents. The managers, financial/accounting and engineering staff, and Board members have benefited from the assistance. However, little of the assistance has filtered down directly to the linemen level; the linemen currently do not have safety equipment and every year there are numerous accidents. The Team recommends that USAID procure a package of safety gear, including hard hats, rubber gloves, safety shoes, etc., for each of the 119 ECs.¹¹ These commodity packages, referred to as "SAFETY PACs", could be competitively procured by 1995.

"SAFETY PACs" for ten linemen would cost about \$7,000 for each EC. Items could include the following:

¹¹ The World Bank's IFB 72 may include safety equipment for 52 ECs. If so, the USAID funds can be utilized to purchase more safety equipment for the ECs that are not covered by the Bank loan.

TABLE 5.1
Cost of SAFETY PAC Commodity Packages

Item	Unit Price
Protection Hats	\$8.00
Safety Belts and Climbers	\$83.00
Safety Shoes	\$95.00
HV Gloves and Liners	\$62.00
Grounding and Jumpering Set	\$200.00
Long Reach Hot Slick	\$55.00
Folding Hot Slick	\$200.00
TOTAL	\$703.00

Together with the "SAFETY PACs", the Team recommends a "Think Safety" campaign to be organized by NEA. This campaign should include seminars on safety and possible videos and literature. Should technical assistance be required, NEA can access the IIE contract.

6.0 BUDGET and TIMELINE

The IRG Team has analyzed the available funding under the Rural Electrification (RE) Project and made recommendations regarding the optimum use of those funds. Table 6.1 on the following page below details the recommended use of Project funds and the amounts budgeted. Table 6.2 shows an overall timeline for the Rural Electrification Project.

TABLE 6.1
Budget Calculations: Marginal Methodology
(as of November 30, 1993)

	Itemized	Total
Funds Remaining		
Uncommitted	1,354,138	
Unexpended	<u>4,626,099</u>	
		5,980,237
Computer Installation & Training		1,575,805
IIE Contract		1,140,248
NRECA Contract		
Base Contract	700,000	
Investment Planning Model Refinement	25,000	
Co-op Planning Manual Finalization	<u>50,000</u>	
		775,000
On-going Evaluation: IRG		55,000
NEA Training Fund: 1995		300,000
Final Evaluation of RE Project		100,000
Two-year Computer Maintenance Contract		350,000
Study on Policy/Institutional Measures for LT EC Viability		75,000
Study on CDA Law Impact & Transition Options		75,000
Study on Incentive/Disincentive Structure for PIP		65,000
Feasibility Study on 20 ECs termed "Non-viable"		120,000
Procure more Computers for Training		
Int'l Training Center, Luzon: 20	70,000	
Int'l Training Center, Mindanao: 20	70,000	
Luzon EC: 10	35,000	
Mindanao EC: 10	35,000	
Visayas EC (CEBECO III): 10	35,000	
Software	<u>50,000</u>	
		295,000
"Safety Package" for all ECs		901,154
Project Support: Advisor + Secretarial		66,730
ANSI, IEC, IEEE Standard Library for NEA		50,000
IRM Assistance		36,500
BALANCE		0

Note: This budget does not include items that are either committed or in the pipeline. For example, the 1994 NEA Training Fund is already committed, and therefore not included here.

**TABLE 6.2
RE Project Timeline**

	1993 Dec	1994 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
NRECA CONTRACT											
Computer Procurement Support	[Bar from Dec 1993 to Jun 1994]										
Draft Master Plan	[Bar from Dec 1993 to Jan 1994]										
Coop Planning Manual			[Bar from Feb 1994 to Mar 1994]								
Investment Planning Model			[Bar in Feb 1994]								
ADDITIONAL STUDIES											
Study on Policy/Instit. Measures to Ensure LT Viability					[Bar from Apr 1994 to May 1994]						
Study on CDA Law Impact and Transition Options							[Bar from Jun 1994 to Jul 1994]				
Study on Incentive/Disincentive Structure and PIP										[Bar in Sep 1994]	
Feasibility Study on "Non-viable" Co-ops				[Bar from Mar 1994 to Apr 1994]							
IIE CONTRACT											
	[Bar from Dec 1993 to Dec 1995]										
NEA 1994/95 TRAINING PLAN											
	[Bar from Dec 1993 to Dec 1995]										
OTHER ACTIVITIES:											
Computer Maintenance Support											[Bar in Dec 1995]
Procurement of Safety PACs										[Bar in Sep 1994]	[Bar in Dec 1995]

ANNEX I
PROJECT EVALUATION
SCOPE OF WORK

I. ACTIVITY TO BE EVALUATED

Project Title	:	Rural Electrification Project
Project Number	:	492-0429
Life of Project	:	September 28, 1988 - December 31, 1995
Authorized LDP	:	\$40 Million
Obligated	:	\$34,913,000 (as of August 17, 1993)
Pipeline	:	\$15,269 (as of August 17, 1993)

II. PURPOSE OF THE EVALUATION

The purpose of the evaluation is to review progress on the implementation of Phase Two of the Rural Electrification Project, assess project requirements and identify any changes that may be needed to complete the project as planned by the Project Assistance Completion Date (PACD) of December 31, 1995.

III. BACKGROUND

The Rural Electrification Project was authorized on September 28, 1988 with an LOP funding of \$40 Million to assist the Philippine National Electrification Administration (NEA) and selected Electric Cooperatives (ECs) to strengthen their institutional capacity and upgrade the physical infrastructure of the ECs to ensure commercial viability. The project purpose is to achieve commercial viability of selected ECs by addressing Electrification System. By the end of the project, it is expected that a majority of the participating ECs will be commercially viable distributors of electric power in their service areas.

A mid-term evaluation of Phase One of the project was completed in October, 1991. As a result of a positive overall assessment of progress and World Bank and Overseas Economic Cooperation Fund (OECF) interest in providing renewed assistance in the sector, Phase Two of the project was revised to tie-into the World Bank and OECF's projects under a parallel financing arrangement. The World Bank and OECF's projects are planned to provide \$91.3 and \$81.6 Million respectively of soft loan assistance to NEA and 99 ECs for major revitalization of the sector with majority of funding reserved for electric distribution equipment and materials for EC rehabilitation and improvements. Both the World Bank and OECF projects have the same goal and objectives of the RE Project. Based on the Phase Two of the R.E. Project was revised to expand the institutional development component to support the planned technical rehabilitation and

improvements by the World Bank and OECF. This includes technical assistance for master planning, financial and institutional improvements, human resource development and training, computer equipment and equipment for recurring maintenance operations. A Memorandum of Understanding (MOU) for the parallel financing program was signed between USAID and the World Bank in January, 1992 concurrently with a USAID/NEA Grant Agreement Amendment for Phase Two of the RE Project. A USAID MOU with OECF is also planned concurrently with the proposed signing of OECF loan project with NEA later this year.

With the expansion of the institutional support for Phase Two of the project, the NRECA contract was amended in 1992 to increase funding, add work and extend the contract completion date to March 31, 1994. The additional work included engineering system planning for 99 electric cooperatives, rural electrification master planning and continued financial and institutional support in accordance with the parallel financing arrangements. In July, 1993, the NRECA contract was further amended and extended for three months for supervision of installation of computer hardware and software procured for NEA and ECs by NRECA as USAID procurement agent under their contract. The original NRECA contract of \$6.5 Million has thus been amended twice for a new total of \$8.999 Million, with a completion date of June 30, 1994.

As of June 30, 1993 the NRECA contract has an unexpended balance of about \$3.4 Million. On July 9, 1993 USAID requested NRECA to provide an updated workplan and projected expenditures for completion of the contract.

In addition to the NRECA contract, the Mission competitively procured the services of a separate institutional training contractor to establish a self-sustaining NEA and EC training system in accordance with the purpose of the Rural Electrification Project. This contract was signed by the Mission with Institute of International Education (IIE) for \$1.4 Million with a contract completion date of December 31, 1995.

IV. STATEMENT OF WORK:

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

- (1) Assess status, effectiveness and progress on Phase 2 of the RE Project under the parallel financing arrangements with the World Bank and OECF. This includes all activities, towards meeting project objectives, such as technical assistance, NEA and EC institutional improvements and plans, training, policy agenda/plans, NEA and REC financial, accounting and engineering operations, and USAID financed commodity procurements, delivery and installation.
 - Are completed and planned institutional policy and operational improvements sufficient for project success?
 - Are the technical assistance contractors meeting their respective scopes of work? Are the technical assistance teams properly staffed?

Will they be able to complete their scopes of work within their respective contract periods?

Is the current level of technical assistance as provided in the contracts sufficient to support project success under the parallel financing arrangements?

(2) Assess coordination and completed and planned USAID, World Bank and OECF parallel financed activities to meet project and sector objectives.

- What technical and commodity support is the World Bank and OECF providing and/or planning to provide under the parallel financing arrangements for revitalization of the sector? Are the USAID, World Bank and OECF technical and equipment support plans sufficiently coordinated and structured to meet objectives under the parallel financing arrangements?

(3) Based on the assessments made in the RE Project Mid-Term Evaluation Report, confirm GOP/NEA continued commitment to achieving the commercial viability of the Philippine REC system in terms of:

- Policies and actions taken by the GOP/NEA in support the establishment of commercial viability of ECs.
- Actions undertaken regarding the turnover 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 ECs to cease all activities which are unrelated to rural electrification, such as the BLISS program, TANGLAW, LIVELIHOOD projects, etc.
- Actions undertaken regarding discontinuation of all generation and transmission activities by the ECs, i.e., dendro thermal and mini-hydro power plants. Assess NEA plans to get the mini-hydro equipment "off the books."
- Progress on development and implementation of GOP/NEA guidelines/rules and other actions which would require ECs to be more financially responsible, including their adequacy and significance for EC commercial viability. Status of GOP equity infusion into NEA.

(4) Confirm if and how the following activities have contributed to progress at the EC level towards improving managerial, operational, maintenance and technical deficiencies, specifically the following:

- Plans and activities for zonal repair facilities for ECs.
- Activities related to the system and O&M studies to determine EC system operating requirements, system improvements and rehabilitation plans.

-
- Activities for the design and implementation of a micro-computer based billing and customer accounting system.
 - Activities for technical and non-technical measures to minimize system losses.
 - Plans for implementation of the World Bank and OECF EC distribution rehabilitation and improvements.
- (5) Assess measures implemented by NEA to improve its managerial and administrative effectiveness, specifically regarding 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 Ecs.
 - NEA and REC staff training program development and implementation.
- (6) Validate progress of participating ECs to meet agreed upon performance targets, specifically the following:
- Reduce EC system losses to 15%.
 - Improve EC collection efficiency.
 - Improve EC financial operations and reduce operating expenses per kilowatt hour.
 - Reduce EC power outages.
 - Keep current with payments due with NEA and NPC.
 - Improve financial ratios as provided for in the loan contracts between NEA and the ECs.
- (7) Based on assessments on the above, evaluate whether project plans/actions require modification, and if so, recommend what specific modifications are necessary to enable the project to meet its objectives by the PACD of December 31, 1995. In view of the technical and equipment support being provided and/or planned by the World Bank and OECF, and plans and activities for financing and implementing EC rehabilitation and improvements, and given the current accomplishments and remaining tasks under the RE TA contracts, provide recommendations for any additional RE Project TA required under the project beyond what is currently planned under the existing contracts. Prepare a brief scope of any such requirements, including the specific areas of NEA/REC operations that need to be addressed and the specific timing and outputs that would be expected from such additional TA.

- (8) Provide recommendations on the programming of the balance of unearmarked RE Project funds (about \$6 Million) in coordination with the other donor support for completion of the RE Project by the PACD of December 31, 1995.

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) and Institute for International Education (IIE) technical assistance contracts, work programs, progress reports, consultant reports and files.
3. Project Implementation Letters and USAID Project files.
4. Energy Resources International (ERI) Report of Project Status and Future Options.
5. USAID/World Bank parallel financing MOU and draft USAID/OECF parallel financing MOU.
6. World Bank Appraisal Report and OECF program documents
7. Resource Management Associates (RMA) RE Mid-term evaluation report
8. NEA plans and documentation for maintenance equipment support from the World Bank, OECF and USAID.
9. NEA documentation and reports on the status of the World Bank and OECF projects.

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. IIE

Training Advisor
Training subcontractors and support staff
Training implementors (CEBECO, et. al.)

5. Selected Participating RECs

Board Members
General Managers
Engineering Managers
Finance Managers

6. 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 3rd Week - Contractor briefs USAID on status of the evaluation and preliminary findings and recommendations for the future of the project.

By End of the 4th Week - Contractor submits Draft Report and briefs USAID and NEA. USAID/NEA provide written comments to contractor on draft report within 2 weeks.

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.

2. Format of the Report

The evaluation team should prepare a written report containing the following sections:

Cover Page - This page should indicate the title of the report (Final Report - Rural Electrification Project Evaluation), name of Contractor, date report was prepared, USAID full title and emblem, and the standard AID disclaimer. See outline attached (Appendix A).

Basic Project Identification Data Sheet - See sample attached.

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 attached (Appendix B).

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 attached form (Appendix C).

VII. COMPOSITION OF EVALUATION TEAM:

The contractor evaluation team is proposed to comprise of four individuals, including a U.S. Project Development Specialist (Team Leader), a U.S. Policy Specialist with expertise concerning rural electric cooperative operations in developing countries, a local Finance/Accounting Specialist with experience with financial planning and operation of rural electric cooperatives, and a local Electrical Distribution Engineer.

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 or close ties/relationships with existing contractors.

VIII. FUNDING:

The cost of the evaluation is to be charged against project funds.

ANNEX II Project Logical Framework

TARGETS	STATUS	COMMENTS
<p>Project Goal: To increase the reliability of electric power service in rural areas of the Philippines.</p> <p>Project Purpose: To achieve the commercial viability of selected RECs by addressing institutional, policy and technical weaknesses of the REC system.</p>	<p>Reliability of power supply by NPC and delivery by the ECs has increased.</p> <p>A number of ECs (especially Categories A and B) show potential of commercial viability, not Categories C and D.</p>	<p>Need policy/institutional measures to provide basis for long-term commercial sustainability.</p>
REC collection efficiency of an average 95% of total accounts receivables	1992 Collection efficiency of 93%. 1990: 90%; 1991: 92%	If trend continues, the target will be met by around 1995.
Decrease in Operating expenses per kWh	Operating expenses per kWh was P1.85, P2.30, P2.56 for 1990, 1991, 1992 respectively	ECs should control administrative costs and reverse the present negative trend.
Significant technical improvement and sharply reduced power outages	EC systems rehabilitated to a certain extent. Need continued equipment and technical assistance.	Dependence upon NPC for power supply reduces control over power outages.
Computerized billing and MIS at NEA and RECs	\$8 M computerization program for NEA and RECs started Oct 1993. Estimated completion March 1994. Computerized EBS utilized. MIS is not computerized.	MIS has not received adequate attention to date.
Power factor efficiencies of at least 92%	Unable to examine date.	Power factor not systematically monitored.
System loss reduction to below 15% average	In 1990, SL was 21.56%; 1991: 20.97%; 1992: 20.72%	Non-technical losses are very high in quite a number of the non-performing ECs.

ANNEX III

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ANNEX IV

AGENCIES/PERSONNEL CONTACTED

National Electrification Administration

Adalia, Roger C. Manager, MIS Division
Aguila, Thelma C. Department Manager, Loans Department
Bangit, Edgardo N. Program Director, FAPO
Bueno, Edita S. Deputy Admin., Coop Develop. & Special Projects
Cuenco, Mariano. Deputy Admin., Finance, Accounts Mgmt. & Loans
Dalusong, Nora. Manager, Contracts Mgmt & Import Control Div.
Fresnoza, Ma. Lourdes R. Manager, Strategic Planning Division
Jimenez, Jcse C. Deputy Administrator for Administration
Mercado, Crispulo J.G. Director, Accounts Management Dept
Palaez Ambassador. Chairman.
Pan, Pablo. Department Manager, Coop Services Department
Rodrin, Sofronio. Deputy Administrator, Technical Services
San Luis, Diana M. Director, Human Resources Department
Sanchez, Teodorico P. Administrator
Senar, Manuel P. Director, Coop Operations
Soriano, Salome D. Manager, Planning & Project Dev. Div.
Villaflor, Thomas L. USAID Project Coordinator, FAPO
Yeneza, Grace S. Foreign Assisted Projects Office

United States Agency for International Development

Gast, Earl. Project Officer
Krueger, Steven C. R.E. Technical Advisor
LuePhang, Kenneth P. Office of Capital Projects
Stukel, Thomas W. Director
Sundermann, Alex. Office of Capital Projects
Zonaga, Bei. Project Manager

Adrian Wilson International Associates, Inc.

Ablaza, Alexander D.R. Executive Vice President
Ignacio, Fabian Y. Sr. Electrical Engineer
Manipol, Rustico C. Project Officer

Associated Resources for Management & Development, Inc.

Montera, Elda M. President/Chief Executive Officer

Bantayan Electric Cooperative (BANELCO)

Garduque, Romulo U. General Manager
Maderazo, Constancio. President
Negre, Evito. Secretary

Camotes Electric Cooperative (CELCO)

Ypil, Dante. General Manager, Camotes Electric Cooperative

Cebu Electric Cooperative (CEBECO I, II, III)

Satina, Edecio C. Resident Manager
Silva, Fr. Francisco. General Manager
CEBECO III Computer Training Center staff

Cooperative Development Authority

Gawigawen, Myron A. Administrator
Lozada, Arcadio S. Administrator

DeLucla and Associates, Inc.

Graham, Stephen S. Consultant

Engineering & Development Corporation of the Philippines

Jovellanos, Jose U. President

First Laguna Electric Cooperative (FLECO)

General Manager
Board President
Board Secretary

Institute for International Education

Crowe, Horace. Senior Training Advisor/REPTAT Chief-of-Party

Joaquin Cunanan & Co.

Moran, Juan Luis M. (Buddy)
Villaralbo, Myrna B. Senior Manager, Management Consulting Services

MERALCO

Kintanar, Oliver K. Manager, Training & Development Division
Quetua, Rodolfo N. Senior Asst. Vice President

National Rural Electric Cooperative Association (NRECA)

Benjamin, Glen R. Engineering Advisor
Costas, Philip. Assistant Administrator, Asia
Cureton, Kenneth W. Planning Advisor
Fox, Michael. Consultant
Gear, Lloyd. Electrical Engineer
Halligan, Robert. Administrator, International Programs
Quirk, Thomas. Director of Procurement

Overseas Economic Cooperation Fund

Wada, Yoshio. Representative

Pampanga III Electric Cooperative (PELCO III)

General Manager
President

Philippine Rural Electric Cooperatives Association, Inc. (PHILRECA)

Medina, Gil B. General Manager

Price Waterhouse

du Toit, James.
Lawrence, William H. Director, Management Consulting Services

SGV Consulting

Banquillo, Elias D. Manager

University of the Philippines

Magabo, Artemio P. Assoc. Professor of Electrical Engineering

Visayas Electric Company

Director Engineering
Directors

World Bank

Nyanin, Oheni. Deputy Representative
Subrata Chatterjee, Consultant

Zambales II Electric Cooperative (Zameco II)

President
General Manager
Director Engineering
Director Finance

Other Resource Persons

Balucan, Edna. Consultant
Herrera, Pedro. Senior Consultant, Exec. Resource Assoc., Inc.
Indiongco, Romeo B. Consultant

ANNEX V

BRIEF SCOPES OF WORK FOR PROPOSED STUDIES

1. Study on Policy/Institutional Measures to Ensure long-term Commercial Viability of the Electric Cooperatives (ECs)

Background: The IRG Team has identified a number of policy measures that could have significant positive financial impacts upon the commercial viability of the ECs. Some financial analyses have also been conducted for the ECs in general.

A much more in-depth study of the various policy measures and their impacts should be undertaken in order to have a solid case for NEA and the ECs to press the case. Some of the policy measures that should be analyzed include:

- transfer of NPC direct-connect customers to the ECs;
- a strong and implementable anti-pilferage bill and the potential reductions in system losses;
- regulations allowing market operations, including consolidations, acquisitions, and buyouts among the ECs.

Other policy measures may be added to this list prior to the Study. Also, the Consultants should assess other possible policy measures that would contribute to the long-term commercial viability of the ECs.

Timing and Level-of-Effort: This Study should be conducted in 1994, preferably by September. A three-person Team is recommended for a period of six weeks, of which four weeks should be in-country. The Team Leader should have extensive experience in the policy and institutional aspects of the power sector. The second team member should have an economic or financial background. At least one of the two team members should have prior experience in the Philippines. The third member should be a Filipino, with a policy or high-level management background, who has extensive experience in the power sector.

Output: The output should be a report that discusses the various policy options that would contribute to the long-term commercial viability of the ECs, analyzes the effects of these options, and recommends the best way to enact such policy changes. The consultants should make presentations before USAID; Government of Philippine entities, including the Department of Energy, NEA, ERB, PHILRECA, NPC; and potential financing agencies, including the World Bank, OECF, Asian Development Bank, DANIDA, ODA.

2. Feasibility Study on a Sample of 20 "Non-viable" Electric Cooperatives

Background: Twenty rural electric cooperatives (ECs) that most need engineering technical assistance and commodity support are not included in the USAID RE Project, the World Bank RERP, or the OECF Project because they are categorically deemed economically "non-viable." The perceived lack of sufficient load demand, reduced economies of scale, and unskilled technical support in small island communities are used to conclude that the cost of providing electrical service will be prohibitive given the inability of the rural island consumers to pay required tariffs and therefore a lack of revenue to adequately operate and maintain the electrical distribution networks. The determination of "economic viability" is dependent on factors that are very EC-specific and, in reality, many of the small island ECs are among the best in the NEA.

Engineering feasibility studies should be completed for a selected set of the remaining 20 ECs not covered by USAID/World Bank/OECF initiatives. The studies should be structured to provide necessary information in sufficient detail for the NEA to approach other interested bi-lateral donors who may wish to provide grant funding for critically needed support. The set of ECs evaluated should include those for which DANIDA has expressed an interest in providing grant funding, i.e., GUIMELCO, ESAMELCO, BANELCO, BOHECO II, FICELCO, MASELCO, and PALECO. These cooperatives are small and medium-size island ECs in the Visayas region with peak load demands ranging from 300 to 4,000 kilowatts. The selected set contains three Category A, one Category B, and three Category D cooperatives.

Timing and Level-of-Effort: A 5-person team of three ex-pats (an electrical systems engineer, an economic/financial specialist, and an institutional/training specialist) and two local hires (a rural electrification technician and a sociologist) will conduct the study. One week will be spent reviewing previous data and documentation regarding rural electrification initiatives in the Philippines. The Team will spend three weeks in-country collecting data, interviewing NEA/EC personnel, and visiting at least five of the seven ECs. An additional two weeks will be spent in data analysis and report writing. The study should be initiated as soon as possible to provide timely results for World Bank/OECD initiatives and recently expressed interest of other bi-lateral donors.

Output: A report will be written that addresses technical, economic/financial, institutional, and social aspects of intervention, e.g., generation and distribution equipment needs, O&M capability, motivation and ability of consumers to pay, subsidy requirements (if any) for private sector financial viability, planning estimates of requirements and schedules for removal of subsidies, identification of consumer information and training requirements, and level of acceptance of consumers. Results of the study will be presented to various agencies, including NEA, DOE, USAID, World Bank, OECD, ADB, GTZ, and DANIDA. Results can also be presented at selected international conferences focused on development projects for rural electrification.

3. Study of CDA Law Impact upon ECs

Background: In 1992, the GoP approved a new CDA Law that requires the Electric Cooperatives (ECs) to be registered under the CDA, thereby effectively transferring the regulatory supervision of the ECs from NEA to the CDA. Also, the law mandates two changes of tremendous scope: (1) the ECs be stock companies, and (2) the ECs become for-profit entities. The law provides a three-year timetable, i.e. until 1995, for the ECs to effect these change.

At present, there is a lack of understanding about this law and its requirements, especially at the EC level. Tremendous changes are required to transition from a not-for-profit entity to a for-profit one; these changes include the logistical as well as, more importantly, the wholesale change in the "way of doing business". Given that the changes are to be effected by 1995, the ECs will require substantial assistance both in making the transition and in assisting them in the first few years of the transition.

USAID should contract the services of consultants to conduct a study to analyze the impact of the CDA Law upon ECs. The Study should assess the various options for transitioning to the new structure mandated under the law, and recommend the best option. Moreover, the study should go into detail about the specific process to transition from the present to the new structure.

Timing and Level of Effort: Since the ECs are required to comply with the new law by 1995, it is necessary to conduct this study in 1994, preferably as soon as possible. A three-person team is recommended for this Study for a total of five weeks, of which four weeks will be in-country. The Team Leader should have extensive experience in power sector privatizations and management of institutional change. The second member should have experience in privatization, regulation, and a strong background in management. The third Team member should be a Filipino with a legal background in the energy sector.

Outputs: The consultants should produce a report assessing the various options for transitioning to the new structure mandated under the CDA Law, recommend the best option, and detail the specific process to transition to the new structure. The Consultants will be required to make presentations before various entities, including USAID, CDA, NEA, PHILRECA, selected ECs, ERB, World Bank, OECF.

4. Study on Integrating a Sound Incentive System with the Performance Improvement Program (PIP)

Background: The Performance Improvement Program (PIP), initiated and institutionalized by NEA for the ECs, represents a very sound basis for monitoring & evaluating the performance of the ECs. The effectiveness of the PIP will be much more enhanced if it were accompanied by a well-structured incentive/disincentive program.

The IRG Team recommends a study of the present incentive/disincentive system for the ECs. The study should recommend a well-structure incentive/disincentive system that is linked with performance under the PIP.

Timing and Level of Effort: The Study should be conducted towards the second half of 1994. A three-person Team is recommended for the Study to be conducted over a five-week period, of which four weeks will be in-country. The Team Leader will have extensive experience in proposing and managing benefits and incentive packages for employees. The second team member will have an economic and financial background, and should be able to evaluate the financial soundness of proposed incentive schemes. The third member should be a Filipino with extensive knowledge of Filipino regulations regarding incentives and implementable incentive/disincentive programs.

Output: The Consultants should produce a report outlining the various incentive options analyzed and the specific incentive/disincentive package proposed. The Study should also detail exactly how the incentive package will be integrated with the PIP. The Consultants should make presentations on their findings to: USAID, NEA, PHILRECA, selected ECs, CDA, and other interested agencies.