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

CAPITAL ASSISTANCE PAPER

Proposal and Recommendations  
For the Review of the  
Development Loan Committee

INDONESIA - WEST JAVA TRANSMISSION AND DISTRIBUTION - PHASE I

BEST AVAILABLE

AID-DLC/F-1036

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AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D.C. 20523

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June 9, 1972

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - West Java Transmission and Distribution -  
Phase I

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$17,200,000 to the Government of the Republic of Indonesia to assist Perusahaan Listrik Negara in financing the foreign exchange costs of equipment, materials and services necessary for the construction of transmission facilities between the cities of Bandung and Tjirebon, West Java, and Tegal, Central Java, and rehabilitation and expansion of distribution facilities in Tjirebon.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on **Thursday** June 15, 1972.

Rachel R. Agee  
Secretary  
Development Loan Committee

Attachments:

Summary and Recommendations  
Project Analysis  
ANNEXES I-XIX

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## INDONESIA - WEST JAVA TRANSMISSION AND DISTRIBUTION - PHASE I

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INDONESIA - WEST JAVA TRANSMISSION AND DISTRIBUTION - PHASE ISUMMARY AND RECOMMENDATIONSA. BORROWER:

1. The Borrower is the Government of Indonesia (GOI).
2. The Beneficiary is Perusahaan Listrik Negara (PLN) a wholly owned Government utility, responsible for public generation, transmission and distribution of electrical power in Indonesia.

B. LOAN:

1. Amount: Not more than U.S. \$17.2 million.
2. Terms:
  - a. U.S. Government to GOI: This will be a 40-year loan to the Government of Indonesia, with interest of 2 percent for the first 10 years during which no amortization payments will be required: thereafter 3 percent interest for 30 years, during which time the loan will be fully amortized in level semi-annual installments of principal and interest, payable in U.S. dollars.
  - b. GOI to PLN: A condition of the AID loan will require that second step loan terms from GOI to PLN be agreed to by AID. PLN and the GOI by May 22, 1973. Management consultants provided to PLN under an IDA credit are developing a financial plan for PLN, and the second step loan terms will be based on this plan. (See Sections II and IV.)

C. TOTAL COST OF THE PROJECT:

The total cost of the project is estimated to be equivalent to U.S. \$23.0 million of which the AID financed foreign exchange costs are U.S. \$17.2 million and local currency costs are the equivalent of U.S. \$5.8 million to be provided from the GOI National Development Budget.

D. DESCRIPTION OF THE PROJECT:

The project provides for engineering, design and construction of a 150 KV double circuit transmission line on steel towers linking the cities of Bandung, Tjirebon and Tegal, a distance of 136 miles. The transmission link will include substation terminal facilities at Bandung and Tegal and a 150/20 KV stepdown substation at Tjirebon. The Bandung

line will connect with an existing 150 KV line from the Djatiluhur hydro-generation station. The Tegal terminus will interconnect with the Central Java 150 KV Ketenger line with power from the Semarang Steam Station. (Both the Ketenger line and steam station are being constructed under AID loans.) The project will include distribution rehabilitation and expansion of distribution facilities at Tjirebon, the main city between Bandung and Tegal, and a major West Java load center.

E. PURPOSE OF LOAN:

To finance the foreign exchange costs of imported equipment, engineering and construction services, and technical assistance for the project described in D. above.

F. BACKGROUND OF ACTIVITY:

This project for West Java transmission and distribution is a priority recommendation of the Chas. T. Main West Java Power System Study financed by the IBRD. The total Main Study recommends over the next five years an expansion of generation, transmission and distribution facilities for West Java at an estimated total cost of U.S. \$315.0 million, including U.S. \$216.0 million in foreign exchange. This project will establish the first transmission link between Central and West Java and provide a continuous 150 KV link through the eastern region of West Java, including the major load centers of Djakarta, Bandung and Tjirebon. The IBRD has already undertaken U.S. \$15.0 million of distribution rehabilitation at Djakarta with a second phase U.S. \$40 million loan being processed for IDA Board consideration. This project is a major component in a long range program for West Java and it has been identified as a highest priority by the GOI.

G. ALTERNATE FINANCING:

This project is recommended as part of the U.S. commitment under the Inter-Government Group on Indonesia. Other donors are also working in the power sector in Indonesia: IBRD (in Djakarta); Federal Republic of Germany (in Central Java); the Government of Japan (principally in East Java); the ADB (in Sumatra and Sulawesi); France, The Netherlands, the United Kingdom and Denmark (number of areas). ExIm Bank is not interested in financing this project.

H. ISSUES: None.

I. STATUTORY CRITERIA:

This loan meets all statutory criteria. See Annexes XIV and XVI.

J. MISSION AND EMBASSY VIEWS:

USAID and the Country Team recommend that the loan be made.  
(See Annex XV).

K. RECOMMENDATIONS:

Authorization of a loan to the Government of Indonesia in an amount not to exceed U.S. \$17.2 million in accordance with the terms and conditions set forth in the proposed authorization shown in Annex XVII. An outline of conditions precedent and covenants is set forth in Section VIII.

USAID CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Chairman and Loan Officer .....	Dennis Brennan
Engineer .....	John Glaws
Economic .....	James Norris
Controller .....	Denton Larson

AID/W CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Chairman and Loan Officer .....	Alexander Love
Power Engineer .....	Earl Clark
Legal .....	Herbert Morris
Desk .....	Lou Stamberg

## I. Project Definition and Background.

### A. Nature and Amount of Loan.

This loan will finance the foreign exchange cost of imported equipment, engineering, construction and training services required to rehabilitate and expand transmission and distribution facilities in the West Java electric power system. The loan will be U.S. \$17.2 million of an estimated total U.S. \$23.0 million to be expended on the project. The loan proceeds will cover the cost of imported Selected Free World (AID Geographic Code 941) capital equipment and related engineering, construction and training services. Rupiah in the estimated equivalent of U.S. \$5.8 million\* will be provided by the Government of Indonesia to meet local currency expenditures.

### B. Background of the Project.

United States objectives are to sustain Indonesian economic and political stability and develop a sound infrastructure for economic growth. The United States directs its aid through the Inter-Government Group on Indonesia (IGGI) - composed of Indonesia, eleven other member countries, the World Bank (IBRD), the International Monetary Fund (IMF) and the Asian Development Bank (ADB). Assistance through this multi-lateral framework minimizes political problems, assigns a range of initiative to the Indonesian Government (GOI), and provides a vehicle by which member countries may direct assistance to clearly identified projects.

This project is part of a multilateral effort to rehabilitate and develop the Indonesian electric power systems. Provision of reliable electric power is essential to economic growth. At present Indonesia's annual consumption of electricity is only 15 KWH per person, among the lowest in the world. The GOI recognizes this need and both in its first five year plan ending 1974 and in the forthcoming plan electric power is a highest priority goal.

IGGI donor financing to the power sector, apart from AID loans, now totals U.S. \$106.2 million, of which the Japanese share is almost half. A breakdown of donor financing is set forth in Annex I and shown on the map in Annex II. AID loans to the power sector so far total U.S. \$71.3 million. With this loan for U.S. \$17.2 million, and the Tjilatjap interim generation and Tuntang shortfall loan amendments currently being proposed for AID financing at U.S. \$6.2 million and U.S. \$10.9 million respectively, the AID total to the power sector will reach U.S. \$105.7 million. Following is a review by major areas of main project activity in the electric power sector:

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\* N.B. Since the cost estimates reflected in the loan paper were prepared, C. T. Main revised the local currency requirements for the distribution system downward to \$1.97 million. Total local currency requirements are therefore revised down to \$4.28 million and overall project costs reduced to \$21.5 million. These corrections should be reflected throughout the paper.

Central Java. The power development program for Central Java includes new 100 MW of thermal generation, new transmission throughout the system, and distribution rehabilitation of all major load centers.

AID is the primary lender for Central Java, where AID loans provide for: distribution rehabilitation and generation expansion in the Tuntang (eastern) region of the province (AID Loan 497-H-019 for U.S. \$16.8 million); construction of a 100 MW thermal power station at Semarang, capital of the province (AID Loan 497-H-024 for U.S. \$19.7 million); and distribution rehabilitation and double circuit 150 KV transmission expansion in the Ketenger (western) half of Central Java (AID Loan 497-H-025 for U.S. \$21.0 million). All three projects are based upon a Chas. T. Main long range Central Java power study financed by AID. Each project expects construction to be underway by end 1973 with completion early 1976. Main's updated recommendations are also the basis for a proposed add-on U.S. \$10.9 million loan expected to be made this year to provide for additional necessary distribution rehabilitation of the Tuntang region. A separate Main study supports a further loan of U.S. \$6.2 million for this year to provide interim generation at Tjilatjap, terminus of the Ketenger transmission line, to supply power requirements of a proposed 100,000 barrel a day Pertamina refinery scheduled to commence operations in 1975. The Tjilatjap generation financing is being handled by amendment to the Ketenger loan.

The Federal Republic of Germany (FRG) with an existing loan of \*DM 20.2 million and loans now being negotiated for DM 40 million is also a main electric power donor in Central Java. (See Annexes I and II.) The FRG program among other elements calls for construction of a single circuit 150 KV transmission line in the Tuntang region, a double circuit 150 KV line from the Semarang Steam Station to Semarang East, and a double circuit 150 KV line from Semarang East to connect with the Ketenger transmission terminus at Pekalongan. Both the Semarang Steam Station and Ketenger transmission are AID-financed (see above). PLN has accepted the revised load forecast set forth in a 1972 Chas. T. Main Supplemental Report for Central Java, and the FRG consultant engineers are now revising their plans to meet the changed conditions.

West Java. This loan for West Java transmission and distribution is a priority recommendation of the Chas. T. Main West Java Power System Study financed by the IBRD. The total Main Study recommends over the next five years an expansion of generation, transmission and distribution facilities for the province at an estimated total cost of U.S. \$315 million.

\* DM 1.0 = U.S. \$0.351

including U.S. \$216 million in foreign exchange. These recommendations include two generation projects for a total of 400 MW at a cost of U.S. \$96 million, including U.S. \$79 million in foreign exchange; construction of approximately 350 miles of 150 KV double circuit transmission at a cost of U.S. \$35 million of which U.S. \$28 million represents foreign exchange; and distribution rehabilitation of 14 systems, including substations, throughout the West Java region for a cost of U.S. \$175 million, including U.S. \$105 million in foreign exchange. This loan represents a first phase priority in this total program. The project provides for a 150 KV double circuit transmission line, with substation and terminal facilities, to link the cities of Bandung, Tjirebon and Tegay, and for distribution rehabilitation and expansion at Tjirebon.

The Chas. T. Main West Java Study is financed by the IBRD which through the IDA has already undertaken a U.S. \$15.0 million first phase of distribution rehabilitation in Djakarta, with a second phase loan of U.S. \$40 million currently being processed for IDA Board approval. The IBRD through the IDA is also financing general management review and assistance to PLN. This is discussed separately below. Japan, in turn, is financing at U.S. \$12.6 million the construction of additional generation at Djakarta, and the French have provided U.S. \$11.9 million in loans for West Java transmission and distribution facilities. The project covered by this loan therefore is an integral part of a long range program for West Java. It will also establish the first transmission link between West and Central Java.

East Java, Other Areas and PLN Effort. The Japanese Government has been the primary lender for East Java power, with loans for this area amounting to U.S. \$19.7 million. The Japanese program includes hydro-generation, transmission and distribution rehabilitation. See Annexes I and II. It is expected at a logical later point in power sector development the East Java system will be linked with Central Java. The additional lender for area projects in the electric power field is the Asian Development Bank (ADB). To date the ADB has loaned U.S. \$11.7 million for expansion of generation, distribution rehabilitation and construction of limited transmission in West Kalimantan and West Sumatra. At the same time the ADB has financed technical assistance studies for West Irian power development and for the Makassar (South Sulawesi) municipal electric power system. As noted above, AID through AID Loan 497-H-022 for U.S. \$13.8 million is undertaking generation expansion and distribution rehabilitation in Medan, North Sumatra. The Netherlands has provided U.S. \$5.5 million in credits. This is almost entirely for diesel generation sets to be placed throughout the country, in many cases replacing obsolete equipment being retired. The United Kingdom and Denmark are providing limited credits for generation, transmission and distribution hardware

for use throughout the country.

Together with this extensive foreign lending program, PLN itself has undertaken a vigorous program of rehabilitation and limited expansion of facilities. Part of this has been carried out as a consequence of foreign lending requirements that existing PLN facilities be upgraded, replacement parts be purchased, etc. In other cases the initiative has come directly from PLN. See listing of PLN project budget support in Annex III.

## II. Borrower and Beneficiary.

Borrower is the Government of Indonesia. Beneficiary is the Perusahaan Listrik Negara (PLN) a government agency under the Ministry of Public Works and Power. PLN was organized in 1965 as the successor to three Dutch utility companies which had been nationalized some years earlier. Circumstances of the nationalization had been difficult, with loss of records and no transition period or carryover of expatriate personnel and PLN therefore commenced its operations with a legacy of difficult organizational and operating problems. These were compounded by chaotic economic conditions and severe inflation during the mid-1960s, coupled with completely inadequate budgetary support even for routine administration and operating expenditures. In the face of all these difficulties it is of credit to PLN that the organization was able at all to provide a continuing and slowly expanding range of service during the years 1965 to 1970.

PLN is directed from a central office at Djakarta working through fifteen operating regions throughout the country. This project is located in Region XI, the eastern half of West Java. See Annex IV. PLN capabilities are the key to the effectiveness of the power development program, this is realized by each of the lenders and their concerns are reflected in the agreements between the International Development Association (IDA), PLN and the GOI. The IDA Agreements obligate the GOI to pay government arrears due PLN and ensure prompt payment of current charges. PLN for its part is obligated to revalue assets, establish a schedule of tariffs and reorganize the entire electric power administration on a businesslike and functional basis. Each of the AID power loans contains covenants by the GOI and PLN providing for compliance with the IDA Agreements.

### A. PLN Organization and Management.

A principal objective of the IDA Agreements is to put PLN on a solid financial and management basis. PLN at present is governed

by Indonesian laws relating to Government agencies and enterprises in general and specifically by the 1965 decree which established PLN and defined the scope of its operations. It has a Board of six Directors consisting of the PLN President and heads of the five main departments: Planning and Research, Personnel, Operations and Logistics, Finance, and Construction. De facto control of operations rests with the Ministry of Public Works to whom the Board of Directors is responsible. See Annex IV. In accordance with the IDA Agreements, PLN contracted with the French firm of SOFRELEC to provide management consulting services, specifically to develop operating standards and recommend institutional reorganization.

In March 1971, SOFRELEC submitted to the GOI and PLN a draft new electricity charter. For the following eleven months this was under review by a GOI inter-Ministerial committee. Agreement has now been reached within the GOI and the draft accepted by IDA. PLN will become \* a "perum" with the management board responsible to the Minister of Public Works and Power. The Minister in turn will be assisted by an advisory committee.

Approval of the charter by President Suharto is scheduled for early June. No additional approvals are required and the new charter will become effective with the President's signature.

A summary description of PLN's new charter is included in Annex V..

#### B. Progress of PLN Reforms.

In addition to the requirement for overall institutional reorganization, the IDA Agreements state specific GOI and PLN obligations with respect to financial and management capacity. Chief among these is the requirement that the GOI within one year pay all government arrears and ensure prompt payment of current charges. The GOI has already paid the Rupiah 2.3 billion budgeted for payment during the GOI fiscal year ending 31 March 1972. PLN records show a remaining Rupiah 3.4 billion in arrears and this figure will be paid by the GOI once verified by each of the concerned departments. The formulation of arrangements to ensure prompt payment of current billings has been more difficult, but PLN is negotiating with the Ministry of Finance and GOI departments to make sure adequate amounts are budgeted.

Assets revaluation is an additional fundamental condition to adequate financial capacity. PLN was to have completed assets revaluation by February 1972. This has now been done and awaits formalization. The figures, however, are already reflected in the draft balance sheet for CY 1971 which appears in Annex X and is discussed in Section IV below. Also on the financial management

\* "perum" - a form of state enterprise owned by the government.

question, SOFRELEC has subcontracted with the international accounting firm of Peat, Marwick and Mitchell to provide a study of financial administration and recommendations. A study of consumers administration has been completed. Recommendations concerning billing and collection procedures and mechanization of accounts were made and accepted by PLN. These revised procedures with the exception of a revised rate structure will be implemented in CY 1972. A code of accounts has been prepared together with an accounting manual. This has recently been translated into Indonesian and is being distributed to the Regional offices for implementation. The revised accounts will be prepared retroactive to January 1, 1972 so that operating statements can be prepared for CY 1972.

Finally, on tariffs, SOFRELEC recommendations are expected within the next four months. Adjustment will be based on the principle that tariffs will provide PLN revenues to cover all operating expenses (including adequate depreciation) and interest charges and leave a reasonable surplus for partial financing of expansion. Size of the surplus will be determined by PLN, bearing in mind the desirability of meeting at least one-third of capital expansion costs from its own resources. The IDA consultants indicate, however, they recognize that a new standard tariff structure applied to all consumers in all regions will result in considerable increase in the price of electricity. Accordingly, SOFRELEC may agree the GOI defer application of standard rates in certain areas or to certain consumers. The weight given political and social considerations would be assigned a clear cost, however, by a well identified subsidy to PLN to meet the established loss of revenue.

All of this reform program above derives in the first instance from the initiative of the IDA Agreement covenants. And on the question of the covenants IDA takes the position that in view of the efforts already made by the GOI and PLN to carry through a reorganization, to revalue assets and to clear up the question of arrears and current billings, that both PLN and the GOI are in reasonable compliance. Implementation of the reorganization and actual clearing of the arrears and current accounts questions may take longer, but with the substantive issues resolved IDA considers implementation only a matter of the time required by the GOI to take the necessary administrative steps.

Each of the AID power loans reinforces the PLN reform program. All the AID loans provide for technical training, and the Tuntang and Medan loans provide also for management and accounting assistance. The consultants under the AID loans are enjoined to coordinate their recommendations and activities with SOFRELEC.

### C. Personnel and Training.

Annex V is a breakdown of PLN employment showing that from a total roll of more than 20,000 employees less than 500 have college or university level qualifications, with barely half of these rated as electrical engineers. These figures underscore the critical factor which personnel represents in estimating PLN capacity.

PLN once established as an independent authority, will be managed according to sound business practice in the utilities sector. This will include commercial bookkeeping practices and regular auditing by independent auditors.

Peat, Marwick & Mitchell has proposed to PLN an extended integrated training program. The training will address budget planning, bookkeeping and accounts procedures, disbursing and auditing, and in a series of courses of differing lengths will include officials from top management down to clerks and record keepers. The program is designed for PLN central staff and selected categories of personnel from the PLN regional offices. PLN has accepted the Peat, Marwick & Mitchell recommendations and this training will be underway in Djakarta within the next few months and will include three sessions a year of approximately 40 trainees each session.

PLN is also establishing operations training for personnel from PLN central staff and the regions, with training centers located at Bandung and Surabaya. At each site PLN is providing a three session yearly training program for a total of approximately 120 trainees each session. The effect will take time, but the general effort to improve the technical and management level of PLN at all levels, both at PLN central and the regions, is going ahead. Personnel capacity will continue to be a principal limiting factor on PLN efficiency, but the effort to correct this by PLN and the lenders should provide on an accelerated basis the capacity required. With an expected capital expansion over the next five years of over U.S. \$300 million, PLN faces a requirement for a dramatic increase in trained technical and administrative staff.

AID procedures ensure effective project implementation through use of qualified consultants and contractors, but at the same time each AID loan addresses the question of building up PLN personnel capability through provision of loan-financed training. This loan will provide for the same.

A general power conference in Djakarta, or series of such conferences, is being scheduled for this year by PLN with all lenders

to address such questions as coordination of electric power financing, personnel capacity, training, general system standards, etc. AID was a prime mover in the idea for such a conference and will be an active participant. It is expected the conference will provide a working forum for PLN and lenders alike to resolve problems in project implementation and contribute positively to the common goal of directing PLN toward its role as sole and effective national authority for generation, transmission and distribution of electric power.

### III. TECHNICAL ANALYSIS

#### A. Current Status Electric Power System - Region XI

The system serves the eastern portion of West Java designated as Region XI. The largest load concentration is in the Bandung area which includes the sub districts of Madjalaja (Southeast of Bandung) and Padalarang (Northeast of Bandung). This area contains some 4 million people and has approximately 65% of the total in Region XI.

Tjirebon is the second largest load area in Region XI and contains roughly 16% of the total load.

The third and fourth largest load areas in Region XI are respectively Purwakarta, north of Bandung which contains 9% of the total system and Tasikmalaja, southeast of Bandung with approximately 5% of the total load.

Total peak load in Region XI was 62 MW recorded in July 1970. See Annex VI.

##### 1. Generation

Region XI of PLN is an operating district and is not directly responsible for generation planning for its area. This responsibility rests with PLN headquarters in Djakarta.

The generation in Region XI is predominantly hydroelectric, and there are seven hydroelectric plants with a total of about 58 MW of installed capacity (see Annex VI). However, at certain times of the year this capacity is limited by low water. The system also has about 2.5 MW of diesel generation, located in the coastal plains. Thus, the total installed generation in Region XI is approximately 60 MW and is nearly equal to peak load of 62 MW achieved in July 1970.

In addition to this generation, the largest hydroelectric project in Indonesia, Djatiluhur, is also located in Region XI. Djatiluhur is not under the authority of Region XI, however, but is operated and controlled by the Djatiluhur Power Authority which sells power to both Region XI and Djakarta in Region XII. Djatiluhur has an installed capacity of 125 MW, although some of this capacity will not be available in the future due to increased irrigation requirements, there is moreover at the present time barely adequate capacity available for Region XI as well as Region XII.

Low water during the dry season is the primary limitation on the Region internal capability. Typically, in June 1970 the Region

produced 40 MW internally and purchased 22 MW from Djatiluhur. The internal generation, however, is operated at a high load factor, and power purchased from Djatiluhur at a relatively low load factor. As in other areas of Indonesia the total load factor of the system is relatively high, since industrial operations are curtailed during peak hours in order to prevent overloading of the distribution systems.

## 2. Distribution System

The area served by Region XI provides electric power to the large cities and towns. The major portion of the rural population however have no electric service. In Tjirebon as well as the other load centers in Region XI much of the 6 KV underground systems is located in and near rice fields which are submerged during much of the year and therefore susceptible to frequent failures and long outages. In addition voltage regulation is very unsatisfactory causing many industries (coconut oil, textile mills etc.) to install captive generation. Poor voltage regulation is the result of old and inadequate equipment and high losses in the secondary and primary feeders caused by unusually long runs of undersized conductors. There is no possibility of carrying additional load in any part of the systems.

## 3. Transmission System

The original transmission in Region XI was a 30 KV radial system from the first isolated hydroelectric plants to the nearest load centers and since extended to reach additional towns and cities. With the completion of the Tjikalong hydro project (South of Bandung) in 1960, a 70 KV transmission was erected from Bandung via Purwakarta to Djakarta. This provided an interconnection between Region XI and XII and permitted interchange of small amounts of power. With an all hydroelectric system in Region XI and primarily steam base system in Region XII this interchange was favorable although the amounts involved were small.

With the completion of the Djatiluhur hydroelectric project in 1964 a double circuit 150 KV line was constructed from Djatiluhur to

Djakarta and in the opposite direction, from Djatiluhur to Bandung. This provides a second double circuit interconnection between the two Regions. However the remaining transmission system in Region XI is supplied over 30 KV lines.

One 30 KV feeder extends from Bandung to Tjirebon and another 30 KV feeder goes eastward from the hydroelectric projects south of Bandung to Garut and Tasikmalaja. There is a connection between Tasikmalaja and Parakan midway between Bandung and Tjirebon. Radial operation varies depending upon the availability of water in the various hydroelectric plants, in order to obtain the most favorable generation. Tjirebon and Tasikmalaja are both approximately 80 miles from Bandung, and voltage regulation at these remote ends of the system is extremely poor. During peak load severe loss of voltage on the secondary distribution is experienced.

Generally, the transmission system is totally inadequate for further load growth in many areas of the system. The original 30 KV transmission system was designed with very small conductors and extremely long spans. In the mountainous areas of West Java, towers located on ridge lines span several thousand feet with no practical possibility of installing intermediate towers in the valleys in between. Replacing the existing conductors with substantially larger conductors would generally not be feasible. Upgrading the 30 KV transmission to 70 KV would improve the voltage regulation in the system and might be adequate for the system load today. However, very little new capacity would be provided for future expansion.

## B. Scope of Project

### 1. Summary

The project to be funded under this loan would provide for the rehabilitation and expansion of the distribution system in Tjirebon both urban and adjacent areas and the erection of a new 150 KV double circuit transmission line connecting Bandung, Tjirebon and Tegal. A 150/20 KV substation at Tjirebon with terminal connections at Bandung and Tegal are also included. In general the scope of work will include:

a. The complete rehabilitation of the electric power distribution facilities in the city of Tjirebon and adjacent areas

with the construction of a new overhead 20 KV distribution system and redesign of existing facilities;

b. The design and construction of approximately 136 miles of 150 KV double circuit transmission line connecting Bandung, Tjirebon with Tegal which will provide interconnection of Region XI in West Java with Region X in Central Java;

c. The design and construction of a 150 KV/20 KV Substation in Tjirebon and 150 KV Substation termination facilities in Bandung and Tegal;

d. The provision of tools and service equipment for systems operation and maintenance;

e. The provision of communications equipment and facilities which will be similar in design and complement equipment to be installed in the Ketenger System in Central Java; and

f. Technical and management assistance (including participant training in the United States) to PLN to develop sound management, operation and maintenance practices.

## 2. Distribution System Rehabilitation

It is proposed to replace the present distribution system in Tjirebon with 20 KV overhead primary lines and 220 Volt secondary service. Secondary lines will be greatly shortened and a much larger number of distribution transformers will be used, most of which will be pole mounted. Service will be single-phase except where the type of load requires three-phase service. Aluminium conductors will be used for the 20 KV overhead ones and for new secondaries. Existing copper secondary wiring will be utilized to the fullest extent possible. The proposed distribution system will be designed in accordance with U.S. standards and practices.

## 3. Transmission System and Substations

Proposed transmission will consist of a double circuit 150 KV link connecting Bandung and Tjirebon in Region XI, West Java with Tegal in Region X, Central Java. The Substation at Tjirebon will be 150/20 KV including breakers and disconnects, incoming and outgoing line bays, distribution bays and stepdown transformers. The 20 KV feeders of the Tjirebon distribution network will connect with the 20 KV side of the stepdown transformers.

The transmission line will have two terminal points; one at Tegal substation which is part of an ongoing AID project, (Loan 025 Ketenger T&D), and the other at Dago substation, in Bandung. Dago, located on the north side of Bandung, is interconnected with a second substation, Tjegereleng which is the terminus of the existing 150 KV line from Djatiluhur Hydro Station some 40 miles north of Bandung.

Implementation timing schedule for 1 and 2 above is shown in Annex VII.

#### 4. Communications

Reliable and secure communications facilities will be provided for this project. Facilities will include provision for voice circuits for operational control and tone equipment for high speed relaying. A power line carrier system will be utilized. Communication system connection between this project in Region XI and Region X headquarters at Semarang in central Java will be provided through Tegal substation.

#### 5. Technical and Management Assistance and Training

Technical and management assistance and training services will be performed under the guidance of the project engineer. It will include on-the-job training conducted by persons having substantial experience performing similar tasks for comparable U.S. utilities, and participant training in the United States and/or third countries for PLN employees. An important aspect of this assistance will be coordination with the IDA (IBRD) management and institutional reforms. Emphasis will be given to distribution systems operation and maintenance, transmission line operation and maintenance, accounting, warehousing and records keeping. See Annex VIII.

#### C. Finding of Technical Soundness

The scope of the project is defined in Section III-B-1, and plans for accomplishing the project, including provision of necessary technical and management assistance are outlined in Section III-B-2 through III-B-5. See also Annex VIII. These Sections define a complete and independently justified activity.

Substantial preliminary engineering and technical planning has been completed. A reasonably firm estimate of the cost to the United States Government of providing assistance for this project has been derived in accordance with Section 611(e) of the Foreign Assistance Act, and a satisfactory engineering plan for implementing the project has been developed. Specifically, it is found that attainment of the objectives of this project is technically feasible within the framework set forth herein.

D. Environmental Considerations

Implementation of this project will be carried out with full regard to environmental considerations. Values to be considered include visual aesthetics, multiple land use, drainage, protection of agricultural and grazing areas, protection of forests, safeguarding against fire and flooding, etc. Environmental protection will be addressed in each project phase, design and construction. The consultant in meeting his responsibilities under this heading will be governed among other applicable standards by the general guide "Environmental Criteria for Electric Transmission System", prepared by the US Department of Agriculture and Department of Interior and published by the US Government Printing Office, Washington D.C.

Because the project consists of transmission and distribution with no generation, no submission to the Council on Environmental Quality is required.

#### IV. FINANCIAL ANALYSIS

##### A. Alternative Sources of Financing

This project is recommended as part of the U.S. commitment for multilateral assistance in Indonesia within the framework of the Inter-Government Group on Indonesia (IGGI). This project has been selected by AID as part of the U.S. Government contribution to the IGGI consortium and our participation in this project has been requested by the GOI and supported by the IBRD resident mission. Other donors are also participating in loan assistance to the power sector (e.g. IBRD, Germany, ADB and Japan). Therefore, within the IGGI framework and total requirement for improved electrical power, alternative financing from other donors is not available. The EXIM Bank is not interested in financing this project.

##### B. Financial Requirement - Project Cost

The total cost of the project is estimated to be \$23.0 million, consisting of U.S. dollar cost of \$17.2 million and local currency costs of \$ 5.8 million equivalent. A summary of project costs and a schedule of annual disbursement follows:

#### Summary of Project Costs ( \$000 )

<u>Item</u>	<u>US\$</u>	<u>1/</u>	<u>Local Currency 1/ Equivalent Total 1/</u>
<u>1. 150 KV Transmission:</u>			
A. Bandung - Tjirebon	4,362		1,084
B. Tjirebon - Tegal	2,466		611
Subtotal	<u>6,828</u>		<u>1,695</u>
<u>2. 150 KV Substations:</u>			
A. Tjirebon	1,429		142
B. Tegal( terminal facility only)	261		76
C. Bandung(terminal facility only)	261		76
Subtotal	<u>1,951</u>		<u>294</u>
<u>3. Distribution Rehabilitation</u>			
Tjirebon	5,965		3,488
<u>4. Engineering</u>			
	1,697		306
<u>5. Training/Library</u>			
	115		17
<u>6. Maintenance Equipment</u>			
	575		-
<u>7. Communication Equipment</u>			
	69		-
T o t a l	<u>17,200</u>		<u>5,800</u>

1/ Costs have been escalated at 4% per annum through project completion and contain a contingency of 15%.

Schedule of Disbursements  
((\$000))

<u>Year</u>	<u>U.S. \$</u>	<u>Local Currency Equivalent</u>	<u>Total</u>
1973	300	100	400
1974	1,100	400	1,500
1975	5,500	1,700	7,200
1976	8,200	2,800	11,000
1977	2,100	800	2,900
	<u>17,200</u>	<u>5,800</u>	<u>23,000</u>

C. Financial Plan

1. Arrangements for Provision of Funds

The proposed loan from AID will provide for the estimated foreign exchange costs. All local currency requirements for the project will be met through the GOI National Development Budget. A plan for provision of local currency funds from the National Development Budget will be prepared, which will specify annual levels of support required to permit PLN to timely meet its local currency obligations including creation of a revolving fund. PLN will establish a revolving fund in rupiahs sufficient to cover local currency costs of construction for a six month period, which shall be replenished at least quarterly. The fund will be used for project implementation and for meeting operating needs for the project during the interim period, including purchase of spare parts and necessary inventory.

2. Second Step Loan Terms

AID loan proceeds will be provided by the GOI to PLN on terms to be agreed upon and approved by AID. Because of the current financial position of PLN (see below), it would be difficult to determine appropriate second-step loan terms or to demonstrate that PLN has the capacity to meet such terms. Four previous loans, AID Loans 497-H-019, 022, 024 and 025 all establish precedents for this approach. The borrower, beneficiary, and conditions are similar with respect to all of the loans. A study leading toward the financial reorganization of PLN is being financed by the IDA and is presently underway. After the recommendations of the management consultants for financial reorganization, SOFRELEC, are complete, and not later than May 22, 1973, the financial condition of PLN will be reviewed and second-step loan terms for the AID loans set to best suit the revised financial structure.

D. Financial Condition of PLN

Past PLN accounting procedures have been inadequate to prepare meaningful financial statements reflecting the current financial structure and condition of PLN. Although PLN has issued detailed and uniform accounting procedures, they were not consistently followed by the various regional offices either because complete information was unavailable, or personnel were not qualified or trained to maintain proper accounts. Past financial statements prepared by PLN did not reflect fixed assets acquired from predecessor Dutch companies, assets purchased or constructed as part of the Government's projects or which had been financed by Government contributions. The assets also were not adjusted for inflation, and accounts made no provision for uncollectible receivables.

With the assistance of IDA financed consultants, PLN has completed financial statements for the combined operations of PLN through CY 1970. An estimated statement has also been prepared for CY 1971. These statements incorporate assets in service in PLN as revalued in CY 1971.

On the basis of the revalued assets and agreed recapitalization plan, IDA and PLN have prepared preliminary proforma statements for PLN's operations through 1980. These statements are included as Annex X. The statements should be viewed as indicative only in view of the wide range of assumptions upon which they are based as listed in Annex IX.

The proforma statements, however, indicate that PLN should, during the period 1972 through 1976, cover operating costs including depreciation if the projected tariff increases are achieved as anticipated. By 1978 PLN should be showing a net profit and generating substantial cash availabilities for expansion programs.

It should be noted that all existing government advances, the \$55 million of IDA credits, and GOI local currency inputs are converted to equity at the outset. External loans, including future IDA credits and all AID's loans will be debt.

## V. Economic Evaluation

### A. Forecast for Growth in Electric Power Demand in Region XI

#### 1. Projected Population Growth in West Java

The Charles T. Main analysis of the economy of West Java (Electric Power and Economic Development Forecasts) was prepared while the 1971 census was being taken. To determine population growth rates they used the 1961 census data and a 1970 household census taken in connection with the national election. Although the 1971 census has not been analyzed in detail, sufficient information is available to indicate that the population levels and growth rates used in the C.T. Main study are lower than actuality. This downward bias makes their population projections conservative, but since complete new data are not available, their projections have not been revised. In addition, any upward revision in projected future electric power consumption would only further increase the already adequate economic justification for the project.

#### 2. Projected Economic Growth in West Java

Although historical economic statistics in Indonesia are at best sketchy, available data indicates that West Java had a real economic annual growth rate of 6.3% during the period 1967-69. C.T. Main has made three projections of economic growth in West Java for the periods 1969-80 and 1980-90. These correspond to a high, a low, and a most probable, middle projection. These projections and the sectorial details for the middle estimate are shown below. We consider the most probable middle estimates to be reasonable and adequately supported and have used them in the subsequent analysis.

NET REGIONAL PRODUCT - WEST JAVA  
(MILLION RP AT CONSTANT 1969 PRICES)

	1969	% Annual Increase	1980	% Annual Increase	1990
Agriculture	158.8	4.5	257.7	3.5	363.4
Industry	18.2	11.0	57.5	9.0	136.1
Wholesale & Retail Trade	31.8	9.0	82.2	9.0	194.7
Communications and Transportation	2.6	10.0	7.5	10.0	19.3
Building Construction	9.1	12.0	31.7	12.0	98.5
Housing	7.2	3.0	9.9	3.0	13.2
Services	29.2	5.0	49.9	7.0	98.1
Government	4.8	15.0	22.5	8.0	48.5
Public Utilities	1.7	14.0	7.4	11.0	20.9
Banking & Finance	.3	8.0	.8	14.0	3.0
Mining			9.6	5.0	15.7
Net Regional Product	263.9	6.7	536.6	6.5	1,011.6
High Estimate		8.6		9.3	
Low Estimate		3.7		3.8	

### 3. Projected Load Growth in Region XI

In the last ten years, the increase in total gross production for Region XI was as follows:

	Millions Kwh	Peak MW
1960	214.7	36
1970	364.3	60.9
Increase, %/year	5.43	5.40

Annual increases during this period were erratic, reflecting curtailment due to poor hydro conditions in 1963 and lower economic activity due to political uncertainty in 1966 and 1967. However, the generally low rate of load growth was to a considerable extent due to PLN's inability to meet the demand of all classes of consumers for reliable power at reasonable rates. Distribution systems became overloaded, resulting in voltage problems, high losses, and frequent service interruptions. Residential and commercial load growths were severely restricted by high connection costs and capacity changes and by high, repressive rate structures. Industrial plants were required to reduce their load on PLN to zero between 6 P.M. and midnight, with several rate

penalties for those unable to do so. Many larger industrial plants chose to depend partially or entirely on self generation. (The current amount of which is estimated at 58 MW.) Despite the poor quality and high cost of PLN service, the waiting lists of applicants for new or added service continued to increase and PLN Region XI has found it necessary to defer granting these requests for reasons that are chiefly financial.

These conditions, which continue to prevail, have resulted in load suppression; the potential load on PLN is much higher than the load it actually supplies. Our forecast assumes that the restrictive conditions previously described will be corrected by that time, and that new promotional type rate structures will have been designed by SOFRALEC and activated by the Directorate. In 1975, or as soon thereafter as the first stage of the new power system is completed, Region XI load will increase rapidly to realize most of its potential, the balance to be absorbed in later years. We believe that this abrupt load increase is the most realistic outlook, and that it would be most unwise to assume that PLN's load potential would be realized at a more moderate rate. A detailed presentation of the projected growth in power consumption in Region XI is presented in Annex XI.

## B. Economic Analysis of Bandung-Tjirebon Transmission, Substations and Distribution Investments

### 1. Analysis of Alternative Investments

The Tjirebon area load amounts to about 10 MW at present and is forecast to grow to about 100 MW by 1990. An economic analysis was made of the following alternative methods of supplying this increased power to the area. (See Annex XII)

Alternative 1. Install local generation to supplement present supply facilities.

Alternative 2. Construct a 150 KV transmission line and supply the area from central steam.

The results of this analysis show that the integrated development is less expensive than insular development for discount rates of up to about 30%.

### 2. Calculation of Internal Rate of Return

In addition to the above analysis of alternatives, an internal rate of return was calculated to determine the economic viability of the

transmission extension to Tjirebon. Benefits result from increased energy sales made possible by the project. For the purpose of this analysis it is assumed that about 35 GWH can be supplied over existing facilities and that revenues attributable to the 150 KV line extension and distribution investment correspond to the difference between total energy requirements in the Tjirebon area and the 35 GWH. These revenues essentially represent the benefits of the recommended investments. The incremental costs involved include the cost of generating the incremental energy, the investment for transmission and substation capacity, the investments in distribution facilities, and related maintenance expenses. The cost of energy generation is based on the schedule of steam generation plants recommended by C.T. Main.

The benefits of the project are the economic value of the increased power use. As has been discussed elsewhere in the loan paper, the current electricity rates (average rate of Rp. 8/KWH or 1.9¢/KWH) are well below the real economic value of electricity in Indonesia. Indicative of this are the substantial waiting lists of customers of all categories desiring electricity and the large amount of high price captive generation in the area. SOPRELEC will complete its analysis and present its recommendations for rate structure revisions in mid-1972. Analysis undertaken to date indicates that the average charge per KWH should increase between 50% to 100% to more accurately reflect the real economic value of electricity. This would correspond to average rates of 2.9¢/KWH and 3.6¢/KWH.

The results of the above calculations indicate that the project has an internal rate of return of 17% for sales at 2.5¢/KWH; 20% for sales at 3.0¢/KWH; and 22.5% for sales at 3.5¢/KWH. These rates of return are in excess of the cost of capital in Indonesia and show that the proposed project is fully justified economically.

### C. Economic Analysis of Tjirebon-Tegal Transmission and Substation Investment

A 150 KV transmission link between Tjirebon and Tegal would provide an interconnection between West Java and Central Java and result in overall economies for the interconnected system. These economies will accrue from fuel savings and from reductions in overall reserve requirements. Economy energy interchanges between West Java and Central Java would result in savings due to the lower energy costs in West Java.

The investment required to establish the interconnection comprises 45 miles of double circuit 150 KV line at a total cost of \$2,630,000 (1972 prices), related substation terminal costs of Tegal amounting to \$288,000, plus related engineering for a total non-escayated cost of \$3,280,000. The economic benefits of the line are both from energy savings and a reduction in reserves.

Energy savings were evaluated for a range of assumed transfers up to 50 average MW and using production costing studies made for both the West Java and Central Java systems showed that the average cost of energy production in West Java is about \$.9/MWH less costly than that in Central Java.

Savings from reduction in reserves were computed on the assumption that reserve requirements are provided by gas turbines and that investment costs for this type of generation are \$95/KW. The reduction in reserve requirements is assumed to occur in the years 1980 and 1985 with 25 MW reduction in each of these two years.

The benefit/cost ratio was calculated for varying economy interchange. The results of the analysis show that the internal rate of return is higher than the opportunity cost of capital for moderate economy interchanges. For an average MW transfer of 20 MW, the internal rate of return is about 15%.

#### D. Benefits from Central Java Power Supply

The economic analysis in para C above assumes the availability of additional thermal generation in the West Java area for transmission to Central Java.

In all probability, the transmission links between Bandung and Tjirebon and Tjirebon and Tegal will be completed one to two years before the new West Java thermal generation is available. Correspondingly, the Bandung-Tjirebon-Tegal transmission link will in these early years be transmitting excess power from Central Java (Semarang Steam) into West Java for primary power supply to the city of Tjirebon and supplemental supply to the Bandung area. The Bandung area and the Tjirebon area constitute respectively 65% and 16% or a total of 81% of the total load requirements in region XI. (62 mw peak in 1970)

The availability of supplemental power from the Central Java area to Bandung, will allow displacement of some existing hydro power in West Java to supply the Djakarta load until the new Djakarta thermal generation is completed. Even with this supplemental supply, interim gas turbine supply may be required for Djakarta.

Additional reserves to PLN from this transfer of power during the initial years will provide a satisfactory return of the transmission investment until the West Java generation is on stream.

## VI. Indonesia's Economic Performance.

The latest IMF Report on Indonesia (SM/72/70 of March 24, 1972) entitled "Indonesia: Recent Economic Developments" sets forth the Fund's assessment of the Indonesian economy and economic progress. The Fund finds that Indonesia's economic progress continues to be satisfactory. This report was reviewed at the April 1972 IGGI meeting in Amsterdam by the multinational and bilateral lenders, including the U.S., who endorsed the conclusions of the Fund that economic performance is satisfactory. As a further indication of their confidence in the Indonesian economy, the IGGI donors at the April 1972 meeting pledged to provide assistance totaling \$923 million during GOI fiscal year 1972/73. This amount exceeds by \$53 million the amount requested by the GOI and confirmed by the World Bank as being the minimum amount required for the next fiscal year. Excluding food aid, every donor either matched or increased his previous year's pledge in terms of its own currency. Finally, the GOI continues to be in good standing under the IMF Standby agreement.

The following sets forth a summary of the IMF's economic appraisal of the Indonesian economy:

### A. General Economic Developments.

The economy appears to have grown during 1971 at around 6-7% in terms of GDP, while price stability was also maintained. Production of rice, the basic commodity, increased substantially for the fourth successive year. In the industrial sector, especially in textiles, there was further substantial growth. Private foreign investment is accelerating, and the rehabilitation and expansion of domestic industrial growth from the present small base is continuing.

Nevertheless, only the beginnings of progress have been made and the problems which remain to be tackled are enormous. Progress is being made in formulating concrete plans, programs and projects and in arranging and organizing for the execution of such plans, so that deficiencies in planning and preparation, though pronounced, are not at the moment the most pressing constraints. The more immediate constraint at this point appears to be in the limited material and financial resources available. The pressure on these resources in the current year is evidenced by the continuing high rates of interest which prevail in the economy and by necessity for a devaluation in August and a further devaluation (pegged to dollar devaluation) in December. These were designed in part as a precaution in the face of international uncertainties and in part to restrain import demand following a loss in foreign exchange reserves. In the

coming year there is prospect of a significant increment in both foreign exchange earnings and government revenues as a result principally of sharp increases in oil production and in the volume and value of oil exports. The demand for resources is so great, however, that this increment will moderate but not reduce the need for aid to supplement the domestic resources available for private enterprise and government investment and the improvement of essential government services.

### B. Price Policy.

The objectives of the government's stabilization program now appear to have been achieved and, as measured by the Djakarta cost-of-living index, the rate of price increase has decreased from the already low levels (for Indonesia) of 1969 and 1970 to only 2.4% in 1971.

The policy of subsidizing a number of basic commodities, including a number largely imported with program aid, e.g., raw cotton, fertilizer and wheat flour, has contributed to the stability of prices of basic consumer goods as has the policy of stabilizing, and in a sense, subsidizing the price of petroleum products, one of the few other major commodities for which the prices are administered. Administered prices of public utility services, including electric power and railroad transportation, have also been kept stable in some cases with the resultant operating losses to service entities reflected either in cash losses or inadequate maintenance expenditures. In these instances, however, it may be argued that the consumer is merely being spared the cost of inefficiencies which are in the process of being remedied. One of the most important prices in the economy, the rate of interest, has also been stabilized at a high level, and in real terms has increased.

### C. Budgetary and Fiscal Policy.

Government routine revenues in 1971/72 increased by 23% over the previous year. A larger increase, 31% is projected for 1972/73. The largest item in this increase would be from taxes on expected higher earnings of foreign oil companies. Other revenues are nevertheless planned to increase by 10%. The increment of Rp 150 billion (\$360 million) will finance increases in salaries and material expenditures in the ordinary budget, while still allowing for a doubling to Rp 130 billion in the size of the surplus available for the development budget. Together with a slightly smaller amount of counterpart funds generated by program aid than in 1971/72

(an estimated Rp 95 billion instead of the Rp 97 billion forecast for this year) this will provide for a rupiah development budget 65% larger than that for 1971/72 and represent an increase of Rp 123 billion over this year's resources.

Investment levels in Indonesia are still comparatively low, 13-14% of GDP at most with domestic resources, including increased liquidity, financing half of the total or less. Savings propensities appear to be low, and the financing of development programs in the public and private sectors cannot rely heavily on monetary expansion. The task of mobilizing additional development resources rests, therefore, primarily on fiscal policy. If private domestic investment is to be adequately funded, it appears likely that a larger proportion of public savings will have to be channeled to the private enterprise sector. An increased allocation for this sector is, in fact, provided for in next year's development budget.

#### D. Balance of Payments.

The balance of payments performance this year and the prospects for 1972/73 both show the impact of recent and continuing adjustments in the international monetary system. The devaluation on August 23, 1971, and the further adjustment in December indicate how quickly and directly the Indonesian authorities had to respond, in the face of major new monetary developments, to external influences on the very open economy, following a moderate loss in the economy's already small foreign exchange reserves. This experience should not be repeated because the prospective increase in oil export earnings offers an opportunity to plan with some confidence for an increase in reserves of \$90 million next year. Gross reserves amounted to \$204 million on March 1, 1972 and net reserves, minus \$41 million.

Exports, with oil on a net basis, are expected to rise by 15% in 1971/72 with the prospect of a 28% increase in 1972/73. Most of this is accounted for by net oil exports which will increase by 32% in 1971/72 because of price increases during the year and 98% in 1972/73 with increased production at the higher prices now established; and by timber exports, up 60% in 1971/72 and projected to increase by 39% to \$220 million in 1972/73. For all other exports, the projections are for a decline in aggregate value in 1971/72 and modest recovery in the following year. Total (net) exports are estimated at \$1,270 million in 1972/73.

Imports of goods and services of \$1,778 million are projected for 1972/73, an increase of 5%. (1,778 includes project aid.) The

current account deficit of \$508 million would be the same as that forecast for this year. Debt payments are slightly lower, the expected increase in the private capital inflows slightly higher and the public capital inflow, at \$520 million, is higher than that forecast for 1971/72 by \$103 million because of increased project aid utilization. See generally Annex XVIII.

E. Debt Service Capacity.

Following the rescheduling arrangements for pre-1966 external debt, which culminated in April 1970 in agreement on a long-term settlement of the debts held by Western creditors and Japan, and the subsequent separate agreement on similar lines with Eastern European countries, the ratio of external debt service to exports is currently low. It will rise appreciably throughout the 1970s as grace periods expire on aid received after 1966, but should remain manageable during the decade - it is estimated at 18% in 1978 - if good export performance continues and if new aid remains available on concessional terms similar to those at present obtained from the IGGI. All aid from the IGGI donors has been given on concessional terms approximating the standards set by the DAC.

Given Indonesia's debt service capacity, we feel that AID's most concessional terms -- 40 years, including a 10-year grace period with 2% interest during the grace period and 3% thereafter, continue to be appropriate for Indonesia.

With the soft terms of the loan proposed herein, particularly the 10-year grace period, the overall rescheduling of old debts already agreed upon, and the potential for Indonesia's export expansion, particularly oil and timber, the repayment prospects for the proposed \$17.2 million loan appear reasonable. Our assessment of Indonesia's repayment prospects is shared by other IGGI donors who are also making loans for such project activities.

Indonesia's debt service requirements as of December 31, 1971 appear in Annex XIX.

VII. Loan Administration.

A. Timetable for Implementation. A more detailed schematic table appears in Annex VII.

Loan Authorization	June 25, 1972
Loan Agreement Negotiated and Signed	September 15, 1972
Conditions Precedent to Opening Letters of Commitment Met	February 1, 1973
Project Engineer Selected and Contract Negotiated	February 1, 1973
Invitation for Bid for Construction Contract Approved	August 1, 1974
Conditions Precedent to Construction Met and Construction Contract Approved	January 1, 1975
Construction Work Completed	April 1, 1977
Engineering Supervisory Services Completed	July 1, 1977

B. Project Execution.

1. Project Execution Plan. The project will encompass: a) detailed design; b) technical assistance and training; c) construction; and d) supervision.

The project engineer will be responsible for the final design of all systems, preparation of bills of materials and specifications for all equipment and IFBs for procurement. He will be responsible for definition of construction standards and material specifications and warranties, preparation of the IFB for the construction contract, evaluation of bids, recommendations for award for the construction contract, supervision of construction and final inspection, testing and acceptance of completed work. See Annex VIII.

The project engineer will also be responsible for training of personnel made available by PLN and assigned full time to this project and will be responsible for planning of participant training for selected personnel from the PLN team.

The construction contractor will arrange for timely performance of construction as scheduled by the project engineer in accordance with standards established for the project and will train and schedule work crews and maintenance personnel assignments during the course of the project.

2. Coordination. Project execution must be a coordinated and scheduled effort on the part of the project engineer, construction contractor, PLN and USAID.

3. Terminal Dates for Conditions Precedent, for Disbursing Authorizations and for Disbursements.

a. Conditions precedent to opening letters of commitment will be met within six months after signing the loan agreement.

b. Conditions precedent to construction will be met within twenty-seven months after signing the loan agreement.

c. The terminal date for requests for new disbursing authorizations will be thirty-nine months after signing the loan agreement. This will permit one year after completion of all conditions precedent for opening letters of commitment.

d. Terminal date for disbursement will be seventy-five months after signing of the loan agreement. This provides twelve months for opening the letter of credit for construction services, thirty months for construction and completion of engineering services, and six months for final accounting and final disbursement.

C. Impact on U.S. Balance of Payments. Goods and services financed by this loan will be obtained from AID Geographic Code 941 (Selected Free World) and it is expected the U.S. will provide a substantial amount of these goods and services, with corresponding follow-up orders of spare parts, equipment and materials resulting in additional U.S. exports on a commercial basis.

D. Use of U.S. Government Excess Property. It is not expected that U.S. Government Excess Property can be used for this project in view of the detailed specifications required for the project components.

VIII. Conditions Precedent and Covenants.

A. Conditions Precedent to Opening Letters of Commitment.

1. An opinion of the Minister of Justice of the GOI that the loan agreement has been duly authorized or ratified by, and executed on behalf of the GOI and is a valid and legally binding obligation in accordance with its terms.

2. An opinion of the principal legal officer of PLN, or of other legal counsel satisfactory to AID, that the loan agreement has been duly authorized or ratified by, and executed on behalf of PLN and is a valid and legally binding obligation in accordance with its terms.

3. The names of the persons who will act as the representatives of the GOI and PLN, together with evidence of their authority and a specimen signature of each such person.

4. Evidence that the GOI and PLN are respectively in compliance with terms of the covenants under IDA Credit Agreement No. 165 IND dated 29 October 1969 and Project Agreement executed in connection therewith.

5. A draft contract between PLN and an engineering firm or individual(s). The selection of said firm and terms of the contract shall be in accordance with AID Capital Projects Guidelines for engineering services.

B. Conditions Precedent to Construction Financing.

1. A plan for implementation of the project, including designation of basic system standards for the distribution systems. Said system standards shall include standards for service wiring and voltage level of primary and secondary lines.

2. Evidence that rights of way, rights of entry, real property leases or acquisitions necessary for project implementation and system operation have been obtained or plans made and financing provided therefor.

3. Evidence of the establishment by PLN of a reserve fund in Indonesian currency equal to the total Indonesian currency costs of the project for the upcoming six months as estimated by the project engineer, said funds to be replenished to the appropriate level quarterly or more often in the event actual Indonesian currency expenditures substantially exceed said estimates, or such lesser amount as AID shall agree in writing, which shall be used for the execution of the project until the project is completed.

4. A contract or contracts for construction services between PLN and a firm or firms. The selection of said firms and the terms of said contracts shall be in accordance with AID Capital Projects Guidelines for construction services.

C. GOI Covenants.

1. Perform its obligations concerning Beneficiary's organization, authority, structure, and operations as set forth in existing AID loan agreements and existing and future IDA credit and related project agreements.

2. Make available to PLN over and above the proceeds of the loan foreign exchange to the extent necessary to purchase third country spare and replacement parts for maintenance, repair and operation of existing facilities until the project is completed.

3. Make available to PLN any Indonesian currency necessary for implementation and completion of the project and for operation up to completion of the project.

4. From completion of the project until such time as PLN may become an autonomous, non budget-supported entity, assist PLN in obtaining funds sufficient to meet the operating and maintenance expenses necessary for the effective utilization of the project.

5. Assist PLN to carry out the project, or cause the project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative, and management practices.

D. PLN Covenants.

1. Perform its obligations concerning its organization, authority, structure and operations as set forth in existing AID loan agreements and existing and future IDA credit and related project agreements.

2. Replenish the Indonesian currency reserve fund whenever necessary to maintain said fund at the required level.

3. Establish connection fees for all future service within the project area that will encourage increased consumption of electricity.

4. Carry out the project, or cause the project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative and management practices.

5. Submit all plans, specifications, contracts, schedules, and engineering, construction or procurement arrangements for the project, and all modifications thereof, to AID for its approval prior to implementation, and carry out the project, or cause the project to be carried out, in conformity therewith.

6. Adequately maintain, repair and operate, in accordance with sound commercial practices, all Eligible Items and any facilities resulting from their use.

INDONESIA

IGGI Donor Loans to Electric Power Sector

Country	Amount	Project	Location
A. Other Donors	(US \$000)		
Japan	5,792	Hydro Power Riam Kanan Dam	South Kalimantan
"	4,800	Power	
"	10,700	Hydro Power Karang Kates I & II	East Java
"	1,000	Hydro Power Kali Konto	East Java
"	12,652	Steam Plant Priok III & IV	Djakarta
"	8,090	Transmission & Distribution	East Java
"	800	Steam Plant Asahan (Study)	North Sumatera
"	1,179	Bandjarmasin Distribution	South Kalimantan
"	3,590	Palembang Transmission & Distribution	South Sumatera
Japan	Total	<u>48,603</u>	
IDA/IBRD	15,000	Djakarta Distribution & PLN Management	Djakarta
"	350	Power Survey & Feasibility Study	West Java
IDA/IBRD	Total	<u>15,350</u>	

Source: PLN Central  
Djakarta April 1972

AID-DLC/P-1036

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ANNEX I, Page 1 of 3

Country	Amount	Project	Location
Germany - FRG	2,600	Transmission, Substations, Diesel Generation	Central Java
"	2,732	"	"
"	<u>5,464</u>	"	"
FRG	Total		
	10,796		
Netherlands	1,540	Diesel Generation & Distribution	Misc.
"	2,500	"	"
"	1,496	"	"
Netherlands	Total		
	<u>5,536</u>		
United Kingdom	360	Microhydro	Misc.
"			
United Kingdom	Total		
	<u>360</u>		
France	560	Microhydro	West Java
"	500	"	"
"	3,750	Transmission & Distribution	"
"	4,100	"	"
"	<u>4,100</u>	"	"
France	Total		
	13,010		
ADB	7,100	Generation, Transmission & Distribution	West Sumatera
"	4,600	" " "	West Kalimantan
ADB	Total		
	<u>11,700</u>		
Denmark	880	Diesel Generation	Mic.
Denmark	Total		
	<u>880</u>		
Total Other Donor Loans			
	<u><u>US\$106,235</u></u>		

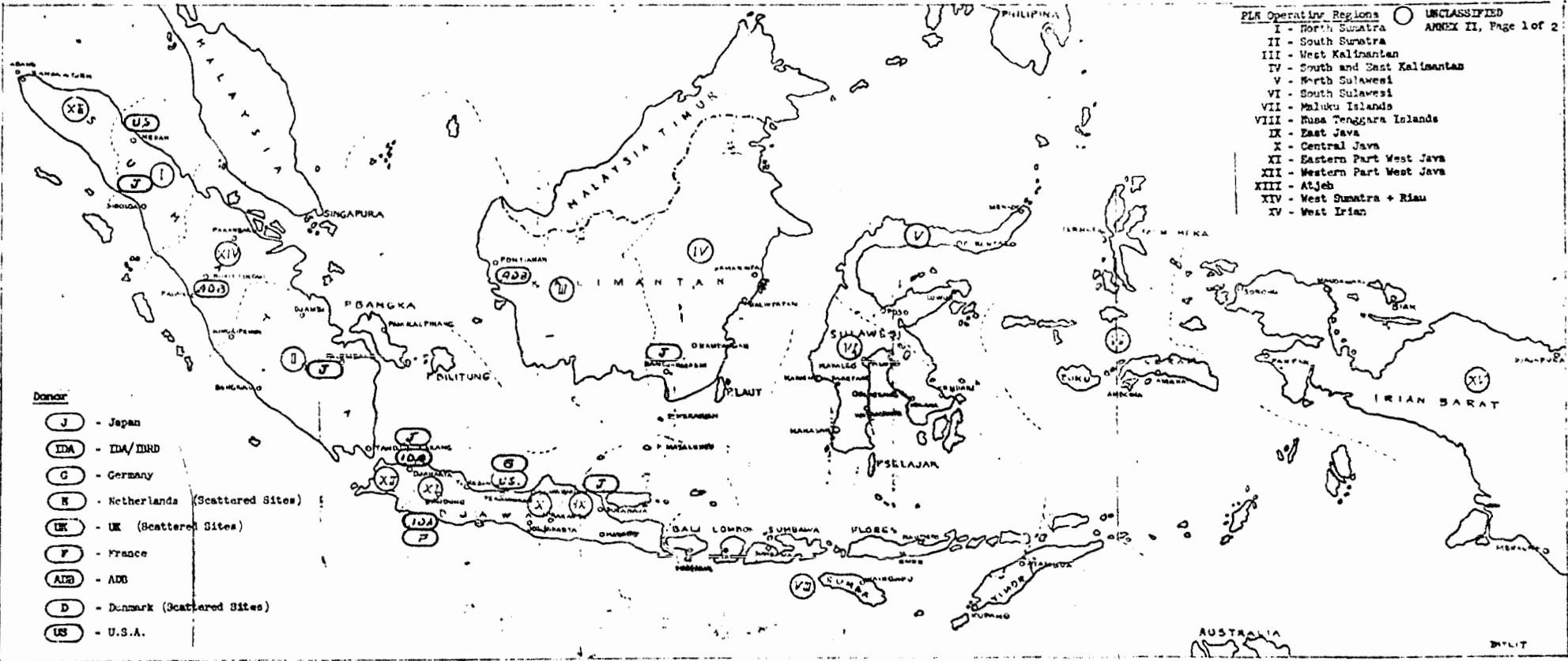
Country	Amount	Project	Location
B. <u>USA/AID</u> *	(US\$000)		
USA/AID	16,800	Distribution & Generation	Central Java (Tuntang)
"	21,000	Transmission & Distribution	" " (Ketenger)
"	19,700	Steam Generation	" "
"	13,800	Distribution & Generation	North Sumatra (Medan)
USA/AID	<u>Total</u>		
	71,300		

106,235 Other Donors  
 71,300 USA  
 Total IGGI Donor Loans US\$ 177,535

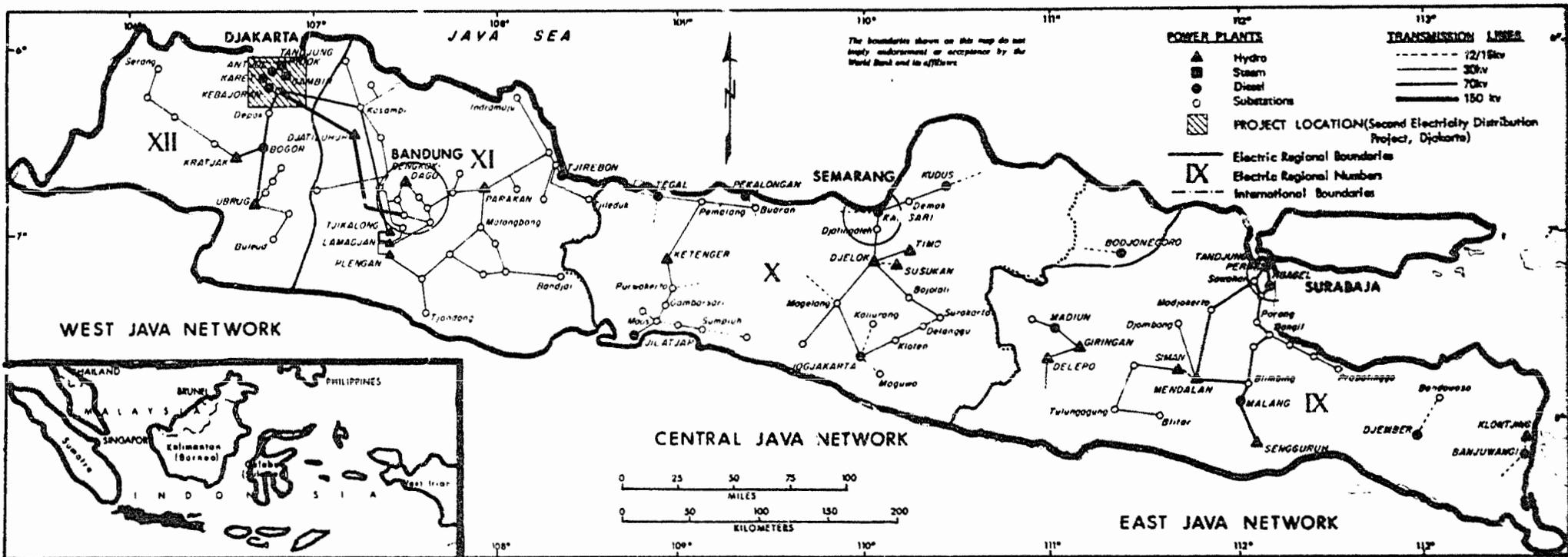
\*Excludes West Java T and D Phase I Loan, and amendments to Tuntang and Ketenger Loans. These amounts total additional \$34.3 million

- PLN Operating Regions
- I - North Sumatra
  - II - South Sumatra
  - III - West Kalimantan
  - IV - South and East Kalimantan
  - V - North Sulawesi
  - VI - South Sulawesi
  - VII - Maluku Islands
  - VIII - Nusa Tenggara Islands
  - IX - East Java
  - X - Central Java
  - XI - Eastern Part West Java
  - XII - Western Part West Java
  - XIII - Atjeh
  - XIV - West Sumatra + Riau
  - XV - West Irian
- UNCLASSIFIED  
ANNEX II, Page 1 of 2

- Donor
- J - Japan
  - IDA - IDA/IBRD
  - G - Germany
  - N - Netherlands (Scattered Sites)
  - UK - UK (Scattered Sites)
  - F - France
  - ADB - ADB
  - D - Denmark (Scattered Sites)
  - US - U.S.A.



**INDONESIA**  
**DIAGRAM OF 12KV, 30KV, 70KV, AND 150KV NETWORKS IN JAVA**  
**DECEMBER 31, 1971**



APRIL 1972

UNCLASSIFIED  
ANNEX III, Page 1 of 3

1972/1973 Indonesia Electric Power Projects

Planned Budget Support

A. Donor Assistance Related Projects

Project	US\$ equivalent (\$000)	
1. Semarang Steam Power	262,651	USA
2. Central Java Diesel Power (Gas Turbine)	218,072	USA
3. Jogjakarta Diesel Power	120,482	USA
4. Central Java Distribution	1,348,192	USA
5. North Sumatera Distribution	519,277	USA
6. Priok III & IV Steam Power	1,807,229	Japan
7. Karangates/Seloredjo Hydro Power	1,927,711	Japan
8. Asahan Hydro Power	361,446	Japan
9. Riam Kanan Hydro Power	1,927,711	Japan
10. East Java Diesel Power	53,012	Japan
11. East Java Transmission	1,686,747	Japan
12. East Java Distribution	860,241	Japan
13. Karangates III Hydro Power	481,928	Japan
14. Batang Agam Hydro Power	1,927,711	ADB
15. West Sumatera Diesel Power	54,217	ADB
16. West Kalimantan Diesel Generation	253,012	ADB
17. West Sumatera Distribution	124,096	ADB
18. West Kalimantan Distribution	216,867	ADB
19. West Java Transmission	1,686,747	France

SOURCE: PLN Central for Project Identification and Budget Figures -October 1971.  
USAID/Indonesia indicating where possible those projects which appear  
Donor Assistance related - listed under heading A above.

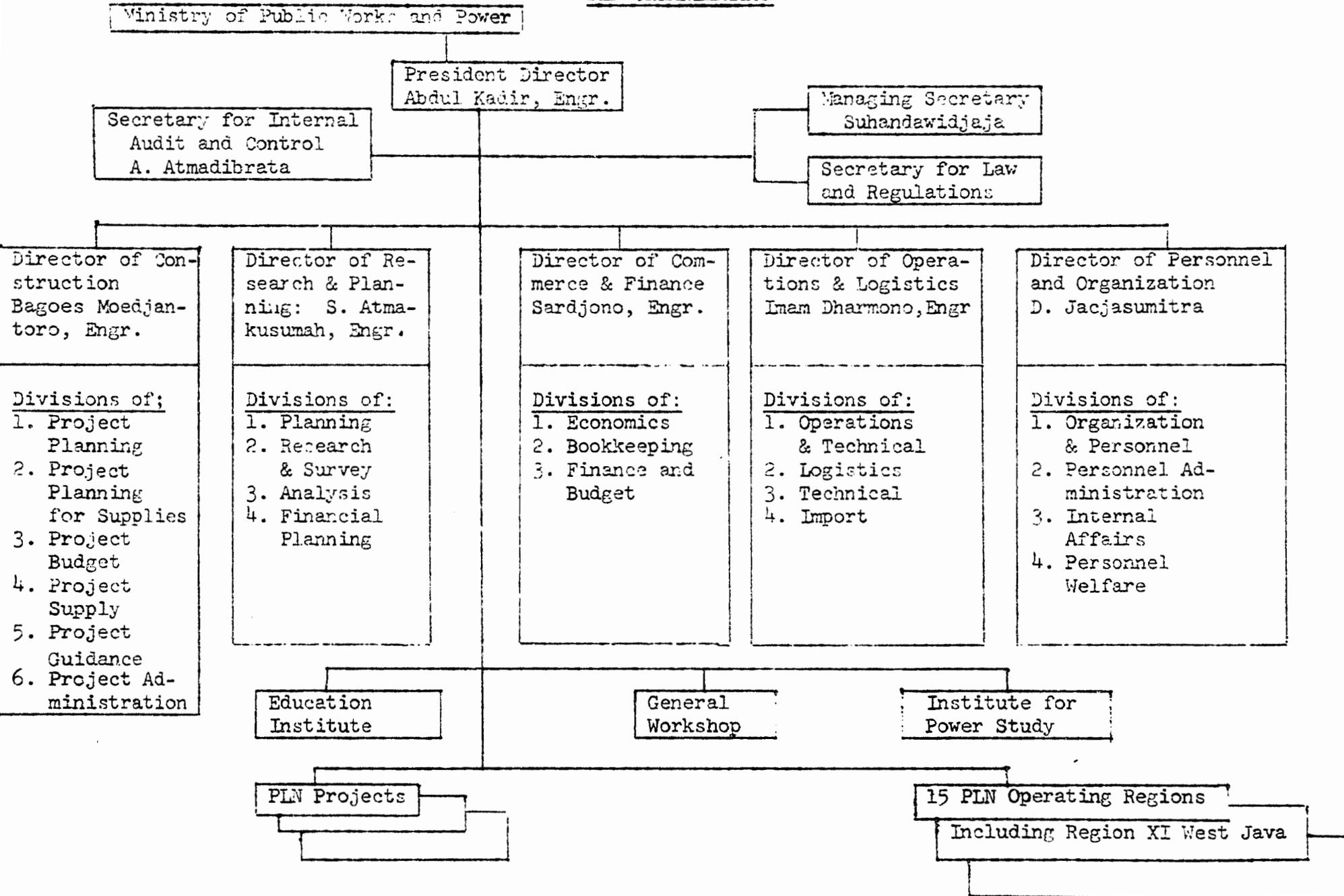
Project	US\$ equivalent (\$000)	
20. Central Java Transmission	2,376,241	FRG (Germany)
21. Central Java Diesel Power	518,747	FRG
22. Djakarta Raya Distribution	2,530,120	IDA/ <del>IBRD</del>
23. Management & Engineering Services	240,964	IDA/IBRD
<hr/>		
Total Donor Assistance Related Projects	21,503,421	

B. PLN Separate Projects

24. Electric Power Survey	289,157	
25. Power Research Institute	230,494	
26. Palembang Steam Power	1,224,096	
27. Makassar Steam Power	366,265	
28. Garung Hydro Power	602,410	
29. Tonsea Lama Hydro Power	518,072	
30. Microhydro Power	361,446	
31. Banda Atjeh Diesel Power	57,831	
32. North Sumatera Diesel Power	313,253	
33. Riau Hydro Power	60,241	
34. Djambi Diesel Power	132,530	
35. Central Kalimantan Diesel Power	12,048	
36. East Kalimantan Diesel Power	96,386	
37. North Sulawesi Diesel Power	48,193	
38. Maluku Diesel Power	107,229	
39. Djambi Diesel Power	51,518	
40. West Nusatenggara Diesel Power	2,651	
41. East Nusatenggara Diesel Power	9,036	

Project	US\$ equivalent (\$000)
42. North Sumatera Transmission	122,892
43. West Java Distribution	756,627
44. Banda Atjeh Distribution	62,651
45. Riau Distribution	146,988
46. Djambi Distribution	122,892
47. South Sumatera Distribution	180,723
48. Lampung Distribution	84,337
49. Central Kalimantan Distribution	36,145
50. South Kalimantan Distribution	221,687
51. East Kalimantan Distribution	161,446
52. North Sulawesi Distribution	216,867
53. Central Sulawesi Distribution	62,651
54. South Sulawesi Distribution	180,723
55. Southeast Sulawesi Distribution	48,193
56. Maluku Distribution	132,530
57. Bali Distribution	134,988
58. West Nusatenggara Distribution	21,084
59. East Nusatenggara Distribution	51,807
60. Bengkulu Diesel Power	15,663
61. Southeast Sulawesi Diesel Power	12,048
62. South Sulawesi Diesel Power	12,048
63. Bengkulu Distribution	161,446
64. Power Equipment	566,265
65. Survey & General Planning	<u>170,602</u>
Total PLN Separate Projects	8,166,159
Total All Projects	<u>US\$29,669,580</u>

PLN ORGANIZATION



SUMMARY OF PROPOSED CHARTER FOR PLN

1. The Charter is in the form of a Government Regulation decreed by the President of the Republic. It will be promulgated in the State Gazette.
2. The main purpose of the charter is to review the statutes of PLN as established by Government Regulations No. 19 (1965), No. 11 (1969) and No. 30 (1970) and to replace them with the new regulation.
3. The object of PLN is stated to be "to participate in the development of the economy in line with the policy of the Government and to carry out activities in the whole field of electricity to promote the standard of living in the Indonesian Society."
4. It is to be responsible for:
  - "(a) production, transmission and distribution of power;
  - (b) planning and construction of power facilities;
  - (c) operation and maintenance of power facilities;
  - (d) provision of services in the field of electricity",and it will for these purposes establish technical regulations.
5. The enterprise will have exclusive rights and responsibilities for generation, transmission and distribution of electric energy in Indonesia. It is expected to follow sound commercial and industrial practices in carrying out these responsibilities. It will also be responsible for construction of new generating plant and power networks including procurement according to sound commercial and industrial practice.
6. Private generation plants will be permitted to the extent necessary to satisfy the owner's requirements. They will, however, be required to be registered with the enterprise and conform with any imposed conditions of operation. Plants and systems existing at the time the regulation is enacted are exempted from registration. Generation in excess of the owner's needs may be authorized but the enterprise may also permit or impose obligations to distribute power to prospective consumers in the neighborhood.
7. The powers of the enterprise enable it to:
  - "(a) acquire and own land;
  - (b) have access to thoroughfares not for public use;
  - (c) enter public or private property and/or occupy it temporarily;
  - (d) install lines above or under public or private properties;

- (e) open trenches in both public and private roads;
- (f) obtain all facilities necessary to assure a proper, safe and efficient performance of its duties."

8. The capital of PLN will be State property and initially will be equal to the net value of assets owned by the enterprise at the time the Government Regulation is issued. This value will be determined by the Minister of Finance. Revaluation of assets will be permitted from time to time.

9. The enterprise may acquire funds by the issue of bonds or debentures.

10. Basic tariff rates will be proposed by the Board of Directors to the Minister who will obtain the approval of the President. Provision will exist to change these rates without the President's approval to allow for changes in fuel costs and wage rates. The basic rates will be sufficient to cover operating expenditures, depreciation, debt service, taxes, and to leave a surplus to meet a reasonable portion of the cost of its expansion program.

11. The Minister of Public Works and Power will decide general policy and exercise general control over the activities of the enterprise. He will be advised by an Advisory Board comprising:

- Minister of Finance
- Minister of Industry
- Chairman of Bappenas (State Minister of National Development Planning)

on all policy matters, including annual and long-range development and investment programs, revision of rates, and annual audits.

12. Management of the enterprise will be in the hands of a Board of Directors consisting of a President responsible to the Minister and at least 2 Directors responsible to the President. The Board under the general authority, policy and guidance of the Minister will perform all basic management functions. Members of the Board are appointed by the President on the Minister's recommendations for a maximum term of 5 years -- they may be re-appointed.

13. The Directorate General of State Finance Control audits the annual accounts. All personnel for money, security and materials of the enterprise are accountable to the Financial Control Body.

14. The balance of net profit remaining after meeting Corporation taxes, necessary provisions and reserves may be distributed:

- 55% to Development Funds
- 20% to General Reserve but not exceeding the capital of the enterprise
- 25% to various employee benefits determined by the Minister.

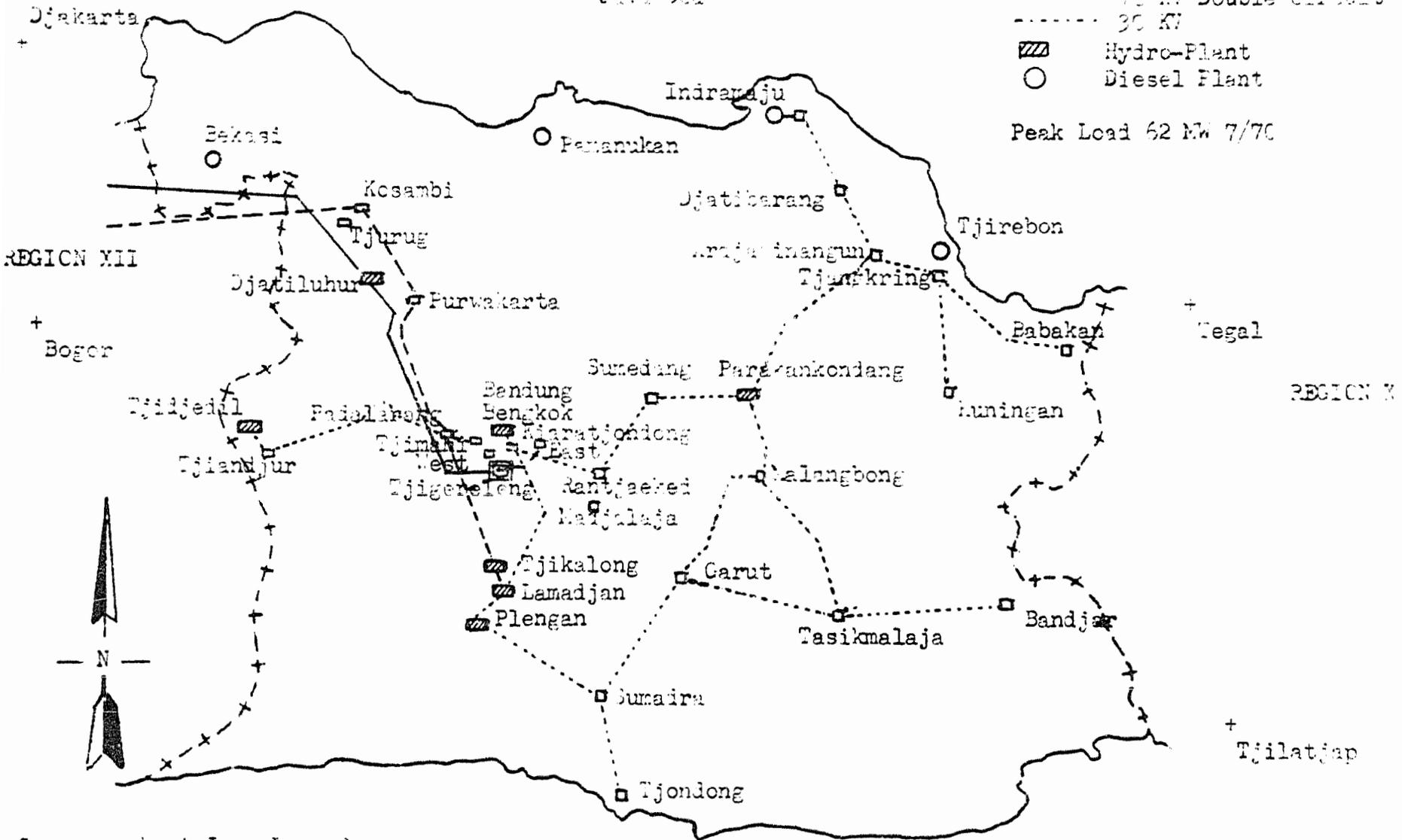
REGION XI

Java Sea

LEGEND

- 150 KV Double circuit
- - - 70 KV Double circuit
- ..... 30 KV
- ▨ Hydro-Plant
- Diesel Plant

Peak Load 62 Mw 7/70



Source: West Java Long Range Planning Study by Chas. T. Main International Inc. Draft final report March 1972

Indian Ocean

INSTALLED GENERATING CAPACITY  
PLN REGION XI

<u>Plant Name</u>	<u>Unit No.</u>	<u>Capacity KVA/KW</u>	<u>Voltage</u>	<u>Manufacturer</u>	<u>Initial Year of Operation</u>
PLENGAN	1	1500/1050	6300	G.E.C.	1922
	2	1500/1050	6300	G.E.C.	1922
	3	1500/1050	6300	G.E.C.	1922
	4	2500/2000	6300	S.S.W.	1962
LAMADJAN	1	8000/6400	6300	Smit Slikkerveer	1924
	2	8000/6400	6300	Smit Slikkerveer	1924
	3	8000/6400	6300	Heemaf Hengelo	1935
TJIKALONG	1	8000/6400	6300	Alsthom France	1960
	2	8000/6400	6300	Alsthom France	1960
	3	8000/6400	6300	Alsthom France	1960
BENGKOK/DAGO	1	1500/1050	6300	G.E.C.	1923
	2	1500/1050	6300	G.E.C.	1923
	3	1500/1050	6300	G.E.C.	1923
	4	1000/ 700	6300	Smit Slikkerveer	1923
PARAKAN	1	3200/2500	6300	Smit Slikkerveer	1955
	2	3200/2500	6300	Smit Slikkerveer	1955
	3	3200/2469	6300	G.E.	1955
	4	3200/2469	6300	G.E.	1955
TJIDJEDIL	1	174/ 122	6300	S.S.W.	1923
	2	174/ 122	6300	S.S.W.	1923
	3	220/ 154	6300	S.S.W.	1923
	4	220/ 154	6300	S.S.W.	1931
KEBONBARU	1	1130/ 900	6400	Heemaf Hengelo	1939
	2	550/ 380	6000	Oerlikon	1921
	3	600/ 320	6000	Smit Slikkerveer	1926
	4	600/ 320	6000	Smit Slikkerveer	1926
INDRAMAJU	1	210/ 168	6000	A.E.G. Berlin	29/8/1930
	2	210/ 168	6000	A.E.G. Berlin	29/8/1930
BEKASI	1	30/ 24	230/133	Oerlikon	1961
	2	30/ 24	230/133	Oerlikon	1961
PAMANUKAN	1	103.7/max	120/208	I:H. USA	1961
	2	103.7/max	120/208	I:H. USA	1961

150 KV Transmission	1st. Year	2nd. Year	3rd. Year	4th. Year					
	0	6	12	18	24	30	36	42	48
1. Criteria	[Bar from 0 to 6]								
2. Survey-Row	[Bar from 0 to 12]								
3. Design	[Bar from 0 to 12]								
4. Specifications	[Bar from 0 to 6]								
5. Prequalifications	[Bar from 6 to 12]								
6. Evaluation-Issue IFB'S	[Bar from 18 to 24]								
7. Evaluate Bids	[Bar from 24 to 30]								
8. Award for Material	[Bar from 30 to 36]								
9. Award for Construction	[Bar from 30 to 36]								
10. Construction	[Bar from 24 to 48]								
<u>SubStations</u>									
1. Criteria	[Bar from 0 to 6]								
2. Site Location and Survey	[Bar from 0 to 12]								
3. Design	[Bar from 0 to 12]								
4. Specifications	[Bar from 0 to 6]								
5. Prequalifications	[Bar from 6 to 12]								
6. Evaluation-Issue IFB	[Bar from 18 to 24]								
7. Evaluate Bids	[Bar from 24 to 30]								
8. Award of Contract	[Bar from 30 to 36]								
9. Construction	[Bar from 30 to 48]								
<u>Distribution</u>									
1. Criteria	[Bar from 0 to 6]								
2. Survey	[Bar from 0 to 12]								
3. Design	[Bar from 0 to 12]								
4. Specifications	[Bar from 0 to 6]								
5. Prequalifications	[Bar from 6 to 12]								
6. Evaluation-Issue IFB	[Bar from 18 to 24]								
7. Evaluate Bids	[Bar from 24 to 30]								
8. Award of Contract	[Bar from 30 to 36]								
9. Construction	[Bar from 30 to 48]								

Consultants / Credit Opened

IMPLEMENTATION SCHEDULE

PROJECT IMPLEMENTATION PLAN  
AND  
DESCRIPTION OF SERVICES

A. Consulting Engineering Services

1. Selection Procedure

The consultant will be chosen by the PLN under the procedures outlined in Chapter 2 of the A.I.D. "Capital Projects Guidelines (M.O. 1442.1).

2. Type of Contract

A contract with a cost ceiling will be used. A.I.D. approval will be obtained for the contractor selection and the terms of the contract prior to execution.

3. Scope of Consulting Services

The consultant shall be responsible for the final design of the system, for preparation of bill of materials and specifications for all equipment, and for IFBs for the items of equipment planned for PLN's account. He shall also be responsible for definition of construction standards and material specifications and warranties, for preparation of the IFB for the construction contract, for evaluation of bids and recommendations of award for the construction contract, for supervision of construction, and for final inspection, testing, and acceptance of completed work and for final accounting.

The consultant shall prepare a critical path analysis which shall have as its objective the earliest possible start of actual construction on an uninterrupted basis. The consultant shall also review the status of all equipment in the system and shall use to the fullest practical extent, serviceable equipment and materials in the possession of PLN Region XI. In preparation of final design, the consultant shall also make maximum use of locally available materials and labor.

The consultant shall provide a team of individuals composed of reasonably long term personnel supplemented by short-term assistance as needed to provide technical and management assistance and training to PLN Region XI personnel. Expertise shall be provided in the form of individuals with considerable on-the-job experience performing similar tasks in operating utilities in such areas as utility

management; power system operation and load dispatching; utility system accounting; distribution system maintenance/parts handling, warehousing, and management.

It shall be a principal responsibility of the consultant to coordinate his efforts with those of the IBRD management consultants in Djakarta and to assist in the earliest implementation within Region XI of their recommendations.

**B. The Construction Contract**

**1. Advertisement, Bidding, and Award**

The consultant shall prepare an IFB for the construction contract. The contract shall be let on the basis of competitive bidding with the award being made to the lowest responsive bidder, under the format discussed below, and in accordance with A.I.D. Capital Projects Guidelines (E.O. 1442.2).

**2. Construction Contract**

In letting the construction contract, it is desired to achieve a result as close as possible to a fixed-price construction contract including provision of materials and equipment to be procured by the construction contractor. However, final design for the transmission and distribution systems will be completed on a piecemeal basis so that construction can begin on portions of the system while final design is being completed for the remainder. Thus, the construction contract must be let on the basis of a preliminary estimate of the quantities of construction units required.

The consultant will submit, prior to letting the contract for construction, a preliminary design for the new and rehabilitated electric systems which will form the basis for the final design for each portion of that system. He will also prepare drawings for the construction units, complete with material lists. He will estimate the quantity of each such unit required for completion of the project and will prepare a cost estimate for the preliminary design based upon the number of each such units and their estimated installed cost. With this information, the consultant will prepare an invitation for bids for the construction contract which will define the scope of the project, identify the individual construction units and indicate the number of each unit anticipated for the job. In submitting bids, the construction contractor will be expected to provide a total price based on the estimated numbers of units and to

break down that bid price into a price for each unit, specifying the dollar and local currency component thereof. Award will be based on the lowest total price.

The consultant will make a recommendation to PLN regarding which basis will be used for bidding the construction contract. Payment to the contractor shall be made on the basis of actual quantities of individual installed units at the unit price stated in the executed contract, as amended from time to time.

### C. Arrangements for Consulting Services

Selection of the consultant who will provide consulting engineering services, technical and management assistance and training, will begin as soon as possible. Conditions precedent to financing consulting services will be kept at a minimum.

The consultant, as first priority, will identify the item and quantities of equipment and materials which need to be procured early in order to permit prompt initiation of the transmission system and distribution rehabilitation, and will prepare IFBs for these items.

#### 1. Consultant's Role

Upon approval of the IFBs, the consultant will purchase the items for PLN on a competitive bid basis in accordance with procedures of A.I.D. Capital Projects Guidelines (M.O. 1442.3). The consultant shall be responsible for inspection and acceptance of all commodities which he has procured and for assuring that commodities procured by the construction contractor are in compliance with specifications.

The consultant will establish a plan for re-use or retirement and return of existing distribution materials and equipment to PLN by the contractor. He will prepare staking sheets and material inventory sheets for use during the construction period and also will aid and assist PLN in accounting for these used materials.

#### 2. Construction Contractor's Role

When a summary of the IFB for the construction contract is published, it will announce the type of work being performed and indicate what items of equipment and material are included. This will permit suppliers on their own initiative to contract construction

firms. Construction firms will be seeking to minimize their own bids, and thus, competition as to equipment supplied by the construction contractor will be achieved through the competitive construction contract bid price.

The invitation for bids shall identify the construction units to be installed by the contractor, show the estimated quantities of each unit, and include detailed specifications.

The IFB will include a list of construction units and the quantity of each which will be reused or retired from the existing electrical system. The contractor will remove units to be retired from the system and return all of the material to the designated PLN warehouse.

The contractor may at the completion of the project turn in for credit, at designated PLN warehouses, small amounts of new materials which are surplus to his needs. PLN will purchase this material at the contractor's demonstrated cost delivered to his warehouse.

The construction contractor shall be responsible for timing of arrivals of adequate quantities of materials and equipment as the construction work progresses, for inspection of materials and equipment which he has provided, for handling, proper storage, and utilization of all materials and equipment at the project site and for assuring that work performed is in accordance with approved construction standards and specifications.

### 3. Shipping, Customs Clearance, Handling and Storage

In accordance with A.I.D. practice, at least 50% of eligible items will be shipped on U.S. flag vessels, the standard marine insurance provision will be included in the loan agreement, a GOI commitment of foreign exchange will be required for any shipment on non-Cole 941 carriers, and port charges shall be paid with foreign exchange provided by the GOI.

The consultant will be responsible to obtain earliest possible delivery of items which he is to procure for PLN's account, which he will inspect and turn over to the construction contractor. The construction contractor will be responsible for storage and handling of the materials and equipment purchased for PLN's account and that which he accepts from PLN, and for control and accounting of existing facilities being retired or diverted to alternative use. The construction contractor must arrange time and delivery for all other items and must assure that all equipment and materials as needed are timely available. It will, therefore, be necessary to carefully schedule shipping arrangements to avoid possible delays.

In the past PLN has encountered difficulties in moving imported commodities through customs. This appears to have been due to PLN's inability to pay customs duty on shipments. Since this is a loan financed economic development project receiving support from the National Development Budget, the GOI policy is to not charge customs duties on imported commodities and equipment. Therefore, no problem is foreseen in obtaining customs clearance.

4. Technical and Management Assistance and Training

a. Objective

Broad management consulting services will be provided to PLN central organization as part of the IDA loan for Djakarta rehabilitation. The technical and management assistance and training for this project will be focused upon PLN Region XI, will be coordinated with and will support the management consultants provided to the central organization, and will emphasize both on-the-job training in West Java and participant training in the U.S. and third countries for key PLN personnel.

b. Arrangements for Technical and Management Assistance and Training

To permit flexibility, management control and continuity for this electric utility system, we believe it is desirable that the project engineering service, and technical and management assistance and training be included in a single contract. All of the training will be completed during the period of the rehabilitation project.

An important aspect of the management services will be coordination with the IBRD management consultants working with the PLN central organization on broad management and institutional reforms, and this is part of the scope of work for the consulting engineer.

c. Scope of Technical and Management Assistance and Training

The consultant will provide general utility specialists who will train PLN personnel at the operational level. The

consultant will furnish and supervise long term specialists to assist with the training program if required.

The consultants specialists will have broad experience in distribution and transmission management, operation and maintenance, system protection and relaying, system standards and safety codes, communication system operation and maintenance, accounting procedures, parts management inventory and record keeping and rate billing procedures.

#### 5. Participant Training

It is planned to train selected PLN personnel, principally through work experience at operating utilities in U.S., to develop skills in systems operations and maintenance equipment procurement and accountability, and utility accounting. The training period for any employee will probably not exceed six months.

Participant training is recommended for the following classifications of personnel:

- Distribution Systems Superintendent
- Transmission System Superintendent
- Accountant
- Equipment and Supply Management Control Superintendent
- Systems Operation Superintendent
- System Communications

INDONESIAPERUSAHAAN LISTRIK NEGARA (PLN)Assumptions for Financial Forecasts

The following assumptions were made for the financial forecasts 1972-1980:

- (i) electricity sales would increase at the rate of 10% per annum up to 1975 and beyond 1975 by 14%;
- (ii) tariffs would be adjusted to increase revenues by 25% in 1973 and 1975 and a further 15% in 1978;
- (iii) labor costs would double in 1972 as a result of adjustments of PLN's salary scales in line with other Government salaries;
- (iv) material costs (for maintenance) would increase at a rate corresponding to the estimated increase in electricity sales i.e. 10% per annum up to 1975 and beyond 1975 by 14%;
- (v) provision for bad debts would increase by 3% per annum from 1971-1974, then by 1% in the following 2 years. From 1977 on no provision has been made;
- (vi) depreciation has been calculated on all new assets based on an estimated life of 30 years in the absence of any detailed information on assets. Assets in service prior to 1972 have been depreciated at the rate of 10% per annum;
- (vii) an interest rate of 7% per annum has been applied to all borrowings, and debt service has been calculated on the basis of annuities over a period of 25 years including 5 year grace. 1972 borrowings have been treated as Government equity since it is not expected that the transfer of assets will be completed much before the end of 1972;
- (viii) the Government would offset PLN's tax liabilities of approximately Rps9 billion (US\$21 million) against its unpaid electricity bills amounting to Rps7 billion (US\$16.7 million);
- (ix) the existing and the proposed credit from the Association would be transferred to PLN by the Government as equity; and
- (x) all existing assets as at December 31, 1972 would be represented by Government equity in PLN. No provision has been made for any dividends to be fixed or declared on the equity up to 1980.

Annex X

PERFORMANCE INDICATORS

INDONESIA - STATE UTILITIES (1971-1980) (in Billion Rupiah)

<u>Year Ending December of</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Sales of Energy (in TWh)	1,240	1,270	1,270	1,280	1,350	1,580	1,790	1,740	1,260	1,860
Average Revenue per KW-hr	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Operating Revenue	15,500	15,875	15,875	16,000	16,875	19,750	22,375	21,825	15,750	23,250
Sales of Electricity	15,500	15,875	15,875	16,000	16,875	19,750	22,375	21,825	15,750	23,250
Other	-	-	-	-	-	-	-	-	-	-
Total operating revenue	15,500	15,875	15,875	16,000	16,875	19,750	22,375	21,825	15,750	23,250
Operating Expenses										
- Fuel	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Depreciation	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Maintenance	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Administration	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Interest	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Taxes	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
- Other	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total operating expenses	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Operating Income	9,500	9,875	9,875	10,000	10,875	13,750	16,375	15,825	9,750	17,250
Depreciation	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Interest	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Taxes	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total operating costs	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Operating Profit	5,500	5,875	5,875	6,000	6,875	9,750	12,375	11,825	5,750	13,250
Depreciation	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Interest	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Taxes	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total operating costs	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Operating Profit	1,500	1,875	1,875	2,000	2,875	5,750	8,375	7,825	1,750	9,250

INDONESIA

PERUSAHAAN LISTRIK NEGARA (PLN)

PROFORMA STATEMENTS OF SOURCES AND APPLICATIONS OF FUNDS 1972-1980 (in billion Rupiahs)

<u>Years Ending December 31</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
<u>SOURCES OF FUNDS</u>									
<u>Internal Cash Generation</u>									
Operating Income	-	-	-	2	3	4	13	16	20
Depreciation	<u>10</u>	<u>11</u>	<u>13</u>	<u>13</u>	<u>14</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>20</u>
	<u>10</u>	<u>11</u>	<u>13</u>	<u>14</u>	<u>17</u>	<u>20</u>	<u>30</u>	<u>34</u>	<u>40</u>
<u>Borrowing</u>									
Loans from Government	27	12	23	22	22	26	24	26	28
Govt. Equity (including IDA Credits)	3	8	6	5	1	-	-	-	-
Revaluation of Assets	-	-	-	-	-	-	-	-	-
<b>TOTAL SOURCES</b>	<u>40</u>	<u>31</u>	<u>52</u>	<u>41</u>	<u>40</u>	<u>48</u>	<u>54</u>	<u>60</u>	<u>68</u>
<u>APPLICATIONS OF FUNDS</u>									
<u>Construction Program</u>									
Foreign Exchange	23	13	31	22	23	25	24	29	33
Local Currency	<u>7</u>	<u>4</u>	<u>8</u>	<u>9</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>12</u>	<u>13</u>
	<u>30</u>	<u>17</u>	<u>39</u>	<u>31</u>	<u>32</u>	<u>36</u>	<u>37</u>	<u>41</u>	<u>46</u>
<u>Debt Service</u>									
Amortization	-	-	1	1	2	2	2	3	4
Interest	<u>-</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>11</u>	<u>13</u>
	<u>-</u>	<u>1</u>	<u>4</u>	<u>5</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>17</u>
<u>Net Variation in Working Capital</u>	(1)	5	1	5	-	2	5	5	5
<u>Operating Loss</u>	<u>11</u>	<u>8</u>	<u>8</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
<b>TOTAL APPLICATIONS</b>	<u>40</u>	<u>31</u>	<u>52</u>	<u>41</u>	<u>40</u>	<u>48</u>	<u>54</u>	<u>60</u>	<u>68</u>

April 1972

INDONESIA

PERUSAHAAN LISTRIK PADJARA (PLN)

PROFORMA BALANCE SHEETS AS OF DECEMBER 31, 1971 THROUGH 1980 (in Billion Rupiahs)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
<b>Fixed Assets</b>											
Fixed Assets in operation	98	93	117	154	197	205	256	294	333	375	423
Depreciation	(77)	(72)	(112)	(133)	(161)	(156)	(170)	(186)	(203)	(221)	(241)
Net fixed assets in operation	21	21	5	21	36	49	86	108	130	154	182
Work in progress	1	33	7	15	19	26	28	29	30	34	39
<b>TOTAL FIXED ASSETS</b>	<u>22</u>	<u>54</u>	<u>12</u>	<u>36</u>	<u>55</u>	<u>75</u>	<u>114</u>	<u>137</u>	<u>160</u>	<u>188</u>	<u>221</u>
<b>Current Assets</b>											
Cash	3	5	-	-	6	11	10	10	15	18	21
Accounts receivable (Net)	-	1	5	-	7	7	8	9	9	10	11
Prepaid fuel	5	-	-	-	6	7	7	8	9	10	11
Other	1	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<u>9</u>	<u>6</u>	<u>5</u>	<u>6</u>	<u>19</u>	<u>25</u>	<u>25</u>	<u>27</u>	<u>33</u>	<u>38</u>	<u>43</u>
<b>TOTAL ASSETS</b>	<u>31</u>	<u>60</u>	<u>17</u>	<u>42</u>	<u>74</u>	<u>100</u>	<u>139</u>	<u>164</u>	<u>193</u>	<u>226</u>	<u>264</u>
<b>CAPITAL</b>											
Capital Reserves											
Capital	-	5	35	47	33	33	33	33	33	33	33
Government Advances - 10% Credits	-	-	1	11	17	27	23	23	23	23	23
General Reserve	10	10	10	10	10	10	10	10	10	10	10
Accumulated depreciation	-	-	96	96	96	96	96	96	96	96	96
Accumulated losses	(11)	(7)	(100)	(97)	(90)	(85)	(87)	(88)	(81)	(71)	(7)
<b>TOTAL</b>	<u>9</u>	<u>18</u>	<u>41</u>	<u>61</u>	<u>76</u>	<u>81</u>	<u>89</u>	<u>88</u>	<u>82</u>	<u>86</u>	<u>89</u>
<b>Long-term Liabilities</b>											
Foreign Loans	-	-	-	11	44	65	85	111	132	155	179
Local Loans	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<u>-</u>	<u>-</u>	<u>-</u>	<u>11</u>	<u>44</u>	<u>65</u>	<u>85</u>	<u>111</u>	<u>132</u>	<u>155</u>	<u>179</u>
<b>Current Liabilities</b>											
Accounts payable (including accruals)	-	5	2	5	3	4	4	4	5	5	5
<b>TOTAL</b>	<u>-</u>	<u>5</u>	<u>2</u>	<u>5</u>	<u>3</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>5</u>	<u>5</u>	<u>5</u>
<b>TOTAL LIABILITIES</b>	<u>9</u>	<u>13</u>	<u>43</u>	<u>77</u>	<u>123</u>	<u>151</u>	<u>179</u>	<u>204</u>	<u>219</u>	<u>236</u>	<u>264</u>
Ratio of Assets to Liabilities	0:100	1:100	0:100	1:02	23:75	30:70	37:63	42:58	45:55	48:52	49:51

## PROJECTED GROWTH IN POWER CONSUMPTION IN PLN REGION XI

The forecast for each class of sale consists of two steps -- the evaluation of the probable 1975 load level with all restrictive conditions removed, and the estimation of the probable growth trend for the duration of the study period.

A final and most basic assumption in the load forecast is that there will be improvement in real income per capita. The outlook for the regional economy provides the basis for believing that this is a valid assumption.

## Residential Sales

For the group of four completely rural branches of Region XI, Tjiandjur, Purwakarta, Garut and Tasikmalaja, 21.2% of the households were residential customers in 1970. By 1975, under present conditions, acceptance would improve slightly to 21.9%. However, the estimated effect of adding customers on the waiting list, combined with the addition of the Subang System to Region XI, resulted in increasing 1975 acceptance to 29.3%. With a fixed service area, it was estimated that acceptance would increase to 60% by 1995, which would mean that residential customers would increase at an average rate of 5.2% per year.

From 1975 to 1995, our forecast assumed that each 5-year increment of new area being serviced would be added to the system at an initial acceptance rate of 17% after which it was treated as part of the established area with a customer growth rate of 5.2% per year. This successive introduction, throughout the study period, of relatively large blocks of new service area at a low initial acceptance rate acted as a powerful retarding factor on the increase of the acceptance rate for the area as a whole. For the group of four rural branches, acceptance increased from 29% in 1975 to 35% in 1995. It would be completely unrealistic to expect a rapidly rising acceptance rate in a rural service area which was at the same time rapidly expanding to new areas with relatively low levels of income.

For Bandung and Tjirebon branches, the forecast of residential customers in the Kabupaten area was developed by the same method used in the group of rural branches. In the municipalities it was assumed that only 60% of new households would be residential customers, since many households would be located in bulk-metered apartments, presumed to be commercial load, and a few low income houses would have no electrical service. In support of this position, there were about 271,000 households in the city of Bandung in 1970, but there were only

76,400 residential customers, urban and rural, in the entire Bandung branch with a total of about 402,000 households.

The 1980 Forecast includes an additional 43,000 customers, (20% of the 1975 base), who we project will subscribe to PLN service as a result of anticipated reductions in the current very high installation charges.

R-rate use per customer dropped from 1599 and 1577 kwh in 1966 and 1967 to 1476 and 1347 kwh in 1968 and 1969, increasing to 1409 kwh in 1970. The decline was probably the result of a rate increase effective in May 1968. Our forecast assumes that R-rate use will increase at 1.0% per year to 1975, and at 5.0% per year for the balance of the study period.

As noted, high transmission and distribution losses have resulted in serious low voltage conditions in all parts of the system during high load periods. Average minimum voltages on distribution feeders in 1970 ranged from 107.5 volts in Tjirebon branch to 93.5 volts in Garut branch. Under such conditions, power consumption is seriously reduced during high load periods. In 1975 our forecast assumes that the correction of low voltage conditions will result in a 20% improvement in average annual use of all residential customers.

A third group of residential customers are those who would normally be S-1 customers, but who will be diverted by the S-1 freeze to the R-1 (or equivalent) rate. Our forecast assumes that the revised rate structures will allow this group a minimum taking of 1200 kwh per year (maximum under the S-1 rate) and that the average annual use of these customers will increase to 2250 kwh by 1995. The annual use of this group will tend to remain well below the use of the "regular" R-rate customers previously discussed, due to the dilution effect of large numbers of customers joining this group as a result of expansion of the service area. (The S-1 is a heavily subsidized "social" rate.)

#### Commercial Sales

The principal commercial centers of Region XI are its municipalities, Bandung and Tjirebon, but the principal rural centers such as Sumedang and Purwakarta are also commercial centers for the surrounding towns.

The growth of commercial load in Region XI will depend on a number of factors, including as most important: household formation in the area served, expansion of the area served, improvement in real income per capita, a lower level of electric rates for commercial customers, improvement and modernization of commercial establishments, and expansion of the business community in urban centers.

In all PLN regions, certain groups of customers providing service to the community - such as schools, mosques, churches, convents and hospitals - are served on the very low S-2 rate which is similar to the S-1 rate in that it is a "social" rate, and heavily subsidized. At the present time, the other commercial customers must purchase their requirements from PLN on the high, restrictive K-rates, and are in effect subsidizing part of the service to S-1 and S-2 customers. This condition exerts a retarding effect on commercial load growth; only with promotional rates free of subsidies will individual proprietors be able to modernize their establishments and still remain competitive. Our forecast assumes that such rates will be in effect by 1975.

#### Government Sales

As shown on Table 4-5, the growth of sales to government has been inherently stable and unaffected by economic fluctuations. Economic growth in this sector is not closely correlated with electric production. However, the annual growth rate from 1966 to 1970 was 10.3% in Bandung, but only 4.5% in other branches of Region XI except Purwakarta, where sales increased abruptly to much higher levels due to the installation of the 5 MVA Tjurug pumping station as part of the Djatiluhur irrigation project. These differences required that the three areas be forecast separately.

Our forecasts assume that sales to government will increase from 1970 to 1975 at an average annual rate of 9% for Bandung, 10% for Purwakarta and 4.5% for other branches of Region XI, with a general increase in 1975 of 10% for voltage improvement.

Also in 1975, the load level of the "Other Branches" group was increased by 6 million KWH to cover the improvement of facilities at Tjirebon Harbor, as reported in the waiting list of September 21, 1971. From 1971 to 1995, a slow moderation of the growth rate was assumed for Bandung and Purwakarta.

#### Industrial Sales

With the exception of plants processing agricultural products, industry at the present time is concentrated in the Bandung area of Region XI. Out of a total of 1552 industrial customers in the region in 1970, 1109 were in the Bandung branch and accounted for 76% of total industrial kwh sales. The prospect is that Tjirebon will also become much more industrialized in the near future.

By 1969 industrial sales had completely recovered from the effects of the turbulence of the mid decade and a further gain of about 25% was achieved in 1970, nearly all of which represented increased production of textile plants in the Bandung area. To this must be added the increase in textile production by both new and existing plants that generate their own requirements.

The waiting list of concerns which have applied to PLN for new or added industrial service represents a potential increase of over 300% in PLN's industrial power requirements. In addition, the captive generation capacity in Region XI is approximately twice that of current PLN industrial sales.

The forecast of industrial use prepared by C.T. Main (Economic Development Forecasts) indicates that a very heavy industrial expansion will take place by 1975. For the balance of the study period, Region XI industrial sales are expected to reflect the gradual replacement of industrial self-generation, superimposed on a more normal rate of industrial development.

In terms of 1970 levels, the forecast for Tjirebon shows the greatest degree of industrial expansion and diversification. In addition to a foundry, the waiting list of electric power users includes a reinforcing rod factory, a fertilizer plant, a flour mill, a compost plant and a medium sized textile plant.

#### Total Sales, Unaccounted for and Net Production

"Unaccounted for" is the balancing item between total sales and net production, and includes principally, transmission and distribution line losses and energy used in PLN facilities other than generating stations. In the five years 1968 to 1970 inclusive, Unaccounted For varied between 33 and 44% of total sales. Before adjustment to levelize S-1 rate consumption, the 1968 level was 51% of sales. These high losses, which are due to overloaded transmission and distribution systems, are the direct cause of low voltage, poor service, and reduced consumption by customers. By 1975, when our forecast assumes a new transmission system and rehabilitated distribution in the principal load centers, Unaccounted For will be much lower in relation to sales. Based on experience on other systems with load centers connected by overhead transmission, our forecast assumes that Unaccounted For in Region XI will be 15% of total sales, or 13% of net production, after 100% load capability is attained.

The projected load forecast for Region XI is shown in the following table. This projection has been used for the economic evaluation of the proposed Bandung-Tjirebon installations.

The Charles T. Main study presents an analysis of the correlation between growth in GNP and electric power consumption for countries with per capita incomes of less than \$250. This analysis corroborates the projections shown here. It indicates that an annual increase in power consumption of at least 10% is very likely to be attained when GNP grows by 5-6% p.a. For this reason post 1990 power consumption has been projected at 10% p.a. in the economic analysis.

WEST JAVA: FORECAST OF POWER PRODUCTION & PEAK LOAD  
(Region XI)

	1966	1967	1968	1969	1970	1975	%/Yr.	1980	%/Yr.	1985	%/Yr.	1990	%/Yr.	1995
<u>Residential</u>														
# Customers (1000)	144.3	148.0	150.6	151.5	153.7	214		431		671		875		1200
Kwh/Customer	921	919	965	921	915	1200		1496		1900		2370		2920
Millions Kwh	132,938	136,079	136,342	134,794	140,559	257	20.3	319	11.8	1178	12.0	2076	11.4	3139
<u>Commercial</u>														
# Customers (1000)	10.23	9.09	8.31	8.26	8.78	21.2		26.7		21.4		27.4		35.2
Kwh/Customer	2192	2121	2156	2753	2416	4300		5100		6300		8170		10300
Millions Kwh	22,414	19,280	17,921	18,601	21,274	44	14.7	85	10.3	133	10.6	224	10.1	361
<u>Government</u>														
Millions Kwh	23,734	25,289	29,841	32,104	34,527	76	8.1	112	9.7	162	7.4	232	7.4	337
<u>Industrial</u>														
Millions Kwh	47,293	39,821	40,867	48,327	55,130	293	11.7	409	8.7	791	8.2	1173	7.6	1591
<u>Street &amp; Tr. Lights</u>														
Millions Kwh	2,130	2,311	2,414	2,134	2,672	4	9.0	6	6.2	9	6.2	11	6.1	14
<u>Temporary Use</u>														
Millions Kwh	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<u>Total Sales</u>														
Millions Kwh	225,193	223,707	228,177	244,991	267,411	372	15.1	1157	10.9	2278	10.3	3716	9.9	5459
<u>Unaccounted For</u>														
Millions Kwh	73,874	75,000	72,160	75,827	85,305	111		204		342		557		894
% Sales	33.1	34.0	32.0	31.0	32.0	32.0		32.0		15.0		15.0		15.0
<u>Net Production</u>														
Millions Kwh	304,277	299,087	322,136	341,728	361,915	14	15.1	1561	10.9	2620	10.3	4273	9.9	6151
H. U. of Peak	5900	5900	5975	6215	6500	375		4935		5050		5025		5000
Peak Load, MW	51.7	50.7	54.9	57.7	61.7	151	15.7	216	10.4	319	10.4	450	10.0	617
<u>Gen. Sta. Use</u>														
Millions Kwh	1,270	1,635	1,100	1,235	1,168									
<u>Gross Production</u>														
Millions Kwh	306,677	300,722	311,336	341,253	364,343									
H. U. of Peak	5900	5900	5975	6215	6500									
Peak Load, MW	51.0	51.0	55.1	53.9	60.9									

Source: West Java Power System: Long Range Plan  
by Mas. T. Main International Inc. Draft Final  
Report - March 1972)

Tjirebon

Millions of Kwh  
Peak Load, MW

101.5	16%	214.0	10%	353.0	10%	593.0	10%
19	16%	40	10%	66	10%	111	

ALTERNATIVE METHODS OF SUPPLYING POWER TO TJIREBON

Considering Alternative 1, a generation expansion plan was developed by Charles T. Main (Feasibility Report on Transmission Lines) using diesel generation in the early stage of development followed by gas turbines and steam thermal units in 1988-1990, when the load is of sufficient magnitude to absorb economic unit sizes. Fuel costs were computed using a production costing program which simulates loading of each unit in the system in such a way as to optimize fuel costs. Diesel fuel was used for gas turbines and diesel units and residual oil for steam units, using world market prices prevailing at the end of CY 1971.

Alternative 2, the integrated development, requires the construction of about 80 miles of double circuit transmission and the establishment of transformation in the Tjirebon area to supply the loads in that area. The energy supplied from central area is evaluated at 3.8 mills per KWH which is a composite rate assuming both thermal and hydro generation. The evaluation of capacity requirements in the Djakarta area for supply of the Tjirebon loads was made by C.T. Main on the basis of supplying the incremental MW requirements at a cost of \$175/KW (this is an average cost of 100 MW unit additions excluding interest during construction).

An evaluation of the two alternatives was made by comparing the present worth of annual costs of each alternative. These annual costs for each alternative include investment, fuel and O&M expenditures. The present worths were computed for a range of discount rates. The results show that integrated development is less expensive for discount rates up to 30%.



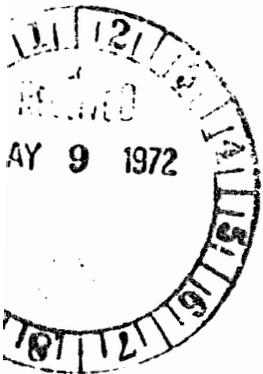
NATIONAL DEVELOPMENT PLANNING AGENCY  
REPUBLIC OF INDONESIA  
2, DJALAN TAMAN SUKOPATI  
DJAKARTA -- INDONESIA

Cable : Bappenas  
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52966

No. 1074/Waket/V/1972

Djakarta, May 8, 1972

Encl



Mr. Richard M. Cashin,  
Director,  
Agency for International Development,  
American Embassy,  
Djakarta, Indonesia.

Dear Mr. Cashin,

The Government of Indonesia requests from the Government of the United States a loan of seventeen million two hundred thousand US dollars (\$17.2 million) for the following purpose and subject to the provisions hereinafter stated:

1. Purpose : To finance the foreign exchange cost of imported equipment, engineering, construction and training services required to rehabilitate and expand transmission and distribution facilities in the West Java electric power system. Specifically, the project provides for engineering design and construction of a 150 KV double circuit transmission line on steel towers linking the cities of Bandung, Tjirebon and Tegal, a total distance of 136 miles. The transmission link will include substation terminal facilities at Bandung and Tegal and 150/20 KV stepdown substation at Tjirebon. The Bandung terminus will connect with the existing 150 KV line from Djatiluhur, and the Tegal terminus will interconnect with the proposed 150 KV double circuit Ketenger line to be constructed under AID Loan 497-H-025. The project in addition will include distribution rehabilitation and expansion of facilities at Tjirebon, the transmission connecting center between Bandung and Tegal and a principal West Java load center. The transmission line from Tegal to Bandung will link the Central Java and West Java power systems and provide the facility to transfer power between both regions. The project will provide an expanded and dependable base for further expansion of the entire Central and West Java power systems, including the expansion in generation to be provided for Central Java under AID Loan 497-H-024.



NATIONAL DEVELOPMENT PLANNING AGENCY  
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No. :  
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- 2 -

2. Project Justification: There is no transmission link at the present time between Central and West Java, and the existing link between Bandung and Tjirebon cannot carry the already expanding load from Djatiluhur to Tjirebon. Tjirebon itself is limited by distribution facilities - unable even to meet current load requirements. To provide adequate and reliable electric power, service is essential to the economic development of this entire area of West Java, particularly for the city of Tjirebon. The establishing of a link between the West and Central Java systems is a basic requirement to long range effective growth of the total electric power system, and specifically is essential for efficient use of the generation facilities to be constructed in Central Java and West Java.

3. Cost Data : It is estimated that a total of US\$ 23.0 million will be expended on the proposed project. This cost is broken down as follows: \$17.2 million from the loan proceeds to cover the cost of imported, U.S. or low income country capital equipment and related engineering, construction and training services. Rupiah in the estimated equivalent of US\$5.8 million will be provided by the Government of Indonesia to meet local currency expenditures in connection with the project. Detailed cost estimates of the proposed project are being provided by the Chas T. Main engineering firm, consultants to PLN. Such data are included herein by reference. Chas T. Main has supplied preliminary cost data, and these have been reviewed and concurred in by the Government of Indonesia.

4. Availability of Credit from Other Sources: Other sources of finance for this project are not available to the Government of Indonesia at present nor anticipated in the near future. Funds available from other donor countries have been allocated or are planned to be allocated to other priority projects within the Indonesian Government Five Year Plan.

NATIONAL DEVELOPMENT PLANNING AGENCY  
REPUBLIC OF INDONESIA  
2. DJALAN TANAN SUPOPATI  
DJAKARTA -- INDONESIA

Cable : Dappenas  
Djakarta  
Phone : 43553, 52961-  
52966

No. : Djakarta, \_\_\_\_\_ 19 \_\_\_\_\_

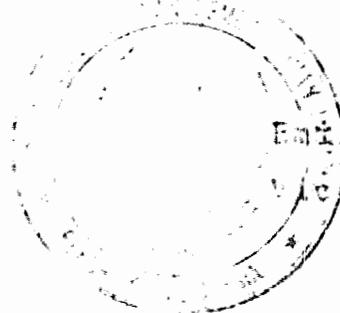
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5. Validity of Financial Statements : As PLN is a government entity, its financial statements have been audited by the State Auditor's Office, whose audits reflect the financial conditions and operating results of PLN to the degree possible under current PLN accounting practices. Furthermore, all relevant accounts and records are available for examination and review by representatives of the U.S. Agency for International Development.

We hope that this information will be useful and sufficient for you to proceed with the consideration of this loan application as soon as feasible.

Thank you,

Sincerely yours,



Emil Salim  
Vice Chairman

WEST JAVA TRANSMISSION AND DISTRIBUTION - PHASE 1CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE  
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

i, Richard M. Cashin, the principal officer of the Agency for International Development in Indonesia, having taken into account among other things:

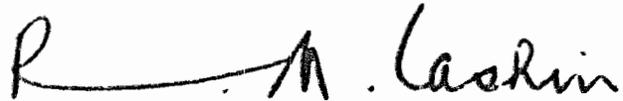
- A. the existence of an IBRD project encompassing both large amounts of management assistance to the Central PLN organization and a thorough reform of PLN's management, operations, rate structure, etc.;
- B. the inclusion in existing AID capital assistance projects of technical assistance to PLN plus covenants to implement reforms derived from those carried out by Central PLN under the IBRD project;
- C. the constructive attitude of the Government of Indonesia, as expressed in the acceptance of the proposed IBRD reform program for PLN and the steps taken to increase PLN's autonomy of operation and financial independence from budget support;
- D. the inclusion in subject capital assistance project of training for system supervision, operation and maintenance and of provisions for planned project implementation and local currency availability;
- E. the inclusion in subject capital assistance project of provisions for AID-financed engineering services to carry out design, preparation of specifications, contracting for construction services, and supervision of construction.

do hereby certify that in my opinion both PLN and the Government of Indonesia will have the financial capability and the human resources capability to implement, maintain and utilize effectively subject capital assistance project.

This judgment is based on the facts that:

1. The Government of Indonesia and PLN are taking or have promised to take the reform measures contained in the agreements relating to IDA credit No. 165 IND and will agree to the obligations to be included in the authorization for subject project.

2. Adequate planning for project implementation and sufficient financial support for timely project execution will be provided if the Government of Indonesia and PLN comply with the program set forth in the Capital Assistance Paper.
3. Implementation of this project will be based upon AID approval of engineering and construction services, including design, preparation of IFBs, bid awards, and contracting for services and procurement.
4. The Government of Indonesia has further demonstrated its adherence to sound business and economic principles by stabilizing the economy of Indonesia.



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Richard M. Cashin  
Director, USAID Indonesia

WEST JAVA TRANSMISSION AND DISTRIBUTION - PHASE I

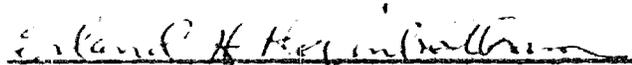
COUNTRY TEAM RECOMMENDATION

Subject loan will be of substantial economic and social benefit to Indonesia, will constitute an important portion of the United States Assistance program in Indonesia and will be consonant with the overall United States objectives in Indonesia. Therefore the Country Team recommends approval.



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Richard M. Cashin  
Director, USAID Indonesia



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Erland H. Heginbotham  
Counselor for Economic Affairs

STATUTORY CHECKLISTI. COUNTRY PERFORMANCEA. Progress Towards Country Goals

1. FAA ss 201(b)(5), 201(b)(7), 201(b)(8), 208. Discuss the extent to which the country is:

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

(b) Creating favorable climate for foreign and domestic private enterprise and investment.

(c) Increasing the people's role in the development process.

(a) Indonesia is giving priority attention to projects which aim at increasing food production, particularly the production of rice. The Government has included over 90 technical and capital assistance projects in the fields of Agriculture and Irrigation in its priority list of projects for fiscal year 1972/1973. The majority of the above projects are directly concerned with increasing food production, and improved food storage, distribution and marketing.

(b) The GOI enacted a comprehensive law with built-in incentives for encouraging foreign capital investment, concluded an Investment Guaranty Agreement with the U.S.

Credits are extended at favorable terms to importers of capital goods and up to five-year tax credits may be obtained for new investment in plant and facilities subject to negotiation.

(c) Although the Government owns the majority of the large enterprises the Government is encouraging private domestic investment. Officials of State Enterprises are receiving more freedom in management and some State Enterprises are being converted to private

corporations. Political parties have been active, press has had considerable freedom and national elections were carried out in July 1971. The Parliament is playing a significant role in the budgetary process inasmuch as the annual budget must be authorized by Parliament and expenditures reported in an "Annual Report of Budgetary Accounts".

(d) Allocating expenditures to development rather than to unnecessary military purposes or intervention in other free countries' affairs.

(d) With the ending of confrontation with Malaysia in 1966 the Suharto Administration reversed the foreign interventionist policy of the Sukarno regime. Military expenditures have been sharply reduced as the government has concentrated the nation's domestic resources -- and foreign aid receipts -- on achieving economic stability and starting an ambitious development program.

(e) Willing to contribute funds to the project or program.

(e) The cooperating Government will contribute local currency from the development budget to meet the local currency expenditure requirement of the project.

(f) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangement; and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom initiative, and private enterprise.

(f) and (g) Indonesia has made significant gains in freedom of speech and of the press under the Suharto Government. Major economic reforms have been instituted with IMF/IBRD assistance. Inflation has been curbed and the country has stabilized prices and exchange rates. Effective December 9, 1970 the GOI established one uniform exchange rate for all types of foreign exchange. On August 9, 1971 to reduce the trade gap, the Rupiah was devalued by about 10% to Rp 415/US\$1 and has remained stable since

then. The rate of inflation has been reduced from 636.8 percent per annum in CY 1966 to 8.9 in CY 1970 and an estimated 2.4 in CY 1971. Tax revenue in real terms has increased each year at the rate of 10 to 40 percent since 1967 and is projected at the rate of 31 percent for FY 72/73. Approximately 13.9 percent of the development budget is devoted to the social field which includes education, health, family planning, housing, manpower, social welfare, drinking water supply, culture and religion. The cooperating Government has encouraged self-help projects such as Food for Work and other irrigation and road building projects carried out through its Department of Manpower.

(g) Responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

## B. Relations with the United States

1. FAA §620(c). Is the government indebted to any U.S. citizen for goods or service furnished or ordered where: (a) such citizen has exhausted available legal remedies, including arbitration, or (b) the debt is not denied or contested by the government, or (c) the indebtedness arises under such government's, or a predecessor's unconditional guarantee?

620(c) We are not aware of any cases that make Indonesia ineligible under this section.

2. FAA §620(d). If the loan is intended for construction or operation of any productive enterprise that will compete with U.S. enterprise, has the country agreed that it will establish appropriate procedures to prevent export to the U.S. of more than 20% of its enterprise's annual production during the life of the loan?

620(d) The enterprise to be assisted by this loan will not compete with U.S. enterprises.

3. FAA §620(e)(1). Has the country's government, or any agency or subdivision thereof, (a) nationalized or expropriated property owned by U.S. citizens or by any business entity not less than 50% beneficially owned by U.S. citizens, (b) taken steps to repudiate or nullify existing contracts or agreements with such citizens or entity, or (c) imposes or enforced discriminatory taxes or other exactions, or restrictive maintenance or operation conditions? If so, and more than six months has elapsed since such occurrence, identify the document indicating that the government, or appropriate agency or subdivision thereof, has taken appropriate steps to discharge its obligations under international law toward such citizen or entity? If less than six months has elapsed, what steps if any has it taken to discharge its obligations?

4. FAA § 620(j). Has the country permitted, or failed to take adequate measure to prevent, the damage or destruction by mob action of U.S. property, and failed to take appropriate measures to prevent a recurrence and to provide adequate compensation for such damage or destruction?

5. FAA §620(1). Has the government instituted an investment guaranty program under FAA §221(b)(1) for the specific risks of inconvertibility and expropriation or confiscation?

620(e)(1). The majority of businesses and property owned by U.S. citizens which was nationalized during the Sukarno regime (principally in 1964 and early 1965) has been returned to U.S. owners or mutually acceptable settlement negotiated. The Government of Indonesia has indicated its willingness to return the remaining nationalized assets in a Presidential Decree dated December 14, 1966.

620(j). The country has not so permitted nor has it failed to take adequate measures.

620(1). Yes.

6. FAA §620(o). Fisherman's Protective Act of 1954, as amended, Section 5. Has the country seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters? If, as a result of a seizure, the U.S.G. has made reimbursement under the provisions of the Fisherman's Protective Act and such amount has not been paid in full by the seizing country, identify the documentation which describes how the withholding of assistance under the FAA has been or will be accomplished.

620(o). No.

7. FAA §620(q). Has the country been in default, during a period in excess of six months, in payment to the U.S. on any FAA loan?

620(q). No; however, repayments have been rescheduled by Bilateral agreement dated 3/16/71 in accordance with terms of the Paris Agreed Minutes of April 24, 1970.

8. FAA §620(t). Have diplomatic relations between the country and the U.S. been severed? If so, have they been renewed?

620(t) No.

C. Relations with Other Nations and the U.N.

1. FAA §620(i). Has the country been officially represented at any international conference when that representation included planning activities involving insurrection, or subversion directed against the U.S. or countries receiving U.S. assistance?

620(i). We have no information as to any such representational activity.

620(n)

620(a) We have no information of any such action by Indonesia.

2. FAA §620(a), 620(n). Has the country sold, furnished, or permitted ships or aircraft under its registry to carry to Cuba or North Viet-Nam items of economic, military, or other assistance?

3. FAA §620(u); App. §108. What is the status of the country's U.N. dues, assessments, or other obligations? Does the loan agreement bar any use of funds to pay U.N. assessments, dues, or arrearages?

App § 108

620(u). Indonesia is not delinquent with respect to U.N. obligations. The loan agreement limits the use of loan proceeds to importation of goods and services of A.I.D. Geographic Code 941 (Selected Free World).

#### D. Military Situation

1. FAA § 620(i). Has the country engaged in or prepared for aggressive military efforts directed against the U.S. or countries receiving U.S. assistance?

620(i). No.

2. FAA §620(s). What is (a) the percentage of the country's budget devoted to military purposes, (b) the amount of the country's foreign exchange resources used to acquire military equipment, and (c) has the country spent money for sophisticated weapons systems purchased since the statutory limitations became effective? Is the country diverting U.S. development assistance or F.L. 480 sales to military expenditures? Is the country diverting its own resources to unnecessary military expenditures? (Findings on these questions are to be made for each country at least once each fiscal year and, in addition, as often as may be required by a material change in relevant circumstances.)

620(s). (a) The Department of Defence portion of the State Budget has ranged from a high of 33% in CY 1967 to a low of 23% in the FY 1972/73 budget.

(b) We have no knowledge of any significant expenditures of foreign exchange for the military. It is estimated that less than 10% of the military budget is allocated for foreign exchange purchases. Moreover, the Department of Defence budget includes substantial amounts for construction of roads, bridges and other civil work projects. (c) We are aware of no such purchases. The government is placing primary emphasis on economic development and not diverting its own resources for unnecessary military expenditures.

VI. CONDITION OF THE LOAN

A. General Soundness

Interest and Repayment

1. FAA §§201(d), 201(b)(2). Is the rate of interest excessive or unreasonable for the borrower? Are there reasonable prospects for repayment? What is the grace period interest rate; the following period interest rate? Is the rate of interest higher than the country's applicable legal rate of interest?

201(d). Although Indonesia's debt burden is heavy, there has been very rapid growth in real Government revenues and favorable economic performance. With the high current level of foreign assistance, it is recognized that future debt burden will be heavy, but a comprehensive agreement providing for the consolidation and rescheduling of Indonesia's pre-1966 debts has been made between Indonesia and its Free World creditors, including the U.S. The various donors agree this would place Indonesia with a debt burden for which the prospects of repayment would appear reasonable. Country terms of a 40-year loan, 10-year grace period, 2% interest during the grace period, 3% thereafter pertain. The rate of interest is not higher than the country's applicable legal rate of interest.

Financing

1. FAA §201(b)(1). To what extent can financing on reasonable terms be obtained from other free-world sources, including private sources within the U.S.?

201(b)(1). Loan assistance to Indonesia is provided within the framework of the Inter-Government Group on Indonesia (IGGI), advised by the IBRD and the IMF. This project has been selected by A.I.D. as part of the U.S. Government contribution to the IGGI consortium and our participation in this project has been supported by the IBRD resident mission. Other donors are also participating in loan assistance to the power sector (e.g. IBRD, FFG, Japan and ADB). The ExIm Bank does not currently make loans of this type in Indonesia.

Economic and Technical Soundness

1. FAA §§201(b)(2), 201(e). The activity's economic and technical soundness to undertake loan; does the loan application, together with information and assurances, indicate that funds will be used in an economically and technically sound manner?

2. FAA §611(a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonable firm estimate of the cost to the U.S. of such assistance, been completed?

3. FAA §611(b); App. §101. If the loan or grant is for a water or related land-resources construction project or program, do plans include a cost-benefit computation? Does the project or program meet the relevant U.S. construction standards and criteria used in determining feasibility?

4. FAA §611(e). If this is a Capital Assistance Project with U.S. financing in excess of \$1 million, has the principal A.I.D. officer in the country certified as to the country's capability effectively to maintain and utilize the project?

201(b)(2)  
201(e). This loan will finance goods and services for improved facilities for electric power service. Facilities are expected to be effectively utilized and it is expected that the system will be operated in a sound manner. The Government has entered into an agreement with a management consultant to make recommendations regarding governing laws, asset revaluation, traffic schedule, employment practices and operating procedures. This loan agreement provides for training and technical assistance in coordination with these reforms.

611(a)(1). Yes.

App. §101  
611(b). This is not a water or related land-resources construction project.

611(e). The certification of the USAID Director is in Annex XI' .

1. Relation to Achievement of  
Country and Regional Goals

Country Goals

1. PAA §§207, 281(a).  
this loan's relation to:

a. Institutions needed for a democratic society and to assure maximum participation on the part of the people in the task of economic development.

b. Enabling the country to meet its food needs, both from its own resources and through development, with U.S. help, of infrastructure to support increased agricultural productivity.

c. Meeting increasing need for trained manpower.

d. Developing programs to meet public health needs.

207, 281(a). A principle element of this loan is technical assistance to PLN Region VI. Additional assistance is being provided to the PLN central organization under IDA loan. These loans will require establishment of PLN as a fully autonomous institution. Development of capability by PLN personnel will be a key step in bringing about economic development through the initiative of people within West Java. Moreover, the provision of adequate electricity itself will provide a means for participation by the people in the task of economic development.

Increased electric service capacity at the major distribution centers will assist expansion of those food processing and distribution facilities which are dependent upon electricity for their operation.

Technical assistance and training for PLN Region VI will be carried out as part of this project.

No direct relation. Indirect benefits to public health will be obtained by making available to the public such things as refrigeration, hot water, etc.

e. Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; cooperatives and voluntary agencies; improvement of transportation and communication systems; capabilities for planning and public administration; urban development; and modernization of existing laws.

The project will make possible substantial improvement in the basic infrastructure of West Java, will facilitate new commercial and industrial enterprises. There will be extensive training and improvement of basic labor skills associated with the project, and there will be encouragement of new employment opportunities. The project will be a stimulus to the private sector thereby promoting opportunity for more free labor-management activities.

2. FAA §201(b)(4). Describe the activity's consistency with and relationship to other development activities, and its contribution to realizable long-range objectives.

201(b)(4). This loan is given in a multilateral context and furthers Indonesia's ability to achieve longer-range development objectives through providing reliable and increased electrical power.

3. FAA §201(b)(9). How will the activity to be financed contribute to the achievement of self-sustaining growth?

201(b)(9). Electric power capacity is a basic input in the infrastructure and productive facilities necessary for self-sustaining growth.

4. FAA §201(f). If this is a project loan, describe how such project will promote the country's economic development, taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development.

201(f). The activity would utilize a substantial amount of local material and human resources in a manner contributing to economic development productivity. The provision of adequate electric power will promote economic development by encouraging new commercial and industrial enterprises.

5. FAA §201(b)(3). In what ways does the activity give reasonable promise of contributing to development of economic resources, or to increase of productive capacities?

6. FAA §281(b). How does the program under which assistance is provided recognize the particular needs, desires, and capacities of the country's people; utilize the country's intellectual resources to encourage institutional development; and support civic education and training in skills required for effective participation in political processes.

7. FAA §601(a). How will this loan encourage the country's efforts to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions?

201(b)(3). Increased and reliable electrical power capacity will provide a necessary basis for economic development.

281(b). This project will enhance the expansion of industry and agriculture and make possible the creation of more jobs; it will also increase the availability of electricity for private consumption. The project will make possible training in basic technical skills for additional personnel.

601(a). The loan will facilitate purchase by the country of needed equipment and services. The project will stimulate industrial and commercial activities in such areas as agriculture, business, intermediate processing of agriculture products, and small manufacturing, which will increase the probable quantity and value of commodities available for export, will assist Indonesia in developing more sophisticated products which may be competitive in international trade and create a demand for many new products and equipment required for new commercial and industrial enterprises and private consumption; (b) through improved opportunities for new commercial and industrial enterprises; (c) no direct effect; (d) no direct effect; (e) through availability of better quality electric power service together with a program to increase electric power consumption; (f) no direct effect.

8. FAA #202(a). Indicate the amount of money under the loan which is: going directly to private enterprise; going to intermediate credit institutions or other borrowers for use by private enterprise; being used to finance imports from private sources; or otherwise being used to finance procurements from private sources.

202(a). The total amount of the loan will be used to finance procurement from private sources.

9. FAA #611(a)(2). What legislative action is required within the recipient country? What is the basis for a reasonable anticipation that such action will be completed in time to permit orderly accomplishment of purposes of loan?

611(a)(2). No legislative action will be required as a condition precedent to this loan.

#### Regional Goals

1. FAA #619. If this loan is assisting a newly independent country, to what extent do the circumstances permit such assistance to be furnished through multilateral organizations or plans?

619. Indonesia is not a newly independent country.

2. FAA #209. If this loan is directed at a problem or an opportunity that is regional in nature, how does assistance under this loan encourage a regional development program? What multilateral assistance is presently being furnished to the country?

209. The loan is not directed at a regional problem. However, it is being furnished in the context of multilateral aid to Indonesia by a number of donor countries (the TGH). The assistance is being coordinated with the advice of the IBRD.

C. Relation to U.S. Economy

Employment, Balance of Payments, Private Enterprise.

1. FAA §8201(b)(6); 102, Fifth. What are the possible effects of this loan on U.S. economy, with special reference to areas of substantial labor surplus? Describe the extent to which assistance is constituted of U.S. commodities and services, furnished in a manner consistent with improving the U.S. balance of payments position.

2. FAA §§612(b); 636(h). What steps have been taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. and local currencies contributed by the country are utilized to meet the cost of contractual and other services, and that U.S. foreign-owned currencies are utilized in lieu of dollars?

3. FAA §601(d); App. §115 If this loan is for a capital project, to what extent has the Agency encouraged utilization of engineering and professional services of U.S. firms and their affiliates? If the loan is to be used to finance direct costs for construction, will any of the contractors be persons other than qualified nationals of the country or qualified citizens of the U.S.? If so, has the required waiver been obtained?

102, Fifth 201(b)(6). The goods and services financed by this loan will be obtained from A.I.D. Geographic Code 941 (Selected Free World). It is anticipated that the U.S. will supply a substantial amount of goods and services under the loan. In addition, increased electrical power availability will create a demand for industrial and consumer goods which may be imported from the U.S.A.

612(b), 636(h). Local currency provided by the GOI will be used to meet local currency needs of the project.

App § 115 601(d). All goods and services financed under the loan will be from A.I.D. Geographic Code 941.

4. FAA §608(a). Provide information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.

5. FAA §602. What efforts have been made to assist U.S. small business to participate equitably in the furnishing of commodities and services financed by this loan?

6. FAA §621. If the loan provides technical assistance, how is private enterprise on a contract basis utilized? If the facilities of other Federal agencies will be utilized, in what ways are they particularly suitable; are they competitive with private enterprise (if so, explain); and how can they be made available without undue interference with domestic programs?

7. FAA §611(c). If this loan involves a contract for construction that obligates in excess of \$100,000, will it be on a competitive basis? If not, are there factors which make it impracticable?

8. FAA §601(b). Totality of effort by the President in host country to encourage and facilitate participation of private enterprise in achieving purposes of Act.

608(a). U.S. Government excess property will not be used for this project, in view of the particular specifications required for project components.

602. The Loan Agreement will contain a provision that American small business will have an opportunity to participate in furnishing eligible items.

621. The entire project implementation will be carried out by private enterprise under loan financed contracts on the basis of applicable A.I.D. regulations.

611(c). Yes, construction and commodity procurement will be awarded on a competitive basis.

601(b). Private enterprise being utilized to maximum extent practicable on this project.

# BEST AVAILABLE DOCUMENT

UNCLASSIFIED

ANNEX XVI, Page 15 of 19

## Procurement

1. FAA §604(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President?

604(a). Yes, procurement is limited to A.I.D. Geographical Code 941.

2. FAA §604(b). Will any part of this loan be used for bulk commodity procurement at adjusted prices higher than the market price prevailing in the U.S. at time of purchase?

604(b). No.

3. FAA §604(e). Will any part of this loan be used for procurement of any agricultural commodity or product thereof outside the U.S. when the domestic price of such commodity is less than parity?

604(e). No.

4. FAA §604(f). Has the agency received the necessary pre-payment certification from suppliers under a commodity import program agreement as to description and condition of commodities, and on the basis of such, determined eligibility and suitability for financing?

604(f). Unnecessary here since this is a project loan and not a commodity import program assistance loan.

## D. Other Requirements

1. FAA §201(b). Is the country among those in which development loan funds may be used to make loans in this fiscal year?

201(b). Yes.

2. App. §106. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms?

106. Yes.

3. FAA §620(k). If the loan is for construction of a production enterprise, with respect to which the aggregate value of assistance to be furnished will exceed \$100 million, what preparation has been made to obtain the express approval of the Congress?

620(k). Not applicable.

4. FAA §620(b), 620(f); App. §109(b). Has the President determined that the country is not dominated or controlled by the international Communist movement? If the country is a Communist country (including, but not limited to, the countries listed in FAA §620(f)) and the loan is intended for economic assistance, have the findings required by FAA §620(f) and App. §109(b) been made and reported to the Congress?

620(b), 620(f); App. 109(b). Yes, the required determination has been made.

5. FAA §620(h). What steps have been taken to insure that the loan will not be used in a manner which, contrary to the best interest of the United States, promotes or assists the foreign aid projects of the Communist-bloc countries?

620(h). The loan agreement will contain a provision covering this requirement.

6. App. §118. Will any funds be used to finance procurement of iron and steel products for use in Viet-Nam other than as contemplated by §118?

118. No.

7. FAA §636(i). Will any part of this loan be used in financing non-U.S.-manufactured automobiles? If so, has the required waiver been obtained?

636(i). No.

8. FAA §§ 620(a)(1) and (2), 620(p); App. §117. Will any assistance be furnished or funds made available to the government of Cuba or the United Arab Republic?

620(a)(1) and (2), 620(p); App. §117. No.

9. FAA §620(g). Will any part of this loan be used to compensate owners for expropriated or nationalized property? If any assistance has been used for such purpose in the past, has appropriate reimbursement been made to the U.S. for sums diverted.

620(g). No. No assistance has been used for such purposes in the past.

10. FAA §201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?

201(f). It is anticipated that a portion of the work will be accomplished through direct hire of personnel and subcontract with private firms in the recipient country.

11. App. §10<sup>h</sup>. Does the loan agreement bar any use of funds to pay pensions, etc., for persons who are serving or who have served in the recipient country's armed forces?

10<sup>h</sup>. Yes. The loan agreement will cover this requirement.

12. MMA §901.b. Does the loan agreement provide for compliance with U.S. shipping requirements, that at least 50% of the gross tonnage of all commodities financed with funds made available under this loan (computed separately by geographic area for dry bulk carriers, dry cargo liners, and tankers) be transported on privately owned U.S.-flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S.-flag vessels?

MMA §901.b. Yes

13. App. §102. Have obligations for engineering and architectural fees and services over \$25,000 on any one project been reported to Congress bi-annually?

102. Any such fees here will be reported to Congress in the manner required by the law.

14. FAA §481. Suspension of economic assistance to any country which fails to take adequate steps re narcotics production, transport or sale.

481. There is no evidence that Indonesia is involved in any of the drug activities covered by the statute.

15. FAA §§ 655, 656. Limitations on aid to and personnel in Cambodia.

655, 656. Inapplicable.

16. App. §111. Is the loan being used to transfer funds to world lending institutions under 209(d) and 251(h) of the FAA?

111. No such transfer is being made.

17. App. §501. Are any of these funds being used for publicity or propa-ganda within the United States?

501. No; they are being used solely for project purposes.

18. FAA §612(a). Does the United States own excess foreign currency, and if so, what arrangements have been made for its release?

612. Indonesia is not an excess currency country.

LOAN AUTHORIZATION

AID Loan

Project No.

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds  
(Indonesia: Perusahaan Listrik Negara;  
West Java Transmission and Distribution - Phase I)

Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "AID") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2 Title I, the Development Loan Fund, to the Government of the Republic of Indonesia (hereinafter called the "GOI") of not to exceed Seventeen Million Two Hundred Thousand Dollars (\$17,200,000) to assist Perusahaan Listrik Negara (hereinafter called "Beneficiary") in financing the foreign exchange costs of equipment, materials and services necessary for the construction of transmission facilities between the cities of Bandung and Tjirebon, West Java, and Tegal, Central Java, and rehabilitation and expansion of distribution facilities in Tjirebon, this loan to be subject to the following terms and conditions:

1. Interest Rate and Terms of Repayment

The interest on this loan shall be two percent (2%) per annum on the disbursed balance of the loan during the first ten (10) years of the loan and three percent (3%) per annum for the remaining thirty (30) years of the loan. The principal of the loan shall be repaid in full within forty (40) years from the date of the first disbursement under the loan, and such repayment shall include a grace period or not to exceed ten (10) years from the date of first disbursement.

2. Currency of Repayment

Provision shall be made for repayment of the loan and payment of the interest in United States dollars.

3. Other Terms and Conditions

a. Unless AID should otherwise agree in writing, equipment, materials, and services financed under this loan shall have their source and origin in countries under AID Geographic Code 941 (Selected Free World).

b. The GOI will lend the proceeds of this loan to the Beneficiary for the purposes herein provided on terms and conditions satisfactory to AID.

c. Unless AID agrees otherwise in writing, the GOI and the Beneficiary shall agree, either in the form of appropriate conditions precedent or covenants, or both, that:

(1) Beneficiary will establish a reserve fund in Indonesian currency equivalent to the total Indonesian currency costs of the project for the upcoming six months as estimated by the consultant, said funds to be replenished to the appropriate level quarterly or more often if necessary according to the said estimates, or such lesser amount as AID shall agree to in writing, which shall be used for the execution of the project until the project is completed.

(2) GOI and Beneficiary shall perform or continue to perform their various obligations with respect to improvement in Beneficiary's organization, authority, structure and operations presently established in existing AID loan agreements with Borrower and Beneficiary and in existing or future International Development Association credit agreements and related project agreements with Borrower and Beneficiary.

d. This loan shall be subject to such other terms and conditions as AID may deem advisable.

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John A. Hannah

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Date

Indonesia's Balance of Payments for 1970/71 - 1972/73 is summarized below.

Indonesia: Balance of Payments Summary,  
1969/70-1972/73

(In millions of U.S. dollars)

	1969/70 Actuals	1970/71 Actuals	1971/72 Estimates	1972/73 Estimates
A. Goods and services	-468	-350	-508	-508
Oil (net)	112	152	200	395
Non-oil	-580	-502	-708	-903
Exports	(660)	(761)	(791)	(875)
Imports	(-1,009)	(-1,008)	(-1,202)	(-1,397)
Services	(-231)	(-255)	(-297)	(-381)
B. Miscellaneous capital	27	115	175	178
Direct investment	34	88	162	170
Other	-7	27	13	8
C. Debt service payments	-64	-85	-104	-100
Pre-July 1966 debts	(-50)	(-56)	(-63)	(-53)
Post-July 1966 debts	(-14)	(-29)	(-36)	(-47)
D. Net errors and omissions	56	-56	-13	--
E. Official transfers and capital	371	369	417	520
Program loans and grants	308	283	317	320
Non-food	(173)	(161)	(199)	(210)
Food	(135)	(122)	(118)	(110)
Project loans and grants	63	86	100	200
F. Total A through E	-78	-7	-26	90
G. Allocation of SDRs	35	28	28	...
H. Monetary movements (increase in assets -)	-43	-21	-2	-90

Source

Indonesia: Payments Due on External Debts Outstanding  
at December 31, 1971<sup>1/</sup>

(In millions of U.S. dollars)

Year	Old <sup>2/</sup> Debts	New Debts				Total
		Government		Other <sup>5/</sup>		
		Principal <sup>3/</sup>	Interest <sup>4/</sup>	Principal	Interest	
1972	35.0	10.7	30.0	35.2	8.3	119.2
1973	35.7	11.2	34.9	44.6	15.0	141.4
1974	36.4	14.6	36.1	55.0	9.3	151.4
1975	37.3	20.3	36.5	61.9	15.5	171.5
1976	55.9	21.4	36.4	53.5	11.4	178.6
1977	55.9	29.3	36.0	31.6	8.8	161.6
1978	65.3	42.3	35.0	24.9	6.9	174.4
1979	65.3	51.1	34.9	10.3	5.2	166.8
1980	65.3	59.9	33.8	10.0	4.3	173.3
1981	65.3	64.4	34.1	10.0	3.3	177.1
1982	65.3	71.1	33.0	10.0	2.4	181.8
1983 and after	<u>1,598.3</u>	<u>1,352.7</u>	<u>392.7</u>	<u>20.0</u>	<u>1.9</u>	<u>3,365.6</u>
Total	2,181.0	1,749.0	773.4	366.8	92.3	5,162.5

Source: Data supplied by the Indonesian authorities.

<sup>1/</sup> Excluding obligations of less than 181 days and liabilities of the banking system.<sup>2/</sup> Comprise debts contracted prior to July 1, 1966. The full use of the option to defer part of the repayments of principal has been assumed in this presentation.<sup>3/</sup> Excluding \$16.7 million paid during 1968 through 1971.<sup>4/</sup> Excluding \$63.0 million paid during 1968 through 1971.<sup>5/</sup> Incomplete data; comprise debts of state enterprises.