

PA-AAA-320

PREPARED FOR  
INTERNATIONAL COOPERATION ADMINISTRATION

REPORT on

# Power Market Development

PHILIPPINES

TUDOR ENGINEERING COMPANY, Washington, D. C.  
AUGUST 1958



# RETURN TO - MID/PW

PREPARED FOR  
INTERNATIONAL COOPERATION ADMINISTRATION

REPORT on

## Power Market Development

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International Cooperation Administration  
815 Connecticut Avenue, N. W.  
Washington 25, D. C.

August 1, 1958  
Reference: TEC-122  
PPA 92-22-082

SUBJECT: POWER MARKET DEVELOPMENT - PHILIPPINES.

Attention: Mr. Norman E. Thompson

Gentlemen:

On March 20, 1958, ICA/W directed the Tudor Engineering Company (TEC) by Task Order No. 122, to send a power market consultant to the Philippines for the purpose of exploring the power market potential within the grid service area of the National Power Corporation (NPC) and to develop detailed plans, "by which small privately owned or municipally owned local utility companies are to be formed in areas through which high tension transmission lines and subtransmission lines from existing and proposed permanent type power generating plants located in North and Central Luzon will pass".

On April 16, 1958, an orientation meeting was held with ICA/W and the consultant, Mr. Stahl.

Mr. E. G. Stahl was in the Philippines from April 30 to July 17, 1958. After a rather extensive survey of conditions, he prepared the attached plan of operation, which includes detailed methods for organizing new

electric utilities, expanding the service facilities of existing utilities, and developing new load and revenue for both the local utilities and the National Power Corporation.

1. Economic Importance of the Project

The project covers the principal rice, sugar cane and tobacco growing areas of the Islands. Except for Manila and environs, the project area has better transportation, better communications, and is more modernized than other sections of the Islands, and expanded use of electric power would be a major contribution to the economic welfare of the area and to the country as a whole. For example, the Philippines imports rice, which is the basic food supply, and cotton for its textile mills. With electric power made available for irrigation pumping, this area could produce adequate supplies of these two important products now imported. If markets are available, it could also greatly increase production of cane sugar, which is one of the country's major dollar exports. The expansion of electric power facilities within this area would also be of great assistance to the many small home type industries, such as woodworking, furniture making, sewing, potteries, etc. Probably no other effort involving equal expenditure of funds could contribute as much toward improving the economy of the area as would electric service if it were made available at reasonable rates.

This program also has a special significance that if it proves to be successful similar programs will be instituted throughout the Islands of the Republic.

## 2. Conclusions and Recommendations

With the completion of the power market development report (TEC-31) under date of February 20, 1957, and Mr. Stahl's report which is attached hereto, we feel that the project has been thoroughly investigated and effectively planned to enable accomplishment of the objectives outlined in PPA 92-22-082. The problem remaining is to implement the plans. The job is basically promotion. It will require thorough training of contact personnel and extensive supervision by someone who has had broad experience in this kind of work.

The recommendation for NPC to employ a technical engineer and a young graduate attorney as a team to promote Plans 1 and 2 (organization of new utilities and rehabilitation of existing utilities, see Exhibit 3) appears to be sound. This work will involve both technical and legal questions and such a team, well trained and properly supervised, could be an effective promotional unit. The new business promotion plan recommended by Mr. Stahl appears to be well planned and adaptable to local conditions. It is an essential part of the program, as it is principally through increased use of electric services that a reduction in rates is realized.

It is recommended that ICA provide a power market consultant to direct this activity. It is also recommended that NPC delegate to the consultant full authority for the selection and supervision of the required promotional personnel, and that NPC provide transportation for the consultant at his request and for the full duration of his stay in the Philippines.

In addition to the above, the following very essential requirements should be provided before implementation of this project:

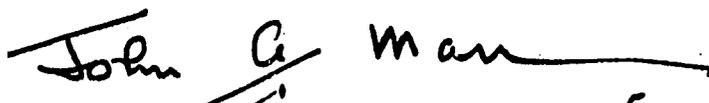
- a. Appropriation by NPC of 60,000 pesos per year (2 pesos for US \$1) to provide personnel, transportation and equipment.
- b. Provision for a dollar exchange fund of one million dollars (2 pesos for US \$1) to be made available to local utilities on approval by NPC for the purchase of essential electric line equipment.

It is recommended that the initial phase of this promotional activity will require about four months time in the Philippines by the power consultant. After this initial organization, training, and supervisory period, one or more subsequent inspection periods of 30 to 45 days duration should be adequate.

On June 19, 1958, ICA/W authorized TEC to provide Mr. F. M. Zablan, General Manager, National Power Corporation, with a copy of material contained in this report. This material was supplied to Mr. Zablan under date of July 9, 1958.

Very truly yours,

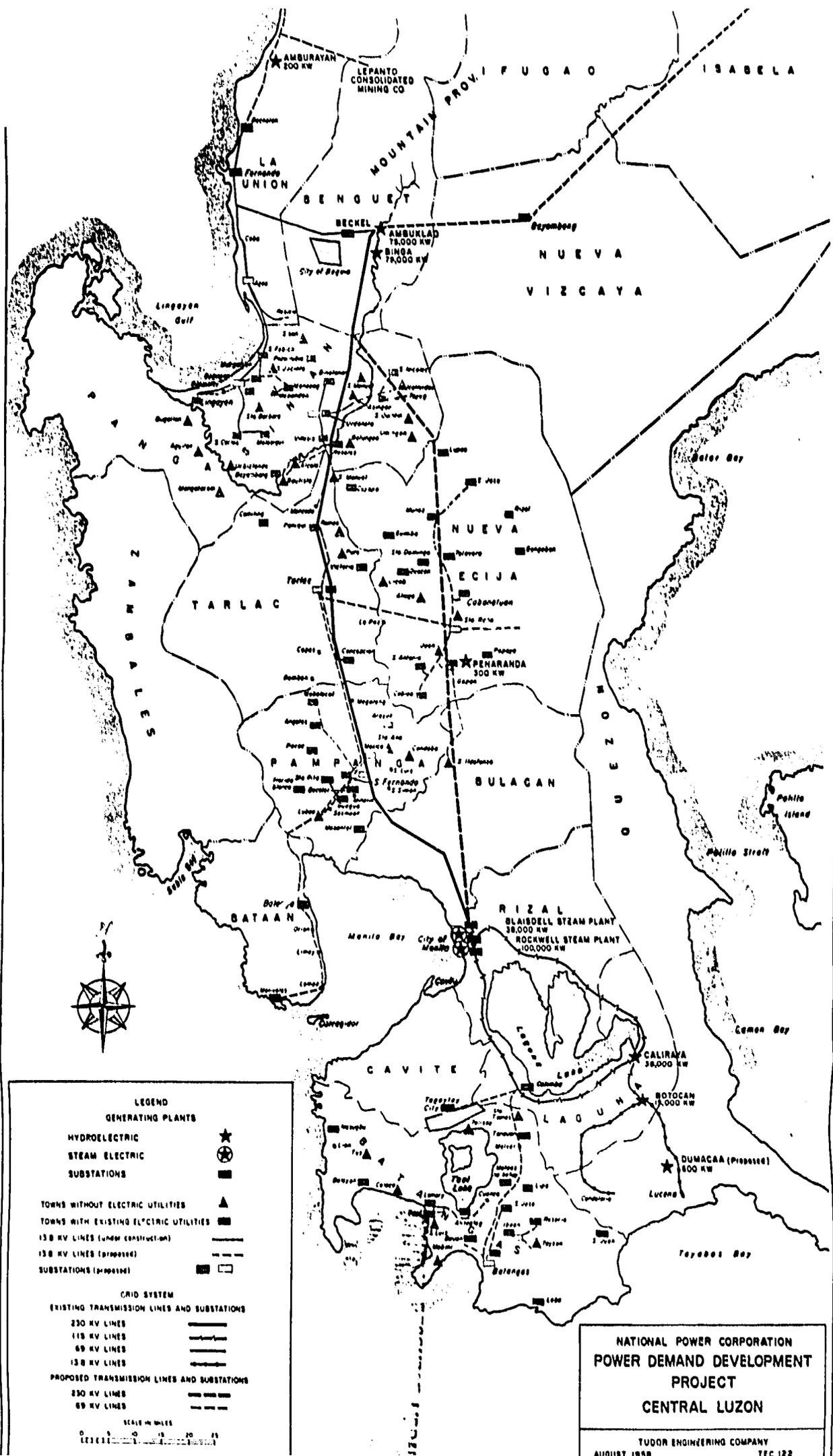
TUDOR ENGINEERING COMPANY



John G. Marr  
Project Manager

Encls.

EGS:ebf



**LEGEND**

**GENERATING PLANTS**

HYDROELECTRIC 

STEAM ELECTRIC 

SUBSTATIONS 

TOWNS WITHOUT ELECTRIC UTILITIES 

TOWNS WITH EXISTING ELECTRIC UTILITIES 

138 KV LINES (under construction) 

138 KV LINES (proposed) 

SUBSTATIONS (proposed) 

**GRID SYSTEM**

EXISTING TRANSMISSION LINES AND SUBSTATIONS

230 KV LINES 

115 KV LINES 

69 KV LINES 

138 KV LINES 

PROPOSED TRANSMISSION LINES AND SUBSTATIONS

230 KV LINES 

69 KV LINES 

SCALE IN MILES

0 5 10 20 25

NATIONAL POWER CORPORATION  
 POWER DEMAND DEVELOPMENT  
 PROJECT  
 CENTRAL LUZON

TUDOR ENGINEERING COMPANY  
 AUGUST 1958 TEC 122

FRONTPIECE 6

6

## INTRODUCTION

This report is submitted in the form of a series of recommendations, supplemented by 10 exhibits. All of this material, including the suggested Plans 1 and 2, were worked out in cooperation with the National Power Corporation. Prior to departure from the Philippines, all of these materials, including Plans 1 and 2 for the implementation of the project, were reviewed and approved by the NPC. The only exception is the matter of NPC providing annually 60,000 Pesos for the promotional activities. Mr. Zablan was out of the country and did not have an opportunity to consider this particular matter when it was under discussion.

The exhibits are submitted in this form so that they can be useable for office and field use, and the instructions have been designed so that a practicable and workable solution for the operation of small utility companies can be accomplished with a minimum of effort.

The plans for the organization of new utilities and the rehabilitation of existing utilities are recommended as the best manner of approach in making electric energy available to more people in the barrios.

The listing of towns having utilities and those without electric facilities is an indication of the extent of present development, as well as an indication of the lack of development. See Exhibit 9.

## PHILIPPINE POWER MARKET DEVELOPMENT

### Objectives of Project

The principal objectives of ICA/NPC Project 92-22-082 is to develop and expand the electric power market within the grid service area of the National Power Corporation (NPC). This objective implies making electric service generally available to the people of the area, promoting greater use of service and through increased use and economies of operation, making power rate reductions feasible.

The authorized plan of operation provides that NPC will supply the primary source of power and that "private capital" will be encouraged to construct, own and operate local distribution facilities.

A secondary objective is to place in productive service the 40 diesel electric generating sets acquired through an ICA Defense Support loan. These generating units are being leased to both new and established utilities as a temporary source of power supply pending availability of grid services. As grid service becomes available, these units will be released for use at new locations.

### Area of Operation

The area of operation of this project comprises the grid service area of NPC. It is located in Central and Northern Luzon and includes all or parts of the provinces of Pangasinan, Tarlac, Nueva Ecija, Pampanga, Batangas, and Laguna. The area of operations is shown on the Frontispiece. This illustration indicates the main transmission grid and the local distribution systems existing and proposed. The towns within the Provinces where electric facilities are now available and those where facilities are recommended are also shown. Typical conditions within the area are shown on Exhibit 1.

### Status of Power Market and Condition of Electric Utilities

Within NPC's grid service area as described above, there are 34 municipalities, each with a population of 10,000 or more which have no electric service available. There are 60 municipalities which have electric power systems. (Frontispiece.)

The existing utility systems, almost without exception, are in bad repair and are unable to fully and properly serve their communities. Both distribution lines and generating plants are inadequate and are badly overloaded. Without rehabilitation, expansion of service is practically impossible.

In municipalities where electrical utilities are located, an average of only 1 home in 8 is a customer. Forty per cent of the users are flat rate customers, many of whom use only one 25-watt lamp. Only 7-1/2 per cent of the homes use metered service. The average use of electric service (including industrial and commercial customers) is 19 kilowatt-hours per month.

The principal causes of this underdevelopment of electrical utilities are:

- 1) High cost of generation with old and in most cases badly worn diesel generating units;
- 2) Inability to secure certain essential line materials which require dollar exchange funds to purchase; and
- 3) Shortage of experienced personnel.

### Low Cost Primary Power Supply

To overcome the obstacle of high generation cost, the National Power Corporation is constructing a network of transmission lines throughout the area from which hydroelectric power will be supplied to local utility companies at a comparatively low rate. A liberal extension rule (Exhibit 2) has been adopted by NPC which provides that line extensions will be constructed at NPC's expense, from the grid to local utility systems when the estimated four year revenue is equal to the cost of the line.

### Plan to Organize and Expand Local Utilities

Plans 1 and 2 ( Exhibit 3 ) have been designed to increase the availability and to improve the quality of electric service throughout the grid service area and also to create power load and revenue for NPC.

Plan 1 outlines the procedure for promoting the organization of new utilities within the municipalities which do not have electric distribution systems. (Exhibit 3)

Plan 2 outlines the procedure for promoting rehabilitation, expansion and consolidation of existing utility systems. (Exhibit 3)

The organization of a new electric utility involves many complex procedures. Our field contacts have indicated that best results can be obtained by encouraging experienced operators of nearby existing plants to obtain the franchise, build the new plant and interconnect with his original plant. Where this plan is followed, the local utility systems will be larger, unit operating costs should be lower, and rates could be reduced in proportion.

We have also learned from field contacts that while there is much interest on the part of municipal officials, plant operators and other business men in securing or improving electric service for their communities, there

is also much indecision; a lack of local initiative, and as a rule, very little will be accomplished unless someone is available to guide the action through to a successful conclusion.

I recommend that NPC supply two men with transportation for the promotion of Plans 1 and 2. A young graduate attorney and an engineer would form an effective team. These men should be thoroughly briefed, relieved of all other duties and be authorized to spend full time on this activity. Each job should be guided through the various required steps from its inception to a successful conclusion.

A quota of field calls and accomplishment should be set up for the men and they should be required to report to the general manager each week on number of calls made and results accomplished.

### Load Building

Utility companies in America expend from one to two per cent of their income on new business promotion. In the Philippines, where only 12 per cent of the population are users of electric service, a larger percentage of the gross income could justifiably be appropriated for promotional activity.

There will probably be a demand for every kw of generating capacity NPC can provide during the next five years, but this demand will come principally from large industries and centers of population.

As the National Power Corporation is a government-financed utility, I assume its established policy is to make electric service available to all the people within the grid service area, giving particular attention to those remote but important areas which do not have service, do not understand its value and, in many cases, do not even want it.

Low family income is an obstacle. Lack of desire is probably a more serious obstacle. If a desire can be created, the money can probably be obtained. This lack of desire can be overcome only by well planned, persistent promotional effort.

The utility guide mentioned on p.11 outlines a plan of new business promotion which is adaptable for small utilities. However, there is a definite need for a broad promotional load building plan beyond the resources and the capabilities of the small utilities. I have outlined such a plan (Exhibit 6) and suggest that after Plans 1 and 2 are well underway, consideration be given by NPC to implementing this major load building plan.

I recommend an appropriation of P 60, 000 (approximately 1 per cent of gross income) for new business

promotion and for the promotion of plans 1 and 2 for the first year. This amount should be increased in succeeding years as conditions may justify.

### Operating Suggestions for Utility Managers

To aid in the promotion of Plans 1 and 2 and specifically to assist utility managers in organizing and operating their business, a booklet (Exhibit 7) entitled "A GUIDE FOR ORGANIZING AND OPERATING A SMALL ELECTRIC UTILITY" has been prepared for distribution. The subject titles are: Utility Organization; Responsibility of Management; Records and Accounts; Operation of Electric Generating Plant; Construction, Operation and Repair of Electric Power Lines, Rates, Rules and Regulations; Sales Promotion; and Public Relations. For operating suggestions for utility managers see Exhibit 4.

### Financing

As indicated above, one of the principal obstacles to electric utility development has been the inability to obtain dollar exchange funds with which to purchase certain essential supplies and equipment. To relieve this major obstacle, NPC has petitioned the Governor of the Central Bank to secure and set aside for specific use in support of this project an exchange fund of \$1 million; \$600,000 of which is to be used for creating new utilities, and \$400,000 for rehabilitation of existing utilities. In the meantime, pending availability of this fund, ICA/IDC has made available for immediate use a dollar exchange fund of \$147,000 with a provision that this sum will be set aside and withheld for this project until August 15, 1958. See Exhibit 8.

Exchange funds will be released for utility construction only upon approval of utility plans by NPC. This control will assure proper design of distribution systems and adequate capacities for new customers and new loads.

### Company Employee Instruction

Both classroom and field instruction have been given to a selected group of company employees. Classroom instruction covered plans, objectives, methods and procedures. Field instruction included business contacts with mayors, business leaders and utility plant operators.

### Results Accomplished

As of this date, field promotion of Plans 1 and 2 has been underway intermittently for a period of about 30 days. I, together with NPC representatives, have made several trips into the provinces during which organizational plans were discussed with mayors, selected community leaders and utility operators. At every meeting, interest was evident and people were anxious to learn how to proceed. The results which have been accomplished to date as shown on the attached report forms (Exhibit 5), indicate that with adequate field promotion and guidance, the objectives of this program can be realized within a reasonable period of time.

## Rates

The establishment of rates for local electric utility companies is under the jurisdiction of the Public Service Commission. When rate reductions become feasible, I suggest that the form of the rate be designed to encourage greater use by metered customers, i. e, carry a larger per cent of the operating costs in the minimum and first rate blocks and reduce the end rate block to the lowest amount which will return the cost of purchased power plus line losses plus a small increment of profit and operating costs.

Rates for electric service under present operating conditions are of necessity high. The utilities are small, averaging about 300 customers each. The cost of generation alone runs from 13 to 15 centavos per kilowatthour. The average total cost delivered to the customer is approximately 25 centavos per kilowatthour. Newly organized utilities which use diesel electric sets for generation will be authorized a block meter rate ranging from 40 centavos down to 20 centavos per kilowatthour. The electrical industry, of course, cannot thrive or expand with rates which are this high. Such rates, however, are essential as a temporary measure, but they must be considered only as a stepping stone in the move toward greater use and lower cost of service.

This entire program is directed toward a consistent reduction in electric rates. When a local utility has increased its load to an amount whereby it can replace engine power with grid service, its operating cost will be reduced by approximately 30 per cent. At least 2/3 of such reduction should be passed on to its customers in lower rates. Lower rates will encourage greater use. As the number of customers and the use per customer increases, unit operating costs will be further reduced and additional rate reductions will become possible.

Domestic electric rates in Manila average about 7 centavos per kilowatthour. I believe that with logical expansion and consolidations of utilities throughout the grid service area and with effective new load promotions, which this plan is furthering, one can look forward within a few years to average domestic rates of about 12 centavos per kilowatthour. For the provincial areas, such average domestic rates can be considered low-cost electricity.

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The above described plan, while comprising a major activity, may be considered also a pilot operation in that the same plan with logical adaptations may be followed in developing the power markets of other islands and other provinces of the Philippines.

E. G. Stahl  
Power Market Consultant  
July 9, 1958

EGS/jb

## ACKNOWLEDGEMENTS

Mr. Stahl is greatly indebted to many people of the Philippines for the cooperation and assistance which was extended to him during his visit. The personal attention, assistance and advice so cordially given by members of USOM/Philippines, including Mr. Paul D. Summers, Director, Mr. Russell Lord, Mr. Addison R. Ketchum, Mr. August F. Albers, and Mr. Charles D. MacGillivray is gratefully acknowledged.

The unreserved cooperation on all problems by officials and staff members of National Power Corporation was a major contribution to the success of the project. Mr. F. M. Zablan, General Manager; Mr. Jose Lahoz, Assistant General Manager; Mr. Jose Jovellanos, Chief of Power Utilization Department; and Mr. Fidel Felipe, Chief, Power Planning Division; all were pleasant working companions and freely provided any assistance requested.

Mr. Gerado A. Cinco and Mr. Jose P. del Rosario, of the Industrial Development Center, greatly aided the project by assisting with the design and by printing the Utility Operators Guide.

Mr. Pedro Talavera, Chief of the Industrial Division, and Mr. De Peralta, Chief of the Finance Division of the Public Service Commission, contributed valuable information on methods of organizing and financing utility companies.

Mr. Ledesma, Chief of Industrial Department of the Reconstruction Finance Corporation, was very helpful in explaining methods of financing.

Mr. J. H. Schlobohm, Vice President, and Mr. J. J. Vergara, Treasurer of the Philippine General Electric Company, gave a complete resume of the power equipment supply situation which helped in the formulation of our plans.

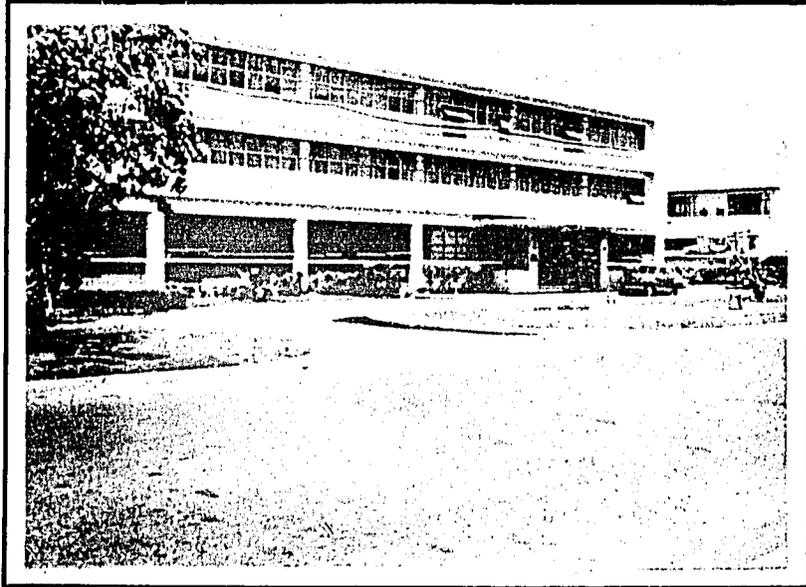
Mr. Alejandro I. Cerame, the young progressive mayor of the City of Mapandan in the Province of Pangasinan, greatly aided the work by carefully following step-by-step the utility organizational plan.

Mr. Vanacio F. Lim, Electric Plant Operator, invited Mr. Stahl to speak at a meeting of the Philippine Electric Plant Operators Association conference in Manila. This gave him an opportunity to meet many utility plant operators and was very helpful in subsequent field contacts.

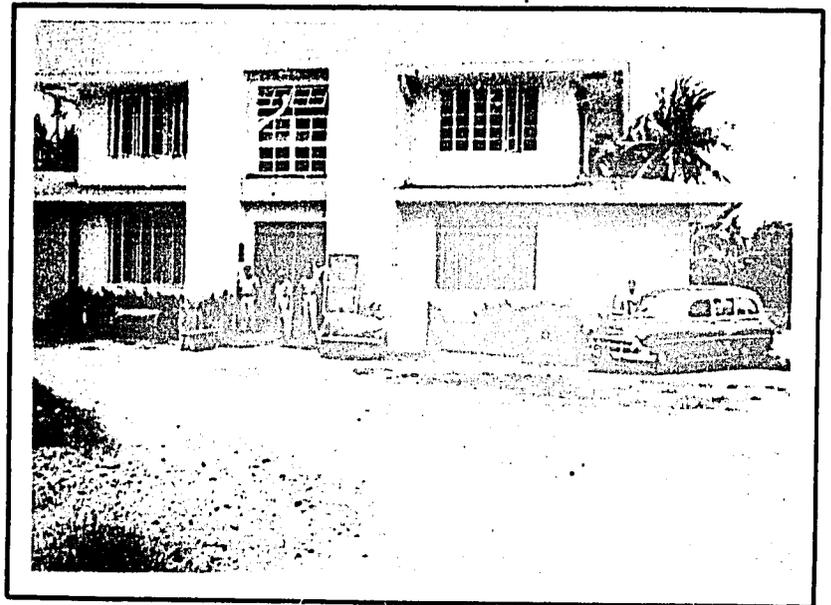
Many others contributed of their time and advice and to all of these and to those mentioned above, grateful acknowledgement is made for this cooperation.

EXHIBIT 1

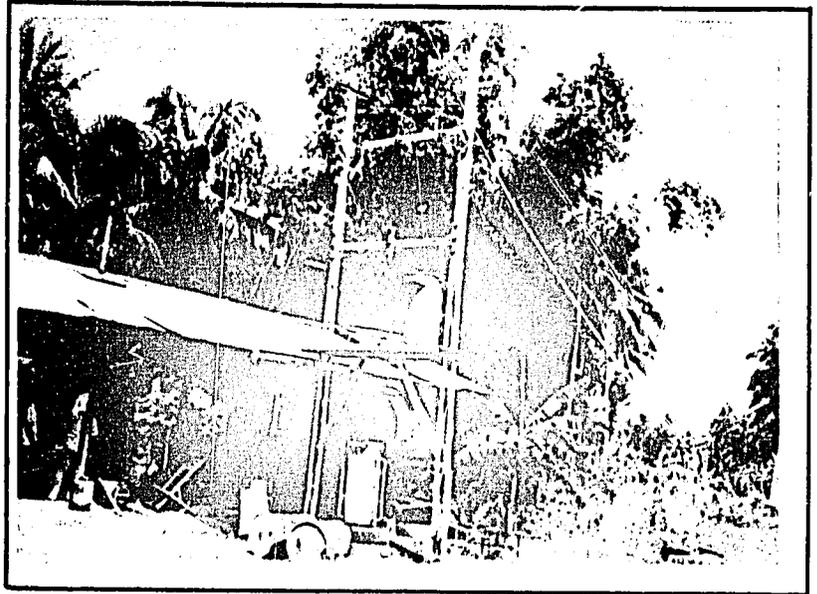
PHOTOGRAPHS



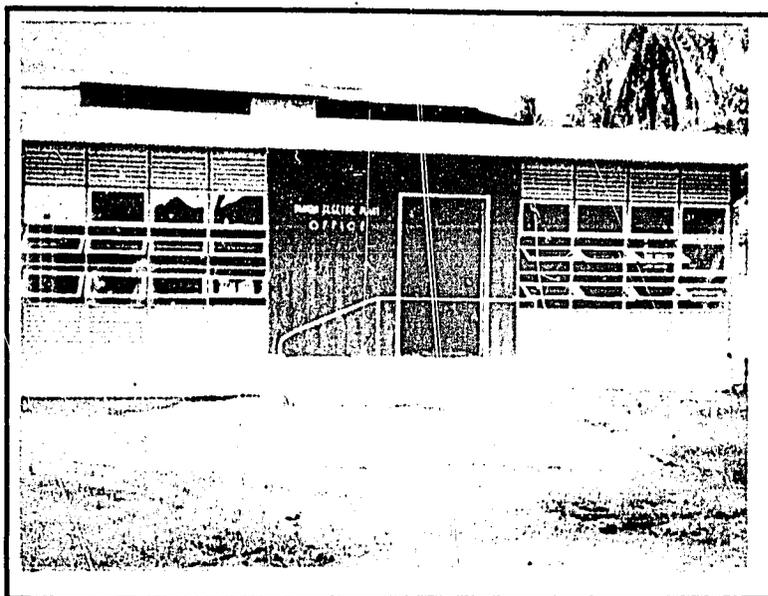
Headquarters - NPC



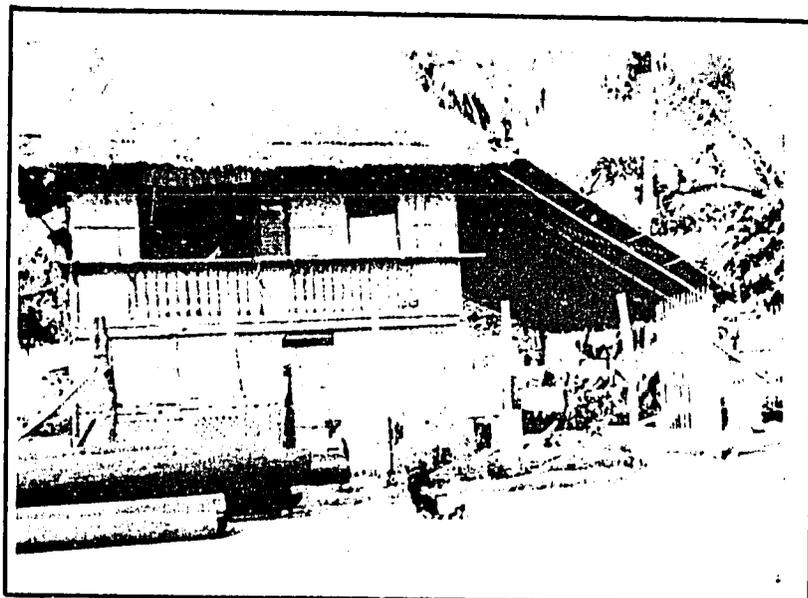
Municipal Building  
San Jacinto



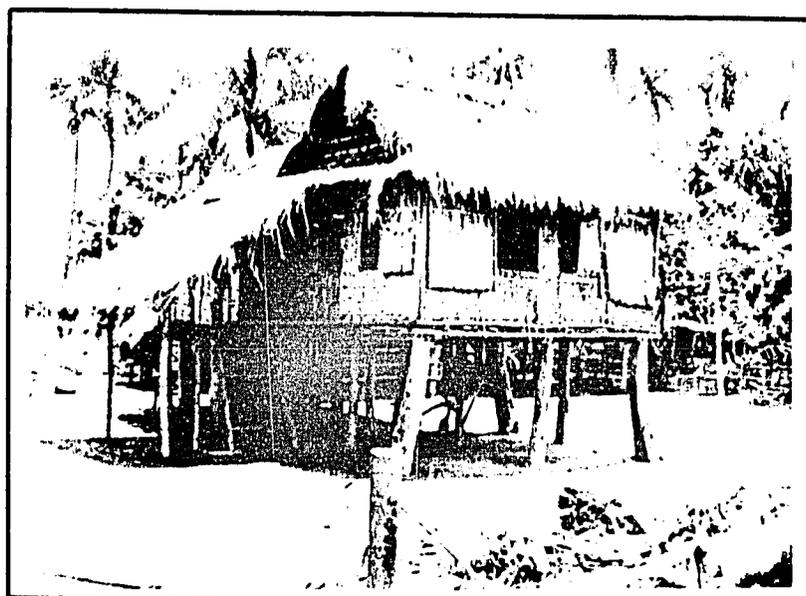
Typical 100 kv  
Generating Plant



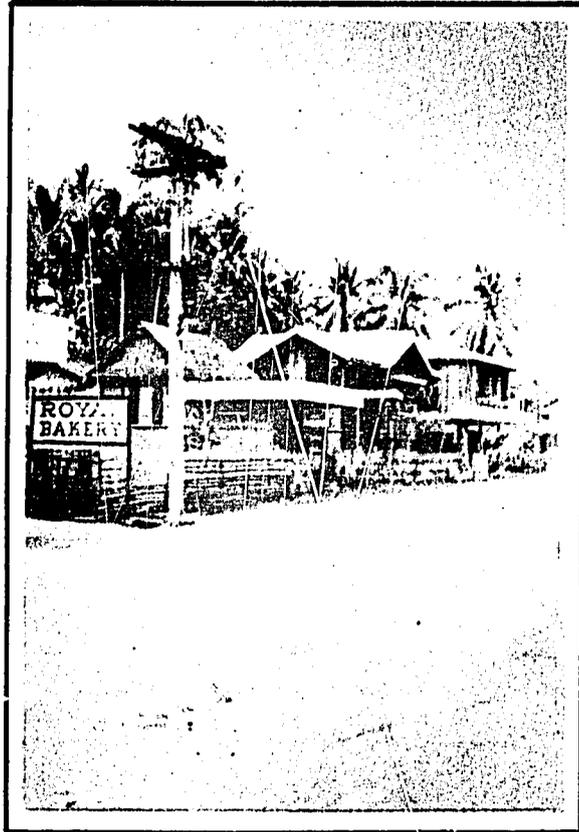
One of the Better  
Utility Companies



Above Average Home



An Average Typical Filipino Home



Junction Pole - Paniqui

EXHIBIT 2

**NATIONAL POWER CORPORATION'S LINE EXTENSION RULE  
FOR CONSTRUCTION OF 13.8 KV POWER LINES TO SERVE  
ELECTRIC UTILITY DISTRIBUTION COMPANIES**

EXHIBIT 2

NATIONAL POWER CORPORATION'S LINE EXTENSION RULE  
FOR CONSTRUCTION OF 13.8 KV POWER LINES TO SERVE  
ELECTRIC UTILITY DISTRIBUTION COMPANIES

National Power Corporation will provide at own expense 13.8/2.4 kv stepdown transformers and metering equipment. NPC will also build line at own expense provided the total estimated income for four years equals or exceeds the cost of the line.

The estimated income shall be determined as follows:

- 1) If the utility to be supplied has been operating on 12-hour basis, allow for a demand increase of 10% per year. Allow for a kilowatthour increase of 30% for the first year and 10% for each of the 3 succeeding years.
- 2) If the utility to be supplied has been operating on 24-hour basis, allow for a demand and kilowatthour increase of 10% each year.

All calculations to be based on the kilowatthour and demand recordings of the distribution company's last 12-month operation.

In cases both (1) and (2) apply the proper NPC rate schedule to determine the four-year estimated income.

NPC's established power rate for resale service:

Demand charge - P10 per kw per month.  
Energy charge - P0.013 per kwh.

EXHIBIT 3

INITIAL PROGRAM TO ORGANIZE NEW ELECTRIC UTILITIES,  
REHABILITATE EXISTING UTILITIES AND DEVELOP .  
INCREASED POWER USAGE

EXHIBIT 3

INITIAL PROGRAM TO ORGANIZE NEW ELECTRIC UTILITIES,  
REHABILITATE EXISTING UTILITIES AND DEVELOP  
INCREASED POWER USAGE

AREA OF OPERATION

Within the grid service area of National Power Corporation.

OBJECTIVES

- 1) To create 30 new electric utility companies.
- 2) To rehabilitate existing utility companies.
- 3) To utilize diesel electric generator sets for power supply of new and existing utilities until load growth justifies grid power line extension.
- 4) To increase use of electric power.
- 5) To promote operating conditions which will make power rate reductions feasible.

TIME FOR IMPLEMENTATION OF INITIAL PROGRAM

Two years.

DOLLAR EXCHANGE REQUIRED FOR MATERIALS AND EQUIPMENT,  
FOR UTILITY DISTRIBUTION COMPANIES

Plan 1 - New Utilities -	\$ 600,000
Plan 2 - Rehabilitation -	<u>400,000</u>
TOTAL -	<u><u>\$ 1,000,000</u></u>

INITIAL PROGRAM TO BE IMPLEMENTED BY NATIONAL POWER CORPORATION

Manpower required

- 1) First year - One technical engineer and one attorney with transportation provided
- \*2) Second year - Two or more additional men

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\*The scope of this activity within one year will require and justify the establishment by NPC of a full scale sales promotion department.

**PLAN I**

**ORGANIZATION OF NEW UTILITY COMPANIES**

- 1) Prepare brochure outlining step by step procedure for the organization, financing and construction of an electric utility.
- 2) Prepare list of 30 largest unserved municipalities within the grid service area.
- 3) Contact mayor of each municipality. Ask him to arrange a meeting of selected residents who have demonstrated business ability and whom he believes capable of organizing, financing and operating an electric utility company.
- 4) Sales representatives of NPC will meet with these selected individuals, will present and explain brochure and will urge action as a community service and as a good business venture. The type of organization necessary to own and operate a utility may be either an individual, a partnership, or a corporation. The importance of private enterprise in this venture will be stressed.
- 5) At municipalities where agreement to proceed is secured, the organizers will survey the area in a prescribed manner and submit the information to NPC. NPC will determine the feasibility of the project and if found to be favorable will design the distribution system.
- 6) When authority to operate has been granted by the Public Utility Commission, NPC will then secure contract for lease of diesel generating unit. This contract will also provide for replacing engine with grid power when the system load becomes large enough to justify the extension of power line facilities.
- 7) NPC will prepare and make available to plant managers, a booklet containing operating suggestions and recommended procedures covering the following subjects:
  - a) Management Responsibility
  - b) Selecting and Training Employees
  - c) Public Relations
  - d) Sales Promotion
  - e) Operating Practices
  - f) Safety Precautions
  - g) Record Keeping

### EXHIBIT 3

- 8) Within two or three days after electric power has been first supplied to the customers, an evening meeting will be held in the plaza to celebrate the event. At this meeting appliances will be displayed and demonstrated. Outdoor movies will be shown and appropriate individuals will be asked to speak.

#### PLAN 2

### REHABILITATION OF EXISTING UTILITIES.

#### OBJECTIVES

- 1) To improve quality of service to customers.
- 2) To increase the number of customers and use per customer.
- 3) To promote interconnection and where feasible, consolidation of adjacent utilities.
- 4) To develop utility loads adequate to justify grid service.
- 5) To reduce cost of service and make lower rates feasible.

An orderly procedure toward the accomplishment of these objectives will require some form of control of the activity by NPC. An effective control would be a provisional regulation by the Central Bank that NPC approval would be required prior to release of dollar exchange funds for supplies. Assuming such arrangement can be made, the following rehabilitation plan is proposed:

- 1) Contact managers of utility plants selectively, advise them that exchange funds will soon be available for purchase of rehabilitation equipment.
- 2) Make appointment date for conference at NPC office for purpose of discussing their proposed requirements. Where two or more utilities are prospects for interconnection or consolidation invite managers of each company to attend meeting.
- 3) Ask managers to bring to the conference a scale map of their service area showing location of customers, location, voltage and size of power lines and transformers and also complete operating statistics.

EXHIBIT 3

- 4) With this information, improvements can be designed and logical interconnections and consolidations can be encouraged as a requirement for the dollar exchange.
- 5) As a part of the rehabilitation plan, require the adoption and promotion of a sales plan similar to the one proposed for new utilities.
- 6) Give each manager copy of booklet on operating suggestions and procedures.

**E. G. STAHL**  
**Power Market Consultant**

NATIONAL POWER CORPORATION

June 12, 1958

Angeles Electric Corporation  
Angeles, Pampanga

Gentlemen:

The ownership of a franchise to supply electric service to a municipality carries with it an obligation to supply service to all legitimate applicants and also to provide a high quality of service at reasonable rates.

I know that every utility operator is anxious to fulfill this obligation. However, inability to secure the essential line materials, transformers and meters at reasonable cost and the high cost of generation with small units and obsolete equipment has made it impossible for him to supply a quality of service which he desires to supply and which his customers deserve to receive.

In order to improve this condition and to enable local utilities to expand their service, the National Power Corporation has prepared a two-point assistance program:

1. We shall, upon approval of plans submitted, assist electric utility companies located within NPC's grid service area in procuring standard line materials, transformers, switches, and meters which require dollar exchange for their purchase. The utilities shall pay for the actual procurement cost of these supplies in Philippine currency.
2. We shall assist you in developing power loads, and connecting new customers. When your system load is large enough to justify a grid line extension, we will supply electric power to your system at a cost which will be much less than your present generation cost.

For you to benefit from this assistance plan, I suggest that you communicate with us at our Manila office and arrange a conference date for the purpose of discussing your proposed distribution plant improvement and determine when grid power service may become available to you. You should bring to this conference a drawn-to-scale map of your distribution system, showing the location, voltages, and sizes of wires, location of transformers and customers, and your plant operating statistics. You should also bring a detailed list of the new electrical equipment and supplies you will require.

EXHIBIT 3

If there is another utility located within a distance from your system interested in making interconnection with you or NPC, I suggest that you ask the operator of the system to come with you to the meeting bringing the maps, data and other information relative to his plant.

I urge that you act promptly in arranging for the conference.

Very truly yours,

/s/ F. M. Zablan

F. M. ZABLAN  
General Manager

PAD/LDI/FSF/pvs

EXHIBIT 4

OPERATING SUGGESTIONS FOR UTILITY  
MANAGERS

EXHIBIT NO. 4

AN OPPORTUNITY TO DEVELOP A PROSPEROUS BUSINESS  
AND ALSO TO RENDER A GREAT COMMUNITY SERVICE

ELECTRIC POWER SERVICE BROUGHT TO YOUR COMMUNITY WILL IMPROVE LIVING CONDITIONS, WILL CREATE NEW JOBS, WILL PROMOTE INDUSTRIAL ACTIVITIES, AND ALSO CAN PAY A HANDSOME PROFIT TO THOSE WHO ESTABLISH THE BUSINESS.

FOR THE PURPOSE OF ASSISTING PRIVATE ENTERPRISE TO CREATE A WIDER USE OF ELECTRIC SERVICE WITHIN ITS GRID SERVICE AREA, THE NATIONAL POWER CORPORATION WILL PROVIDE TECHNICAL ADVICE TO QUALIFIED INDIVIDUALS, PARTNERSHIPS, CORPORATIONS, AND MUNICIPALITIES WHO UNDERTAKE TO ORGANIZE AND CONSTRUCT FEASIBLE ELECTRIC UTILITY DISTRIBUTION SYSTEMS. THE NATIONAL POWER CORPORATION WILL ALSO PROVIDE AT MINIMUM RENTAL FEE THE GENERATING FACILITIES NECESSARY FOR THE POWER SUPPLY, THUS ELIMINATING FOR THE ORGANIZERS, A SIZEABLE PART OF THE REQUIRED CAPITAL INVESTMENT.

Following are listed the simple successive steps required to organize finance and construct an electric distribution system:

1. SURVEY AND MAP YOUR PROPOSED SERVICE AREA
  - a) Make a complete and accurate survey of the number and type of potential customers located within the area of your proposed franchise. Prepare application form for this survey

EXHIBIT 4

similar to the attached sample marked APPLICATION FORM #1. Be sure to secure signature of each prospective customer. This form properly filled out and signed will then be the applicant's commitment to accept and use service when it becomes available.

b) Transpose information secured on applications (Form#1) to NPC Form#4 (attached).

c) Either prepare or secure from your Provincial Engineer, a scale map of your proposed franchise area. Indicate by symbols 1 to 5 on map, in accordance with instructions on Form#4 the location of each prospective customer.

d) Send completed map and Form#4 to the National Power Corporation who will then estimate cost of constructing distribution system and determine feasibility of the project.

2. WHEN FEASIBILITY OF PROPOSED DISTRIBUTION SYSTEM IS APPROVED BY NPC ORGANIZE YOUR COMPANY AND ADOPT A BUSINESS NAME.

a) Your company may be either individually-owned, a partnership, a corporation, or a municipality. If a corporation is decided upon, ask your Attorney to make application to the Securities and Exchange Commission for authority to incorporate. After incorporation elect directors and prepare and adopt by-laws.

3. MAKE APPLICATION TO THE MUNICIPALITY FOR A FRANCHISE FOR ELECTRIC LIGHT, HEAT, AND POWER IN ACCORD WITH ACT NO. 667 AS AMENDED BY ACT NO. 1022. Sample form of application attached.

4. THE AMOUNT OF FINANCING REQUIRED MAY BE DETERMINED AS FOLLOWS:

- a) Cost of distribution system  
(Estimated from information on map and Form#4 report to NPC)

EXHIBIT 4

- b) Cost of buildings and real estate.  
(Your estimate)
- c) Cost of furniture, fixtures, and office supplies.  
(Your estimate)
- d) Amount of working capital.  
(Equivalent to operating cost for 45 days)
- e) Organizational expenses (Attorney's fees, licenses,  
deposits with Public Utility Commission, etc. Your estimate)

The summation of the above items should provide a reasonably accurate estimate of the amount of financing required.

5. DETERMINE METHOD OF PROVIDING CAPITAL.

- a) Personal credit if financed by individual owner.
- b) Sale of stock or shares to residents of community.
- c) Borrow from bank or R. F. C. A municipality may borrow 100 per cent of cost of distribution system from Rehabilitation Finance Corporation. An individual, partnership or corporation may borrow 60 per cent.

6. APPLY TO PUBLIC UTILITY COMMISSION FOR AUTHORITY

TO OPERATE UTILITY.

- a) Attached is a copy of PUC's "Instructions to Applicant" listing the information you are requested to present to the commission prior to the hearing of your case.

7. ENCOURAGE PROSPECTIVE CUSTOMERS TO HAVE HOMES AND BUILDINGS WIRED AND TO BE READY TO TAKE ELECTRIC SERVICE WHEN IT BECOMES AVAILABLE.

8. SIGN CONTRACT WITH THE NATIONAL POWER CORPORATION TO LEASE DIESEL ELECTRIC GENERATOR FOR YOUR ELECTRIC POWER SUPPLY.

- a) When your power requirements become adequate to justify a grid power line extension, your diesel-generator lease will be terminated and power will be supplied by NPC from the grid at a much lower cost per kilowatthour.

EXHIBIT 4

9. CONSTRUCT DISTRIBUTION SYSTEM AND CONNECT CUSTOMERS.

10. ESTABLISH RATES, RULES AND REGULATIONS AND SECURE APPROVAL OF SAME BY PUBLIC UTILITY COMMISSION.

11. SELECT AND TRAIN EMPLOYEES TO OPERATE SYSTEM.

YOU WILL NOW BE THE OWNER AND OPERATOR OF A LEGALLY CONSTITUTED ELECTRIC POWER DISTRIBUTION SYSTEM.

The National Power Corporation can assume no financial nor legal responsibility for your power distribution system other than that which is involved in supplying the diesel-electric generating equipment but NPC will advise on procedure and will provide technical advice for the design and construction of your distribution system, also for setting up business procedures and for training your operating employees.

The guiding principal of the National Power Corporation in this great industrial development effort is to assist and encourage "PRIVATE ENTERPRISE" in bringing the benefits of electric service to the people.

THE NATIONAL POWER CORPORATION

---

General Manager

EXHIBIT 4

**APPLICATION FOR ELECTRIC SERVICE**  
(Application Form #1)

When electric service is made available to my premises through the installation of a standard electric utility distribution system, I agree to have my premises properly wired in accordance with the National Electrical Code.

I also agree to install and use the following equipment and pay each month for the electricity consumed in accordance with the rate schedule authorized by the Public Utility Commission:

Check ( ) appliance you will use.

Lights	<input type="checkbox"/>	Iron	<input type="checkbox"/>
Fan	<input type="checkbox"/>	Hot Plate	<input type="checkbox"/>
Radio	<input type="checkbox"/>	Refrigerator	<input type="checkbox"/>
Motor	<input type="checkbox"/>	Use	<input type="checkbox"/>

Class of Service \_\_\_\_\_  
(1 to 5)

Rate Schedule \_\_\_\_\_ Flat \_\_\_\_\_ Meter \_\_\_\_\_

---

Address

---

Signature of Applicant

NPC PMS FORM #4  
Revised: February 1956

NATIONAL POWER CORPORATION  
M a n i l a

Power Survey Questionnaire  
For Towns With Or Without Utility Electric Service

\_\_\_\_\_, 19\_\_\_\_

1. Town \_\_\_\_\_ Province \_\_\_\_\_

2. Probable lighting consumers in the locality:

<u>Class</u>	<u>Number</u>
1	_____
2	_____
3	_____
4	_____
5	_____

Class 1 - Light material houses with a probable connection of 1 to 3 lights per house.

Class 2 - Strong material houses with a probable connection of more than 3 lights per house.

Class 3 - Commercial establishments such as retail stores, bars, restaurants, drug stores, barber shops, beauty parlors, etc.

Class 4 - Public buildings as government offices, churches, schoolhouse, market, provincial hospitals, etc. (Specify type).

Class 5 - Miscellaneous establishments. (Specify type).

Please supply us with a map of your town and indicate by means of a legend the location of the different houses and establishments mentioned above.

3. Existing power loads in the locality:

(a) RICE MILLS

Owner	Installed Capacity (Horsepower)	Average Daily Production (Cavans of rice)	Average Operation	
			Hrs. per day	Days per Yr.

EXHIBIT 4

(b) THEATERS

Name of Theater or Owner	Generating Unit		Projecting Machines		Average Operation	
	(Horse- power)	(Kilo- watt)	(Number)	(Kilowatt)	Hrs. per day	Days per week

(c) REFRIGERATION AND ICE PLANTS

Owner	Generating Unit		Average Daily Production (Blocks of Ice @ kilos)	Average Operation	
	(Horse- power)	(Kilo- watt)		Hrs. per day	Days per Yr.

**(d) SAWMILLS AND LUMBERMILLS**

O w n e r	Installed Capacity (Horsepower)	Average Output Capacity per day (Board Feet)	Average	Operation
			Hrs. per day	Days per Yr.

**(e) ELECTRIC GENERATORS**

O w n e r	Kind of Service	Installed Capacity (Kilowatt)	Average Hrs. per day	Operation Days per Week

EXHIBIT 4

(f) MISCELLANEOUS (AS HEMP PRESSES, PUMPING STATIONS, X-RAYS, ETC.)

O w n e r	Kind of Service	Installed Capacity (Kilowatt)	Average Operation	
			Hr. per day	Days per Yr.

APPLICATION TO MUNICIPAL GOVERNMENT  
FOR ELECTRIC UTILITY FRANCHISE

MUNICIPAL GOVERNMENT OF \_\_\_\_\_  
PROVINCE OF \_\_\_\_\_

Extract of the Minutes of the \_\_\_\_\_ Session of the Municipal  
Council of \_\_\_\_\_ Held on \_\_\_\_\_

PRESENT:

ABSENT:

RESOLUTION NO. \_\_\_\_\_

The Committee composed of councilors \_\_\_\_\_

\_\_\_\_\_ named by Resolution No. \_\_\_\_\_ series of 195 \_\_\_\_\_ of this  
Municipal Council to study the application of the \_\_\_\_\_  
\_\_\_\_\_ a corporation established at \_\_\_\_\_  
\_\_\_\_\_ province of \_\_\_\_\_,

Philippines, for the concession of a franchise to construct, operate, and  
maintain within the jurisdiction of this Municipality of \_\_\_\_\_  
an electric light, heat, and power service, proposes the adoption of the  
following:

RESOLUTION GRANTING THE \_\_\_\_\_  
A FRANCHISE FOR ELECTRIC LIGHT, HEAT AND POWER  
IN ACCORD WITH ACT NO. 667, AS AMENDED BY ACT  
NO. 1022, SUBJECT TO THE APPROVAL OF THE PROVIN-  
CIAL BOARD OF \_\_\_\_\_, THE  
PUBLIC SERVICE COMMISSION, AND THE PRESIDENT OF  
THE PHILIPPINES.

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WHEREAS, The \_\_\_\_\_ represented by \_\_\_\_\_ a corporation legally organized and established in the Municipality of \_\_\_\_\_, Province of \_\_\_\_\_, Philippines, has presented before the Council an application requesting the granting of the right, privilege and authority for a period of THIRTY-FIVE (35) YEARS beginning on and after the date of approval of this resolution by the President of the Philippines, to construct, operate, and maintain in all the street, thoroughfares and public places in this Municipality of \_\_\_\_\_ poles, wires, and other apparatus and accessories necessary for the transmission and distribution of electric energy for lighting and for whatever other use to which electricity may be applied, and to supply an electric lighting power service within the limits of the said Municipality, for public or private uses or for whatever other use to which electricity may be applied, and

WHEREAS, the applicant \_\_\_\_\_ is not barred by the Constitution of the Philippines from being granted a franchise, certificate or any form of authorization, for the operation of a public utility;

THEREFORE, by virtue of the provisions of Act No. 667, as amended by Act No. 1022, and subject to Commonwealth Act No. 146 as amended by Commonwealth Act No. 454 and Republic Act No. 178, this Municipal Council hereby grants to the applicant \_\_\_\_\_ the privilege and authority requested in its application for a period of THIRTY-FIVE (35) YEARS and for the purpose stated therein, subject to the following conditions:

1. The poles erected by the grantee shall be of such a height as to maintain the wires stretched on the same at a distance of at least twenty (20) feet above the level of the ground, and shall be of such appearance as not to disfigure the streets, and shall be placed in conformity with a plan to be approved by the Municipal Council, and in a manner so as not to interfere with the passage of vehicles or pedestrians.

2. The grantee, \_\_\_\_\_, shall supply electric power, heat and light to all applicants for the same in consecutive order corresponding to the dates of their respective application, and within fifteen (15) days from the date of such application, up to the limit of the capacity of the plant of said grantee, to be determined by the electrical engineer of the Public Service Commission, and should the demand for electric power, heat and light at any time increase beyond the capacity of said plant shall be increased by said grantee to meet such demand, in accord with the decision of the Public Service Commission; PROVIDED, HOWEVER, That in case the point at which the electric power, heat or light is to be supplied, is more than thirty (30) meters from the lines or wires operated by said grantee, the latter shall not be obliged to furnish said service.

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3. The electric plant which is to be constructed, maintained and operated by said grantee under this franchise, whether in this Municipality or elsewhere, shall be of sufficient capacity to supply the needs of this Municipality of \_\_\_\_\_ with allowance for its future economic development. All the apparatus and accessories installed by the grantee or which may be in the future installed by it or its successors or assigns, shall be modern and first class in all technical respect, and the transmission wires used shall be insulated and carefully connected and fastened so as not to come in direct contact with any object through which a "ground" could be formed, and shall be stretched so as not to interfere with the free use of the streets and public thoroughfares nor cause any injury to the public, danger of fire, or damage and inconvenience to the owners of property; PROVIDED, MOREOVER, That in the maintenance and operation of its plant and system for the transmission and distribution of electric current, the grantee shall always be subject to such regulation as may be promulgated by the Public Service Commission and also to the regulation prescribed by the American National Electric Safety Code.

4. The grantee or its successors or assigns shall place the transmission wires in underground pipes or conduits at its own expense and without any cost or prejudice to the Municipality of \_\_\_\_\_, whenever the Public Service Commission, after hearing the proper municipal authorities concerned, considers that public interest so demands.

5. Whenever it shall be necessary in the erecting of poles to take up any portion of the sidewalk or dig up the ground of the public streets or thoroughfares, then the grantee, shall, after said poles are erected, without delay replace said sidewalks in the proper manner or arrange said streets or public thoroughfares, removing from the same all rubbish, dirt, refuse, or other materials which may have been placed there, taken up, or dug up in the erection of said poles, leaving them in as good condition as they were before the work was done; and whenever it shall become necessary by reason of the extension of roads determined upon by the Provincial Board or by reason of the extension of streets or plazas determined by the Municipal Council of \_\_\_\_\_ to change the location of said poles, such change shall be made by the grantee, its successors or assigns, at their expense, without delay; and said poles shall be placed where directed by said Provincial Board or said Municipal Council.

6. Whenever any person or entity has obtained permission to use any of the streets or public thoroughfares of the municipality for the purpose of removing any building or in the prosecution of any municipal work or for any other just cause whatsoever, making it necessary to raise or remove any of said poles or electric wires which may obstruct the removal of said building or hinder the prosecution of said work, the said grantee, upon written notice

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by the Municipal Council, served upon said grantee, at least forty-eight (48) hours in advance, shall raise or remove any of said poles or wires which may hinder the prosecution of such work or obstruct the removal of said building, and the person or entity at whose request the building has been removed or the construction undertaken, shall pay one-half (1/2) of the actual cost of removing or raising and of replacing the poles, wires or other overhead or underground conductors. The notice shall be served in the form of a duly adopted resolution of the Municipal Council and in case of the refusal or failure of the grantee to comply with such notice, the Public Service Commission after hearing the municipal authorities, shall order such poles or wires to be raised or removed at the expense of said grantee, for the purpose aforesaid.

7. The grantee shall be liable to the Municipality of \_\_\_\_\_ for any injury arising from any claims caused by accidents to person or property by reason of the construction under this franchise or of any neglect or omission to keep the said poles and wires in a safe condition.

8. The grantee shall file with the Secretary of Public Works and Communications its written acceptance of this franchise, within one hundred twenty (120) days after the date of final approval of the same by the President of the Philippines.

9. This franchise shall not take effect unless the grantee within a period to be fixed by the Public Service Commission in its decision approving this franchise, deposits in the National Treasury a sum equivalent to One Thousand (P 1,000.00) Pesos, Philippine Currency, or in securities approved by the President of the Philippines as an earnest of its good faith in applying for this franchise. Within six (6) months from the date of approval of this franchise by the President of the Philippines, the grantee shall make a second deposit with the National Treasury of Nine Thousand (P9,000.00) Pesos, which together with the first deposit shall be retained by the Treasurer of the Philippines as security for the completion of the work to be done by the grantee within the time specified in this franchise. In case the deposit of nine thousand (P 9,000.00) pesos is not made within the six-month period mentioned, the amount of one thousand (P 1,000.00) pesos already deposited shall be forfeited in favor of the Province of \_\_\_\_\_. If after depositing the nine thousand pesos, the work is not begun or completed in accord with the terms of this franchise within the time specified, both deposits, upon resolution of this Municipal Council of \_\_\_\_\_ approved by the Provincial Board of \_\_\_\_\_ and by the Public Service Commission and the President of the Philippines, may be forfeited in favor of the Province of \_\_\_\_\_ as damage for the breach of implied contract involved in the acceptance of this franchise, which franchise shall thereupon

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become null and void: PROVIDED, HOWEVER, That in case the grantee begins the work within the time specified, the Treasurer of the Philippines upon recommendation of the Public Service Commission or its lawful successors shall return to the grantee the funds deposited, in monthly or quarterly installments as work progresses, in the proportion which the work completed bears to the work still to be done.

10. The grantee, within six (6) months after the date of filing its acceptance of this franchise, shall commence the work contemplated under this franchise under the supervision and subject to the approval of the electrical engineer of the Public Service Commission, in accordance with the plans, specifications and estimates previously approved by the Public Service Commission, and shall complete the installation and start operation within eighteen (18) months after the date of said acceptance, unless delayed by Act of God, force majeure, usurped or military law, riot, rebellion, earthquake, flood or other cause beyond the grantee's control, and thereafter shall maintain a first class electric power, heat and light service: PROVIDED, That the time during which the grantee may be prevented by any of the cause above-mentioned from carrying out the terms and conditions of the franchise shall be added to the time granted by the franchise for the fulfillment of its condition: PROVIDED, FURTHER, That failure on the part of the grantee to comply with any of the terms and conditions of the franchise with reference to its acceptance in writing, and commencement and completion of the corresponding work within the period above specified, without the consent by the Municipal Council of \_\_\_\_\_, approved by the Provincial Board of \_\_\_\_\_, and by the Public Service Commission and by the President of the Philippines, in either case shall be sufficient cause for declaring the forfeiture of this franchise. The said grantee, in consideration of the franchise hereby granted, shall pay quarterly into the Provincial Treasury of \_\_\_\_\_ Five (5%) per centum of the gross earnings obtained through this privilege as required by Section 7 of Republic Act No. 39 and Section 1 of Republic Act No. 418.

11. In addition to the cases of forfeiture or loss of this franchise outlined in the preceding Condition No. 10, the Public Service Commission or its lawful successor, upon notice to, and after hearing the parties interested, shall have the power to declare the forfeiture of this franchise and all rights thereunder, by written order, for failure on the part of the grantee to comply with any of the terms and conditions hereof, unless such failure has been directly and primarily caused by Act of God, the public enemy or force majeure. Against such declaration of forfeiture of this franchise by the Public Service Commission or its lawful successor, the grantee may have recourse to remedies provided by Commonwealth Act No. 146, as amended by Commonwealth Act No. 454, and Republic Act No. 178.

12. The Municipality of \_\_\_\_\_ shall have the privilege, without compensation, of using the poles of the grantee for the purpose of installing, maintaining and operating a telephone or fire and police

EXHIBIT 4

alarm system; but the wires of such telephone or fire and police alarm system shall be placed and stretched in such manner as to cause no interference with or damage to the wires of the electric service of the grantee.

13. This franchise is granted with the understanding and upon the condition that it shall be subject to amendment, alteration or repeal by the Congress of the Philippines when the public interest so requires as provided in Section 8 of Articles XIII of the Constitution of the Philippines, and that it shall be subject moreover to the provision of Commonwealth Act No. 146, as amended. All lands or right of use or occupation of land secured by virtue of this franchise shall revert upon its termination, revocation or nullification to the National, Provincial or Municipal Governments which were the owners thereof on the date when this franchise was granted.

14. Upon the termination of the thirty-five (35) years term of the franchise, all rights and privileges therein granted shall cease to be reverted to the Municipality of \_\_\_\_\_ and on the date of such reversion the said Municipality of \_\_\_\_\_ may purchase, and the said grantee shall in that case sell, all the equipment, poles, wires, building, real estate and all property used in the enjoyment of this franchise, at a valuation based in part upon the net earning of the grantee with corresponding reduction for depreciation, in part upon the actual replacement value of the property less depreciation; and in part upon the original cost of the same property less depreciation, the valuation to be fixed by the Public Service Commission or its lawful successors, whose decision may be reviewed by appeal as provided under Commonwealth Act No. 146, as amended.

15. The books of the grantee shall always be open to inspection by the Provincial Treasurer or by a deputy designated by him for the purpose, and it shall be the duty of the grantee to submit to the Provincial Treasurer quarterly reports in duplicate showing the gross receipts and the net receipts for the quarterly past and the general conditions of the business, one copy of which shall be forwarded by the Provincial Treasurer to the Auditor General, who shall keep the same on file.

16. The grantee shall pay on its real estate, building, plants, machinery, and other personal property the same taxes as are now or may hereafter be required by law from other persons.

17. The grantee may, with the prior approval of the Public Service Commission, sell, lease, grant, convey, or assign this franchise and all property and rights acquired thereunder to any person or corporation not barred by the Constitution of the Philippines from being granted a franchise, certificate or any other form of authorization for the operation of a public utility; PROVIDED, That for the purpose of the sale, lease, donation, grant, or transfer, it shall be necessary to file with the Office of the Secretary of Public Works and Communication an agreement in writing by which the purchaser, leasee, donee or assignee shall bind himself to comply with all the

EXHIBIT 4

terms and conditions imposed on the grantee by the franchise and shall accept the franchise subject to all its existing terms and conditions.

18. The grantee agrees that in the event the Government would desire to maintain and operate for itself such service over said territory, the grantee shall surrender its franchise and certificate of public convenience and necessity in the aforesaid territory and will turn over to the government all serviceable equipment therein at cost, less depreciation to be fixed by the Public Service Commission.

19. The rates for electric service to be charged by the grantee shall be subject to regulations by the Public Service Commission in accord with the laws and rules applicable thereto.

20. Whenever in this franchise the term "grantee" is used, it shall be understood to refer to the \_\_\_\_\_ or its representatives, successors and assigns.

RESOLVED FURTHER, That this franchise be submitted officially by the Municipal Secretary to the Provincial Board of \_\_\_\_\_, together with a copy of the application of the said grantee, with the recommendation that, in case of approval, it be forwarded to the President of the Philippines, through the Public Service Commission, for approval in accord with law.

APPROVED:

INSTRUCTIONS TO APPLICANT BY PUBLIC SERVICE COMMISSION

Case No. \_\_\_\_\_

Applicant requesting authority to operate an ELECTRIC PLANT, is required to submit at least one week before the hearing the following:

1. Two (2) copies, blue or white prints, drawn in adequate scale, of working drawings, duly signed and sealed by a registered Professional Mechanical Engineer with respect to the mechanical equipment in accordance with Commonwealth Act No. 294 and by a registered Professional Electrical Engineer with respect to the electrical equipment in accordance with Republic Act No. 184, showing (1) plan, (2) elevation, and (3) cross-sectional views of the power house, the prime movers, generators, exciters, switchboards, auxiliaries, and other equipment, and the following specifications:

(a) Prime mover's make, kind, horse power, r.p.m., serial number, and fuel and lubrication economy;

(b) Generator's make, whether AC or DC, KW or KVA rating, voltage, amperes, phase, frequency, power factor, r.p.m., and serial number;

(c) Exciter's make, rating, voltage, amperes, r.p.m., and serial number;

(d) Switchboard's make, type, and size; and

(e) The size and types of insulation of the wiring from the generator to the switchboard.

2. Two (2) copies, blue or white prints of working drawings, duly signed and sealed by a registered Professional Electrical Engineer, in accordance with Republic Act No. 184 of:

(a) Front view, drawn in adequate scale, of the switchboards and panelboards, indicating the meters, instruments, control apparatus, safety devices, and other equipment;

(b) Schematic wiring diagram of the switchboards and panelboards;

(c) Schematic one (1) line diagram of the system, from generators to feeders; and data on maximum and average daily and yearly loads, yearly kilowatthours generated, used by applicant, delivery

EXHIBIT 4

to customers, and unaccounted for and lost in transformation and delivery;

(d) Representative transmission and distribution poles together with accessories, such as transformers, lightning arresters, cutouts, crossarms, racks, braces, insulators, etc., showing their construction, dimensions, and the guying system;

(e) Map of the town to be supplied with electricity, drawn in adequate scale, showing location of the power house and transmission and distribution poles, conductors, and their sizes and types of their insulation, transformers and their ratings, lightning arresters, cutouts, and guy wires; duly approved by the Municipal Council with respect to the location of power house and poles on Municipal streets and the District Engineer with respect to the location of poles on provincial roads, such approval to be shown on the plan itself.

(The following may be submitted on the day of the hearing)

3. Itemized list of investment in the business;
4. Itemized list of revenue showing:
  - (a) Metered sales to general consumers;
  - (b) Flat rate sales to general consumers;
  - (c) Municipal street lighting sales; and
  - (d) Miscellaneous revenue.
5. Itemized list of expenses showing:
  - (a) Fuel and lubrication cost;
  - (b) Salaries of officers and employees with a list of their names and their respective positions;
  - (c) Depreciation;
  - (d) Other maintenance and operation expenses;
  - (e) Miscellaneous expenses.
6. Method of financing;
7. Proof of financial capacity and business experience of applicant;
8. List of technical men employed in the construction, installation and operation in accordance with Commonwealth Act No. 294 and Republic Act No. 184;

EXHIBIT 4

9. Schedule of proposed rates and regulations affecting said rates, and number of hours of service daily; and

10. Articles of Incorporation, if applicant is a corporation.

List of minimum necessary equipment to be installed at the switchboard and panelboard of applicant's plant:

1. Watthour meter or meters to record the kilowatt-hours generated by each generating station.
2. Watthour meter or meters to record the kilowatt-hours purchased from other sources.
3. Either indicating or graphic wattmeters to indicate or record the load in kilowatts of each generating unit at any particular time.
4. Either indicating or graphic wattmeters to indicate or record the load in kilowatts at any particular time of the territory served.
5. Voltmeter or voltmeters to indicate the potentials of each generating unit and each feeder. The voltmeter or voltmeters in AC stations shall be so connected as to indicate the potentials of each phase.
6. Ammeter or ammeters to indicate the current in each generating unit and each feeder. The ammeter or ammeters installed in AC stations shall be so connected as to indicate the current in each phase.
7. Frequency meter or meters to indicate the frequency in AC stations of more than 100 kw capacity.
8. Power factor meter for AC station with generating units of over 100 kva capacity each.
9. Automatic voltage regulator for central stations of 251 kw capacity or more.
10. Synchronizing equipment and instruments for parallel operation in supply stations having more than one generating unit.
11. And other instruments, safety devices and control that may be necessary to determine the operating characteristics and for voltage control of the plant.

**EXHIBIT 5**

**PROGRESS REPORT FORMS**





EXHIBIT 6

A LOAD BUILDING PLAN FOR NATIONAL POWER CORPORATION

## EXHIBIT 6

### A LOAD BUILDING PLAN FOR NATIONAL POWER CORPORATION

The utility guide, which will be distributed to utility operators, outlines a sales plan which is adaptable for use by small utilities. However, these utilities have neither the manpower nor the financial resources to organize and conduct a major promotional activity. Any major sales activity, therefore, will have to be conducted by the National Power Corporation. Such promotion is desirable in that it will produce load and revenue for NPC as well as for local utilities and will also bring about conditions favorable for rate reductions. The Rural Electrification Administration in America, a government financed agency, is actively engaged in the promotion of new business for its constituents.

The following load building plan should be activated after Plans 1 and 2 are well underway and capacities of local distribution systems become available for load expansion.

#### 1. Commercial and Industrial Sales

##### Objective

To cooperate with local utility managers in developing commercial and industrial power loads.

##### Personnel and Duties

NPC to provide one or more full-time commercial and industrial sales engineers, with transportation, to work throughout the grid service area creating new load and converting engine power to electric power. He should be assigned a specific quota of calls to make and estimated annual revenue to produce. Est. annual revenue/expense should be approximately 6:1 for local utilities and 2:1 for NPC. A weekly report of calls made and results obtained should be made to his supervisor. He should be available upon call by local utilities to work on jobs involving 5 horsepower or more.

#### 2. Domestic Sales

The most effective domestic sales plan involves mass promotion through group meetings.

##### Objective

To increase the number of domestic customers (an average of only one home in eight located along existing power lines is a user of electric service) and to increase the average monthly use per customer.

##### a) Personnel

Two demonstrators, a supervisor and truck driver. The demonstrators should be domestic science graduates, carefully selected for their ability to address the public in a pleasing manner. They should be thoroughly trained

## EXHIBIT 6

in every detail of each demonstration to be given. The supervisor should act as master of ceremonies, and he and the truck driver should set up the equipment, test it before the meeting, and should also operate the movie.

### b) Equipment Required

- (1) station wagon or truck to transport personnel, appliances, props and equipment.
- (2) lamps and appliances which will be demonstrated.
- (3) printed cards indicating price and operating cost of appliances
- (4) spotlights and cables for electrical connections.
- (5) chairs and tables for personnel and appliances at demonstration.
- (6) loudspeaker.
- (7) movie projector, film and screen.

### c) Time of Demonstration Meeting

7:00 p. m. to 9:00 p. m.

### d) The Demonstration

The supervisor should open the meeting. By pre-arrangement, he should introduce the mayor for a few words and then introduce the demonstrators. The success of the meeting will depend upon how well the demonstration routines are worked out. They should be simple, conducted slowly, and made perfectly clear.

### e) Suggested Demonstrations

- (1) Comparison of a 50-watt lamp with an oil lamp showing amount of light from each source, quality, and comparative cost of operation. Emphasize protection of children's eyesight, fire hazards, etc.
- (2) Comparison of an AC radio with a battery radio.
- (3) Comparison of a 1/4 horsepower motor and pump with a hand pump. (Explain 1 kwh will do as much physical work as one man working at top speed for 30 hours.)
- (4) Demonstration of cooking on a hotplate.
- (5) Demonstration of an electric refrigerator, if local dealer can supply one.
- (6) Fans, etc.

There are many interesting ways of demonstrating every appliance.

The demonstration should last not more than 1-1/2 hours. During the last half hour, permit the people to pass by, get a close up look at the appliances and ask questions.

## EXHIBIT 6

End demonstration with a short talk by supervisor or local utility manager on the value and use of electric service.

**f) Show Movie**

End of meeting.

**g) Schedule of Meetings**

Working with the local utility manager, meetings should be planned about three weeks in advance of meeting date. They should be well advertised. Two or three demonstrations should be scheduled for each week. Demonstrations with a small change in program could be effectively repeated every two or three months.

There are 100 municipalities within the grid service area where demonstration meetings could be effectively held.

**h) Local Electrical Dealers Should be Asked to Cooperate and Display Their Equipment.**

**i) Check Results of Demonstrations**

Ask the manager of the local utility to determine and report the results obtained during the 30 days following the meeting.

**j) Location of Demonstration Meetings**

In every municipality I visited, there was a large outdoor auditorium, with stage and bandstand, located in center of the town. This auditorium would provide excellent facilities for staging the demonstration and for accommodating the crowd.

**k) To Obtain Successful Results from Demonstration, Will Require:**

- (1) Cooperation with local utility manager and mayor.
- (2) Careful planning of all details of advertising and conducting the demonstration.
- (3) A well-planned schedule of meetings in order to keep the crew fully employed.
- (4) A follow-up campaign by the local utility manager.

EXHIBIT 7

A GUIDE FOR THE ORGANIZATION AND OPERATING A  
SMALL ELECTRIC UTILITY

EXHIBIT 7

A GUIDE FOR THE ORGANIZATION AND OPERATING A  
SMALL ELECTRIC UTILITY

Note:

This booklet, with illustrations, prepared by the consultant while in the Philippines, is being printed by the Industrial Development Center for distribution throughout the Islands. It will be available for distribution about August 1, 1958.

Distribution:

250 copies to NPC  
10 copies to ICA  
240 copies to be distributed by IDC

**EXHIBIT 8**

**PROGRESS IN FINANCING**

EXHIBIT 8

May 19, 1958

Memo to Mr. F. M. Zablan:

If the Central Bank is successful in negotiating the \$1,000,000 exchange credit which you requested, I suggest that it would be helpful to our program if the following agreement could be arranged with the Bank:

- 1) Bank to require NPC approval before exchange credit is issued to utilities.

After NPC approval, Bank to speed the time required to make credit available to utilities. (10 days elapsed time would not be unreasonable.)\*

Such an arrangement would be most helpful in speeding up the work and in guiding it toward the objectives established by NPC.

---

\*The reason I mentioned speeding up the time for credit approval is that many different people have told me that under present arrangements, such approvals may require as much time as one year.

/s/ E. G. Stahl  
Power Market Consultant

EGS:jb

TRUE COPY

EXHIBIT 8

May 21, 1958

Memo for -  
Mr. E. G. Stahl  
Power Market Consultant  
NPC

Re your attached memorandum, I am giving you a copy of my letter to Governor Cuaderno which was delivered to him last Friday during a meeting with the President in Malacanang.

Governor Cuaderno said he will consider our proposal very carefully.

For the present, we cannot hope to get \$1,000,000 assigned as we propose. However, if the state visit of the President to Washington bears fruit, we can expect positive assistance.

For our own programming, we can assume that the money will become available.

/s/ F. M. Zablan  
General Manager

FMZ:jmV

TRUE COPY

EXHIBIT 8

May 16, 1958

Hon. Miguel Cuaderno  
Governor, Central Bank of the Philippines  
Manila

Dear Governor Cuaderno,

With the cooperation of NEC-ICA, the National Power Corporation has been conducting a campaign for increased utilization of electric power and energy in the country, particularly in areas to be served by the NPC power stations built, under construction, or projected.

In our studies, and in interviews and conferences with utility operators, we have always been confronted with the problem of how they can improve and expand their transmission facilities which require purchase of line materials and hardware transformers, meters, etc., for which foreign exchange is needed.

We believe that to improve and expand the services in towns presently served and in some towns in the grid area still without electric facilities, the amount of \$1,000,000 will be needed over a period of two to three years. Of this amount, \$600,000 will be for new operations and \$400,000 for existing plants.

The problem of provincial utilities was recognized and the discussion of the Binga loan in Washington which so ably negotiated. As a matter of fact, in one of the side letters which you signed on behalf of the Philippine Government, the following pertinent paragraph appears:

"It is the intention of my government to review the existing arrangement for granting approval to and making funds available for expansion of distribution facilities of the provincial utilities with the object of encouraging sound and energetic development of such utilities."

The above suggestion of the IBRD was precisely aimed at improving and expanding distributions in the Luzon and Mindanao areas where the National Power Corporation sells them power wholesale.

As a means of practical application and to be sure that the foreign exchange is used only for the purpose for which intended, the National Power Corporation can cooperate actively. It can help in processing the foreign exchange applications. Against certification of the National Power Corporation of the correctness of the bill of materials and the need for same, the foreign

EXHIBIT 8

exchange application may be approved by the Central Bank. Another practical solution will be to authorize the National Power Corporation to act as the distributing agency for the materials or clearing house for the operators requirements.

While the \$1 million requirement may be too heavy now considering the country's low dollar reserves, I am thinking that in the event the President succeeds in obtaining a commitment for a loan from the United States, which I do not doubt, the necessary sum might be earmarked for the purposes stated above.

That we might be able to discuss this matter again with the utility operators and give them definite information, I will appreciate hearing your views hereon.

Very truly yours,

/s/ F. M. Zablan

General Manager

TRUE COPY

**EXHIBIT 9**

**LIST OF UTILITIES IN TOWNS**

**LIST OF TOWNS WITHOUT ELECTRIC UTILITIES**

Republic of the Philippines, National Power Corporation

LIST OF ELECTRIC UTILITIES IN TOWNS

A. Pangasinan Province

1. Binalonan Electric Plant
2. Malasiqui Electric Plant
3. Manaoag Utility Company, Inc.
4. Mangaldan Electric Plant
5. Pozorrubio Electric Plant
6. Rosales Electric Service Company
7. Posadas Electric Company, Inc. (San Carlos)
8. San Fabian Electric Plant
9. San Nicolas Electric Plant
10. Tayug Electric Corporation
11. Republic Electric Plant (Urdaneta)
12. Villasis Electric Plant
13. Bayambang Electric Plant
14. Dagupan Electric Plant, also supplies Calasiao
15. Lingayen Gulf Electric Power Company, also supplies Binmaley

B. Nueva Ecija Province

1. Bongabon Electric Plant
2. Samahang Magsasaka (Cabanatuan City)
3. Cabiao Electric Plant
4. Cuyapo Electric Plant
5. Gapan Electric Corporation, also supplies San Isidro
6. Guimba Electric Plant
7. Lupao Electric Plant
8. Munoz Electric Plant
9. Papaya Electric Plant
10. Carolus Electric Plant (Quezon)
11. Rizal Electric Plant
12. San Jose Electric Plant
13. San Antonio Electric Plant
14. Sto. Domingo Electric Plant
15. Electric Light and Industrial Company, Inc. (Talavera)

C. Tarlac Province

1. Compania Luz Electric, Inc. (Concepcion), also supplies Bamban, Capas, and La Paz
2. Camiling Electric Plant

C. Tarlac Province Continued:

3. Paniqui Electric Plant, also supplies Gerona and Moncada
4. Tarlac Electric Plant
5. Victoria Electric Plant

D. Pampanga Province

1. Angeles Electric Corporation
2. San Fernando Electric Light and Power Company, Inc., also supplies Apalit, Macabebe, Mexico, Minalin, San Luis and San Simon
3. Arayat Electric Plant
4. P. J. Lazatin (Bacolor)
5. Floridablanca Electric Plant
6. Guagua Electric Light Plant Company, also supplies Sexmoan
7. Mabalacat Hydroelectric Plant
8. Masantol Electric Plant
9. Porac Electric Plant
10. Sta. Rita Electric Plant

E. Batangas Province

1. Liscano Temple Electric Company (Alitagtag)
2. Balayan Electric Plant
3. Batangas Electric Plant
4. Bauan Electric Plant
5. Ibaan Electric Light and Power Company, Inc.
6. Lemery Electric Power Company, Inc.
7. Lipa Electric Company, Inc.
8. Lobo Electric Plant
9. Tanauan Electric and Development Company, also supplies Malvar
10. Mataas Na Kahoy Electric Plant
11. Western Batangas Light and Power Company (Nasugbu), also supplies Lian
12. E. Silva Electric Plant (Rosario)
13. San Jose Electric Plant
14. San Juan de Bolbok Electric Corporation
15. Municipality of Taal

Total 60 utilities

EXHIBIT 9

Republic of the Philippines, National Power Corporation

LIST OF TOWNS WITHOUT ELECTRIC UTILITIES

<u>A. Pangasinan Province:</u>	<u>Population (1958)</u>
1. Sison	16, 205
2. San Manuel	18, 484
3. Bugallon	22, 464
4. Aguilar	12, 727
5. Urbiztondo	18, 899
6. Mangatarem	24, 554
7. Alcala	20, 513
8. Bautista	11, 031
9. Balungao	15, 353
10. Natividad	14, 161
11. San Quintin	18, 429
12. Sta. Barbara	23, 526
13. San Jacinto	12, 398
14. Mapandan	11, 824
15. Asingan	29, 694
16. Umingan	35, 738
<u>B. Nueva Ecija Province:</u>	
1. Sta. Rosa	14, 142
2. Jaen	17, 450
3. Aliaga	15, 140
4. Licab	9, 442
<u>C. Tarlac Province:</u>	
1. Ramos	7, 856
2. Pura	11, 430
3. San Manuel	9, 492
<u>D. Pampanga Province:</u>	
1. Sta. Ana	12, 612
2. Candaba	19, 277
3. Lubao	43, 967
<u>E. Bulacan Province:</u>	
1. San Ildefonso	21, 985

EXHIBIT 9

F. Batangas Provinc

Population (1958)

1. Calaca	16,290
2. Taysan	12,704
3. Tuy	12,138
4. San Luis	11,216
5. Sto. Tomas	20,463
6. Talisay	14,594
7. Mabini	14,245

Total - 34 towns

EXHIBIT 10

TASK ORDER NO. 122

TASK ORDER  
OFFICE OF INDUSTRIAL RESOURCES

EXHIBIT 10

ICA NO. 122

**INTERNATIONAL COOPERATION ADMINISTRATION**

Washington 25, D. C.

Date: March 20, 1958

PIO/T No.

TO: Tudor Engineering Company

ICA Project No. and Title: 92-22-082 Power Market Development

Country: Philippines

Project Engr./Mgr.: C. S. Gysland

Phone Extension: 2581

Assignment: Development of detailed plans by which small privately owned or municipally owned local utility companies are to be formed in areas through which high tension transmission lines and subtransmission lines from existing and proposed permanent type power generating plants located in North and Central Luzon will pass. Details on this assignment are included in the enclosed "Request for Proposal for Advisory Engineering Services-Philippines." Additional reference is made to your Task Order No. 31 and report dated February 20, 1957.

Target Date: July 1958

Remarks:

Estimated Cost Approximately 3 - 4 man months at an estimated cost of (Tudor to insert) approximately \$11,000.

Acknowledged:

sgn - John G. Marr

Tudor Engineering Company 3-21-58  
(Please return one signed copy to ICA)

Tudor Project No. 122

Task Engineer:

Phone: Sterling 3-5313

sgn - N. E. Thompson

Norman E. Thompson, Chief  
Industrial Engineering Division  
Office of Industrial Resources

ICA-10-70

(6-56)

**INTERNATIONAL COOPERATION ADMINISTRATION**  
**Washington 25, D. C.**

**Subject: Request for Proposal for Advisory  
Engineering Services - Philippines**

**Gentlemen:**

Written proposals in six copies, subject to the terms and conditions of this request for proposals, will be received by the International Cooperation Administration at 815 Connecticut Avenue, Washington 25, D. C. (Room 707 Rochambeau Building) until the close of business 5:30 P.M. on January 3, 1958, for furnishing, as set forth herein, advisory engineering services leading toward the marketing by public or privately owned companies of electric power in municipal and rural areas to be served with power from the power production and transmission facilities owned by the Philippine Government.

Negotiations with any or all offerors may be required after receipt of proposals. Such further negotiations shall not be deemed to be a counter-offer on the part of International Cooperation Administration. Notwithstanding such further negotiations, the International Cooperation Administration may accept the offeror's proposal within the time specified in the proposal unless the proposal is withdrawn in writing prior to acceptance.

It is contemplated that a contract will be awarded to that responsible offeror whose proposal will be most advantageous to the International Cooperation Administration, fee and other factors considered. The right is reserved to accept other than the lowest proposal and to reject any or all proposals.

No material, labor, or facilities will be furnished by the International Cooperation Administration unless otherwise provided herein.

Proposals signed by an Agent must be made in the name of the Principal and must be accompanied by evidence of his authority.

## EXHIBIT 10

Each offeror shall furnish the information required by this request for proposals. The International Cooperation Administration reserves the right to consider proposals or modifications thereof received after the date indicated for such purpose, but before award is made, should such action be in the interest of the International Cooperation Administration.

Proposals and modifications thereof shall be enclosed in sealed envelopes addressed to the International Cooperation Administration, 815 Connecticut Avenue, Washington 25, D. C. (Room 707 Rochambeau Building), with the name and address of the offeror on the face of the envelope.

### S P E C I F I C A T I O N S

#### I. Qualifications:

In order for proposals to be considered the offeror must:

1. Be a "Registered Professional Electrical Engineer" or firm of "Registered Professional Electrical Engineers" with at least fifteen (15) years of actual practice and experience in the fields listed below. Such "Professional Registration" shall be the registration required for the practice of Electrical Engineering in the state, or political subdivision thereof, in which the Home Office of the offeror is located. In the event that such registration is not required for the practice of Electrical Engineering in that state, or political subdivision thereof, the offeror must be a member in good standing of a recognized Society or Institute of Electrical Engineers, so chartered in that state, or political subdivision thereof.

2. The experience required of the offeror, in accordance with paragraph "1" above, must be in the following fields:

- a. Organization, financing, and management of small distribution companies and/or cooperatives in rural areas;
- b. Power sales promotion programs;
- c. Power market and rate studies;
- d. In-service training programs for utility management and operating personnel on such subjects as:

- i. Principles of good management;
- ii. Customer relations;
- iii. Electric sales techniques;
- iv. Distribution design, maintenance, and safety standards;

Accounting and electric billing systems; etc.

II. Description of Project:

1. The offeror will be required to develop detailed plans by which small privately-owned or municipally-owned local utility companies will be formed in areas through which high tension transmission lines and subtransmission lines, from existing and proposed permanent-type power generating plants located in North and Central Luzon, will pass. The project includes, but is not necessarily limited to, the establishment - by the National Power Corporation, an agency of the Philippine Government - of the following:

a. Specific criteria, for the organization, establishment of power rates, and, procedural and operating requirements under which a local utility company will obtain its franchise and operating permit to produce, receive, control and market electric power within a given service area.

b. The allocation, on a rental basis, of diesel electric generating units owned by the National Power Corporation, to selected local utility companies which qualify for, and receive a franchise to serve a specific municipality, or area.

c. The terms for, and details of agreements under which diesel generating units will be made available to local utility companies, giving consideration to:

i. Requirements for temporary generator unit installation and standby generating capacity;

ii. Future replacement of the generating unit or units, by the provision by the National Power Corporation of a subtransmission line tap or inter-connection with another distribution system;

EXHIBIT 10

iii. Maintenance, operation requirements and safety measures;

iv. Costs to be borne by local utility company as a component of the total power rate to be charged to customers; and

v. Conditions under which agreements are to be amended, replaced, or terminated, as power from the primary transmission system becomes available, or development conditions change.

d. Regulations and recommendations - as applicable and necessary - covering the detailed engineering design, construction, and service operation of the distribution systems.

e. Advisory and instructional program materials and guides for use by local utility companies in instructing consumers, at the municipal and barrio levels, in the various uses of electricity.

f. In-service training programs - for utility management and operating personnel - on such subjects as principles of good management; customer relations; electric sales techniques; distribution design, maintenance and safety standards; accounting and electric billing systems, etc.

2. It is contemplated, by the National Power Corporation, that the above described Project will be continued for several years, and, that the plans to be developed will encourage participation by local private individuals and municipalities in the financing, constructing, managing and operating of the distribution of electric power to either municipalities or rural areas not presently served, or inadequately served. Existing utilities systems are to be given assistance, as necessary, under the project. At present, the National Power Corporation is procuring forty 50-KW continuous output, .75-power factor, 60-cycle, 3-phase, 2400-volt, 900 rpm; 4-cycle, skid-mounted diesel engine-driven generating units, and forty generator control panels for use under this project. As planned, each installation of such units will be replaced - or supplemented - as attendant conditions of power demand and practicability of interconnection with another system, or service from the transmission grid system will allow. Thus, each diesel generating unit may be re-installed at one or more location within its service life.

EXHIBIT 10

III. Scope of Offeror's Services:

1. The Offeror shall furnish one (1) Electrical Engineer - who must fully qualify in accordance with Section I hereof, in its entirety - for advisory services, as required herein, to be performed in the Philippines, on all phases of the power marketing aspects of the above-described Project for the period stated in Section IV hereof.

2. Not later than twenty (20) days after the completion of the period of services required by Section IV hereof, the Offeror shall furnish - to International Cooperation Administration for approval within twenty (20) days thereafter - twenty (20) copies of a preliminary report of his activities, as required herein, in which he shall state his findings, principal recommendations and the reasons therefor, the problems left unsolved, and methods recommended for future implementation. Within fifteen (15) days after receipt of the aforesaid approval from International Cooperation Administration, the Offeror shall furnish to International Cooperation Administration twenty (20) copies of the report reproduced in final form.

IV. Schedule and Period of Service:

Offeror shall commence services, as required herein, not later than ten (10) days after Offeror duly receives security clearance from International Cooperation Administration and shall continue for a period of ninety (90) days thereafter.