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

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CAPITAL ASSISTANCE PAPER

Proposal and Recommendations  
For the Review of the  
Development Loan Committee

INDONESIA - SEMARANG STEAM STATION

AID-DLC/P-974

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AGENCY FOR INTERNATIONAL DEVELOPMENT  
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June 1, 1971

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - Semarang Steam Station

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$19,700,000 to the Government of the Republic of Indonesia to assist in financing the foreign exchange costs of equipment, materials, and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara located in Semarang.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Tuesday, June 8, 1971.

Rachel R. Agee  
Secretary  
Development Loan Committee

Attachments:

Summary and Recommendations  
Project Analysis  
ANNEXES I-XI  
Figure A - Map of Central Java

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TABLE OF CONTENTS

	Page
Summary and Recommendations	<u>1</u>
I. The Project	1
A. Definition of the Project	1
B. Background of the Project	1
C. Program Justification	2
II. Project Evaluation	5
A. Borrower and Beneficiary	5
B. Technical Analysis	12
C. Financial Analysis	16
D. Economic Evaluation	20
III. Indonesia's Economic Performance and Debt Service Capacity	30
IV. Loan Administration	35
A. Timetable for Implementation	35
B. Project Execution	36
C. Impact on U.S. Balance of Payments	37
D. Use of U.S. Government Excess Property	37
V. Conditions Precedent and Covenants	38

LIST OF ANNEXES

I. Organization of State Electricity Authority (PLN)	
II. Technical Diagrams Heat Rate, Station Layout, Expansion Plan, Construction Schedule, Future Transmission Plan, Environmental Aspects	
III. Station General Equipment	
IV. Station Personnel	
V. Implementation Considerations	
VI. PLN Region X Cash Flow 1971-2003	
VII. Population Tables	
VIII. Present Power Usage and Projections	
VIII-A. C.T. Main Illustrative Rate Structure	
VIII-B. PLN Region X Investment Expenditures	
VIII-C. Balance of Payments Data	
IX. Country Team Recommendation and USAID Director's Certification	
X. Statutory Checklist	
XI. Draft Loan Authorization	
Figure A. Map of Central Java	

INDONESIA - SEMARANG STEAM STATIONSUMMARY 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 substantially all public generation transmission and distribution of electrical power in Indonesia.

B. LOAN:

1. Amount: Not more than U.S. \$19.7 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 A.I.D. loan will require that second step loan terms from GOI to PLN be agreed to by A.I.D., 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 Section II.A.)

C. TOTAL COST OF THE PROJECT:

The total cost of the project is estimated to be equivalent to \$25.5 million of which the A.I.D. financed foreign exchange costs are \$19.7 million and local currency costs are the equivalent of \$5.8 million (to be provided from the GOI National Development Budget.)

D. DESCRIPTION OF THE PROJECT:

The project provides for construction of a 100-MW (2x50MW) steam power station in Semarang, capital of Central Java and a major load center for PLN Region X. Space will be included for four additional 50-MW units to be installed in later years in accordance with the long-range development plan for Central Java. The steam station will not only serve Semarang but also provide power for the Tuntang and Ketenger Electrical Systems, which together include all cities and towns of any size in Central Java, an area with a population of over 25 million people. In providing this major increment to Central Java power, the project will establish the basis for growth in all sectors of electric power consumption and increased confidence in purchased

electric power. These are essential to economic development of the area.

E. PURPOSE OF LOAN:

To finance the foreign exchange costs of imported equipment, engineering and construction services, and technical assistance.

F. BACKGROUND OF ACTIVITY:

Rehabilitation of the electric power systems was recommended in the October 1968 IBRD Appraisal Report and is included in the GOI's current Five-Year Plan. In 1970, AID commissioned the C.T. Main Company to carry out feasibility studies in Central Java for rehabilitation of Tuntang transmission lines and Ketenger distribution, and construction of a major power increment. This project is the product of the latter study, and is a major component in a scheme of projects covering rehabilitation and expansion of Central Java power resources.

G. ALTERNATE FINANCING:

This project is recommended as part of the U.S. commitment under the Inter-Governmental Group on Indonesia. Other donors are also working in the power sector in Indonesia: IBRD (in Djakarta); Federal Republic of Germany (in Central Java); and the Government of Japan (in East Java). Ex Im clearance for A.I.D. participation herein has been received.

H. ISSUES: None

I. STATUTORY CRITERIA: This loan meets all statutory criteria. (See Annex X)

J. MISSION AND EMBASSY VIEWS:

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

K. RECOMMENDATIONS:

Authorization of a loan to the Government of Indonesia in an amount not to exceed U.S. \$19.7 million in accordance with the terms and conditions set forth in the proposed authorization shown in Annex XI. An outline of conditions precedent and covenants is set forth in Section V.

USAID CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Chairman .....	Ernest Kanrich
Loan Officer .....	Dennis Brennan
Engineer .....	John Glaws
Economic .....	Paul Wenger
Controller .....	Denton Larson
Program .....	Donn Block

AID/W CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Chairman and Loan Officer .....	Ted G. Lee
Power Engineer .....	Earl Clark
Legal .....	Stanley Kay
Desk .....	Louis Stamberg

## I. The Project.

### A. Definition of the Project.

The purpose of this project is to provide an increase in power generation for Central Java sufficient to meet the projected load growth from 1975, when operation begins, through 1981 when additional power units are scheduled. By providing this major increment to Central Java power generating capacity, the project will establish the basis for

- a) substantial growth in all sectors of electric power consumption, and
- b) increased confidence in purchased electric power, thereby providing for greater industrial and commercial consumption as a main corollary to economic development of the area.

The project entails construction of a 100-MW (2x50MW) steam power plant in the harbor area of Semarang, capital of the Province of Central Java and major load center for Region X of the electric utility organization (Perusahaan Listrik Negara -- PLN). Space would be provided for four additional 50-MW units to be installed in following years in accordance with the long-range development plan for Central Java, and as consumption confirms the current load forecast. The steam plant would serve not only Semarang City but also provide power for the Tuntang and Ketenger electrical systems, which together comprise all cities and towns of any size in Central Java, an area with a population of over 25 million people.

### B. Background of the Project.

Rehabilitation of the electric power systems was recommended in the October 1968 IBRD Appraisal Report "Current Economic Position and Prospects in Indonesia" and is included at highest priority in the GOI's current Five-Year Development Plan (1969/70 - 1973/74). Projects to finance system rehabilitation are already being implemented by IBRD (IDA) in Djakarta, AID in Central Java (\$16.8 million) and Medan (\$13.8 million), and the Federal Republic of Germany (FRG) in Central Java, while Japan is well along in its systems improvement program in East Java. In addition, AID commissioned the C.T. Main Company to carry out feasibility studies in Central Java for a) rehabilitation of the Tuntang transmission lines, b) rehabilitation of the Ketenger system distribution facilities, and c) a major power increment in Central Java.

These three studies together are placed in context with a comprehensive long-range planning study which indicated prospective Central Java power expansion up to 40 times present capacity. The long-range study is also a C.T. Main effort. All four studies have been completed and submitted in final form. This project for the Central Java steam power station is the product of study c) above, a major power generation increment in Central Java, arising from the basic forecasts and recommendations of the long-range planning study. The analysis in study c) above includes the detailed planning and technical justification for overall scope of the project and provides the information required to support this loan.

In basic development terms, provision of reliable electric power is essential to expansion of industrial and commercial use. Up to the present, peak demand has remained almost constant, and annual consumption of electricity is about 15KWH per person, among the lowest in the world. Both these facts are a reflection of PLN's inability to provide increased service, reliable or not, and a reflection of other deterrent factors such as prejudicial rates to industrial and commercial users, restrictions against industrial use during peak periods, and excessive connection fees. The steam power plant to be constructed under this project will provide the essential base to deal with the issue of availability and reliability of power. The question of rates and fees and of PLN Region X management capability are the subject of assistance to be carried out under the AID loan for rehabilitation of the Tuntang distribution system (AID Loan 497-H-019 above), and this assistance will be coordinated with that being provided the Central PLN under an IDA credit by the French firm of SOFRELEC. Accordingly, while this project is limited to the Semarang steam power plant, it becomes an essential component in a scheme of continuing and prospective projects covering all aspects of overall rehabilitation and expansion of Central Java power resources, and of overall institutional improvement of PLN throughout Indonesia.

C. Program Justification.

1. Place of the Project in the Indonesian Development Program.

This project is part of a multi-donor effort to revitalize the badly rundown and inadequate power systems in Indonesia.

The 1968 IBRD Appraisal Report comments as follows on the Indonesian power sector:

"In common with other sectors, upkeep of electric power facilities and their development have lagged during the long period of political and economic difficulties in Indonesia and in general power supply is now inadequate or worse. Improvement and expansion of electric power services therefore rank high among the priorities for economic action in Indonesia in the next few years and the urgent need for a number of investments in the power sector has been established. In this respect the Government, as a part of its first Five-Year Plan submitted to Parliament in 1969, has prepared a plan of expansion of publicly owned electricity facilities for the period 1969 - 73. An investment of about US\$260 million equivalent, of which 72% is foreign exchange, is involved, its implementation depending primarily on the degree of multilateral and bilateral assistance provided to the sector".

Institutional improvements and revision of the electric power tariff structure are being emphasized in this project, as in two previous power rehabilitation loans funded by A.I.D., and as in the IDA Loan for the rehabilitation of the Djakarta power distribution system. This is because of the importance of good management and operating practices to realization of the goals of the Five Year Plan. Local currency and non-A.I.D. Loan financed foreign exchange requirements for the project will be programmed in the Government of Indonesia's Development Budget.

2. Place of the Project in the Objectives of U.S. Assistance to Indonesia.

The objectives of our aid policy are to assist Indonesia in preserving the economic stability achieved in the post-Sukarno years and in developing a sound infrastructure and base for economic growth and development. Whenever possible we want to provide aid which will strengthen the Indonesian private sector and widen the opportunities for its growth within the framework of the Five-Year Plan. We seek to accomplish these objectives through multi-lateral assistance and the framework of the Inter-Governmental Group on Indonesia (I.G.G.I.).

Two AID loans were made in 1970 to assist the rehabilitation of the electric power sector in Indonesia: \$16.8 million for the rehabilitation of the Tuntang distribution system in Central Java and \$13.8 million for the rehabilitation of the distribution system in the city of Medan and its environs in North Sumatra. The currently proposed loan is one of three to be developed by a survey of the long-range power development needs of Central Java.



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4

The project is strongly supported by the Country Team. Certification by the USAID Director of the country's performance on previous loans and capacity to implement this loan appears in Annex IX.

## II. Project Evaluation.

### A. Borrower and Beneficiary.

The Borrower will be the Government of Indonesia. The Beneficiary is Perusahaan Listrik Negara, a wholly Government-owned corporation. PLN is under control of the Directorate General of Power and Electricity, which in turn is part of the Ministry of Public Works and Power.

#### 1. Organization.

PLN is governed in general by Indonesian laws relating to Government agencies and enterprises and specifically by the 1965 decree which established PLN and defined the scope of its operations. PLN has a Board of five Directors consisting of the PLN President and the heads of the four main departments: 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. Organizational charts of the PLN central organization and of Region X are shown in Annex I.

#### 2. Scope of Responsibilities and Operations.

Through its 15 operating Regions, PLN is responsible for all public utility electric power service throughout Indonesia. An exception is the Djatiluhur Hydro-electric Authority, which is operated separately but sells its power exclusively to PLN. PLN has the potential of a major utility system, but extensive expansion and improvement are required. In addition, PLN inability to meet the requirements for electric power in the main cities of Indonesia has given rise to a substantial captive (self-owned) generating capacity owned by industrial and commercial enterprises. The most recent data available are for 1969, and as of the end of that year, publicly owned and installed generating capacity in Indonesia was 661 MW (including Djatiluhur), while captive generation was estimated to be over 200 MW. Due to diesel equipment breakdown, with problems in obtaining spare parts and consequent delays in repair of equipment, and also as a result of derating of older equipment because of age, PLN's actual installed power at the end 1969 was 582 MW.

#### 3. Management and Operating Practices.

##### a. General.

PLN is the successor to three Dutch-owned electric utility companies which were nationalized between 1953-1957, consolidated several years later and finally organized as PLN in 1965. Operations at the outset were handicapped by the nature of the transfer from the Dutch, it was not amicable, and there was neither transition period nor carryover of Dutch personnel. PLN's ability to overcome the substantial organizational and operating difficulties presented by the circumstances of transfer was further hampered by almost a decade of chaotic economic conditions in Indonesia, accompanied by severe inflation and completely inadequate funds. That PLN survived, grew -- though at too slow a pace -- and established a basic functioning level of performance and a base for expansion, reflects well both on the record of PLN and on its potential for growth. There is no question, however, that improvement of PLN management and operating practices is required, both to provide efficient current service and to meet the requirements for rapid expansion.

b. PLN Performance and Accomplishments.

In the last two years PLN has taken steps to reform its organizational structure and improve the basic level of its performance and management. In 1970 the Directorate General of Power and Electricity -- the office to which PLN was responsible -- was abolished and PLN put in the position where its Director reports directly to the Minister of Public Works and Power. PLN, therefore, now has a greater voice in the direction of its own policies.

PLN has also undertaken internal management-type training for its own executives, including, for example, the Director of Planning. At the present time it is operating a training course for its own people not only in Djakarta but also in Central Java. This training in some cases involves as much as a four month full-time commitment on the part of the trainee.

c. PLN Self-Help Measures and Institutional Reforms.

Pursuant to the IDA Project Agreement of October 29, 1969 for rehabilitation of the Djakarta power distribution system,

PLN has contracted with the French firm of SOFRELEC to provide management consultant services, specifically to develop operating standards and recommend institutional reforms. These recommendations will be reviewed by the GOI, PLN, IDA and AID, and possibly other donors, who may then agree on an overall PLN program.

SOFRELEC has been working with PLN since August 1970, and while still preliminary, its recommendations are taking form under the following main headings:

(1) Enactment of a new National Electricity Code as a comprehensive and consistent legal framework for the entire electrical power sector. A draft of the proposed Electricity Code, with accompanying explanatory comments, has already been submitted to the GOI by SOFRELEC. The Electricity Code would be supplemented by a technical and safety code to be elaborated by a proposed "electricity authority" entity.

(2) Creation of an autonomous National Electricity Authority with exclusive right to generate, transmit and distribute electricity in Indonesia, but with power to license independent producers and to set the conditions and duration of such licenses. Technical and safety regulations would apply to all producers, public and private. The proposed National Electricity Authority is provided for in the draft Electricity Code already submitted to the GOI. The pertinent provisions of the Code provide that the new Authority would have a nine-member

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Sources: "Management Consulting Services and Engineering Services in the Electric Power Sector" by SOFRELEC (France)  
Interim Report dated January 26, 1971  
Part A - Main Report  
Part B - Legal Drafts

"Report of a New Electricity Act - Draft Code of Electricity with Explanations" by SOFRELEC (France) March, 1971

Board of Directors. The Minister of Public Works and Power would be ex-officio Chairman of the Board, two other as yet undesignated Ministers and the Chairman of BAPPENAS (National Economic Planning Board) would also be ex-officio Board members. Two additional members would be appointed by the GOI as representatives of consumers, and finally, three prominent community members would be appointed by the President of Indonesia.

Contrary to the present relationship of PLN to the Ministry, however, the Board of the new Authority would only establish policies and guidelines, and limit itself to supervision of management's implementation of these policies and guidelines. The Board would, however, exercise decisional authority in three major areas: (a) where policies of the new Authority are clearly linked with the general policies of the GOI (e.g., power development programs and standard rates); (b) where the decision involves exercise of the most important of the powers delegated by the GOI to the new Authority (e.g., issuing of regulations and agreements with foreign organizations); and (c) where major financial decisions are involved (e.g., standard rates, borrowings, financial participation in other companies or incorporation of subsidiary companies).

Management of the new Authority would consist of a General Manager, a Deputy General Manager, and a Chief Technical Inspector. Each of these officers would be appointed by the Board of Directors, subject to the approval of the President of Indonesia. The General Manager would be responsible to the Board and certain of his powers would derive from delegations to him from the Board. It is also intended, however, that the General Manager derive directly from the Electricity Code all the powers needed to exercise his managerial functions within the general policy limits decided by the Board. The General Manager would organize and direct all branches of the new Authority, recruit and promote or dismiss all employees and set their rates of pay, would propose to the Board the standard rates to be charged for service, and would be responsible for the administration of the general business of the new Authority. According to the draft Electricity Code, the Deputy General Manager would function as full deputy to the General Manager, while the Chief Technical Inspector would ensure compliance with the provisions of the Electricity Code on the part of both plants and systems operated by the new Authority and those producers licensed by it.

(3) Rate revision sufficient to provide the new Authority with revenues to cover all operating expenses, including adequate depreciation and interest charges, and leave a reasonable surplus for

partial financing of expansion. The size of this surplus would be determined by the Authority, bearing in mind the desirability to meet at least one-third of its capital expansion costs from the Authority's own resources.

On the question of rates SOFRELEC makes the following point:

"With the present situation in Indonesia, there can be no doubt, however, that brutal application of this rule (i.e., the new enterprise setting new tariffs on the basis of the above criteria, and applying them to all consumers in all regions) would result in a considerable increase in the price of electricity, which in turn would provoke considerable social and political trouble."

For this reason, SOFRELEC recognizes that the GOI may choose not to apply the standard rates in certain areas or to certain consumers, but SOFRELEC recommends that in those instances the Authority would receive from the GOI a well identified subsidy to meet the established loss of revenue. Accounts would be kept in accordance with sound commercial and utility practice, with revision of present systems to be carried out by stages, and annual audits carried out by independent non-government auditors. An inventory and valuation of assets would be a first and essential step in establishing the basis for revised accounting.

SOFRELEC has not yet formulated recommendations on the question of centralization versus local autonomy, but in the interim Report suggests that most of their recommendations will tend to reinforce the central organization. Accounting and financial services, and certain operating divisions covering the large power stations and main transmission lines, are cited as examples of areas where central control should be strengthened.

Under terms of the IDA Project Agreement, the recommendations of the management consultant, SOFRELEC, are to be carried out on a schedule calculated from June 1, 1970, the date the Agreement became effective: 12 months for legal reforms to be accomplished, revaluation of assets within 20 months, and rate schedule revision within 32 months. The substantive effect of the SOFRELEC activities and recommendations will be felt throughout the PLN system in the coming

year. This will be particularly true with respect to PLN cooperation at the Region level in revaluing assets, defining alternative rate structures, reviewing Region reporting requirements, and determining applicability of operating procedures.

USAID is working with the IBRD Resident Mission and SOPRELEC to ensure coordination of purpose and effect between the overall PLN reforms and their application to those Regions where AID is immediately concerned, Region X Central Java and Region I Medan (AID Loan 497-H-022 for Medan Power Rehabilitation).

c. Self-Help Measures for PLN Region X.

Under the provisions of the Central Java Power Rehabilitation Loan (AID Loan 497-H-019), both a project engineer and general consultant are provided to work with PLN Region X. Training will be provided by both. In addition, the general consultant will extend assistance toward establishing improved utility management, system operation and maintenance practices for all aspects of Region X activities. The general consultant will be the coordinating point for all Region X training and institutional development, and will also be responsible for keeping in close working relation with SOPRELEC. A main objective of the consultant's efforts in Region X will be to implement as rapidly as feasible the recommendations of SOPRELEC as adopted by the central PLN organization. On-the-job training in both management and operation of the systems in Central Java is an objective shared by both the general consultant and project engineer.

All of this development and training emphasis serves as background and foundation to the present project for construction of the Semarang steam power plant. The substantive effect of the efforts of the Central Java Power Loan general consultant and project engineer will be felt considerably before construction of the plant is complete, and will of course be supplemented by extensive training covering operation and maintenance of all equipment related to the plant, as well as by selected management and operational training providing for all aspects of operation of the plant and its place in the Region X system.

4. Evaluation of PLN Capability to Implement the Project.

For this project, GOI and PLN will in their annual budgets include the funds needed for a revolving fund to meet on a current and continuing basis the local currency costs of construction and any associated expenses in ensuring connection and beginning operation of the plant. Technical assistance and training for operational and management purposes are completely agreed to by PLN, and actual design and construction of the plant, and all procurement and training related to it, will be accomplished under supervision of a qualified and responsible engineering consultant and construction contractor.

It is our conclusion that with this basic technical assistance and training in plant operation and maintenance, supplemented by that being provided under AID Loan 497-H-019 for Central Java, PLN has the capability effectively to operate the proposed new power plant and to integrate its power contribution efficiently into the expanding Central Java system so that the objectives of this project will be accomplished.



## B. Technical Analysis

### 1. Scope of Project

The project consists of the design and construction of a thermal power station in Semarang and related technical assistance and training. The station will consist essentially of two semi-outdoor oil-fired non-reheat pressurized steam generators and two 50-MW condensing turbo-electric generators. The boilers will be designed to fire residual fuel oil (Bunker C). The units will be cooled by a circulating water system drawing from and discharging into Semarang harbor. The generators will be connected to a 150-KV substation. (Equipment is described in Annex III and detailed in the Chas. T. Main Feasibility Study.) Completion and operation of this project is planned for late-1975, approximately 30 months after award of construction contract.

The capital cost of the presently proposed Semarang project is about \$250 per kilowatt. However, the project includes costs applicable to future expansion and as additional capacity is added, the capital cost per kilowatt of total installed capacity should average out at progressively lower amounts.

PLN reports that a single site and all rights of way are available for the project and for expected future expansion. Evidence of satisfactory arrangements for the site, rights of way and the like will be conditions precedent in the loan agreement.

Technical assistance and training services will be combined with the project engineering services and be furnished by a single Project Engineer. Technical assistance and on-the-job training covering all aspects of plant operation and maintenance will be provided by a team of five expatriate Operating Engineers, having substantial experience performing similar tasks for comparable U.S. utilities. Services of the expatriate advisors will commence shortly before initial start-up of the first 50 MW unit and will continue for approximately two years thereafter. Training will also be provided for an approximate one-year period by three manufacturers' representatives under procurement of the boilers, turbines and other long-lead items.

In addition, a selected group of qualified PLN employees will be sent to the U.S. for extensive operational training which will include visits to steam electric generating stations having equipment similar to that to be installed at Semarang. On their return to Indonesia, these personnel will assume the more senior and responsible positions on the Semarang plant staff where they will participate in further training of plant personnel. The positions to be filled from this U.S.-trained group and duration of training are set forth in Annex IV.

With respect to the environmental aspects of this project, it is the opinion of USAID, of PLN, and of Chas. T. Main company, that, given the very limited environmental effects of the steam station at this initial stage of development, investment in electrostatic precipitators would not be justified in light of Indonesia's priorities for application of scarce resources to other competing and compelling needs. Accordingly, precipitators are not included for this stage of the Semarang steam station project. The design will be carried out, however, so that this question may be kept under review once the plant is in operation and precipitators installed at a later date if it is then considered necessary. A more complete discussion of the environmental aspects of this project, including the water discharge question, appears in Annex II.

## 2. Present Central Java Power System

Region X of PLN is geographically almost identical with the Province of Central Java. It is about 190 miles east to west and 90 miles north to south. In 1969 the total energy consumed in Region X was  $248.5 \times 10^6$  KWH. Peak load was 42 MW and the average load factor was 67%.

Region X is not at present a single continuous power system. The two transmission grids, Tuntang and Ketenger, are nominally at the 30-KV operating level. The Tuntang System (about 75% of the Region X load) includes the larger cities of Semarang, Jogjakarta, Solo and Magelang. The Ketenger System (about 19% of the Region's load) includes the towns of Tegal, Pekalongan, Puwokerto and Tjilatjap. The remaining 6% of load is served by PLN's isolated diesel stations located in several small towns. The heaviest load concentration is in the city of Semarang, about 38% of the Region's total.

Installed PLN capacity in 1969 was 58.1 MW in the Tuntang System but equipment conditions and environmental factors limit actual capability to 44.7 MW during the time of optimum water conditions. PLN's Ketenger System installed capacity is 13.24 MW with actual capability of 7.95 MW during optimum water conditions. The 1969 power demand of PLN's isolated diesel generation was 2.87 MW. Private generating capacity not connected to PLN lines was 54 MW, exceeding the 1969 PLN system peak by 12 MW. This makes the unconnected industrial users prime prospects for PLN service when adequate and reliable power becomes available.

### 3. Proposed Central Java Power System

The principal generating station will be the Semarang thermal power plant proposed herein. Initial capacity will be 100 MW (2 x 50 MW) operating by late 1975. Preliminary expansion plans contemplate a 25-MW gas turbine in operation in 1978 and four 50-MW steam turbines coming into operation during the years 1980, 1986, 1989 and 1992. The Semarang station will serve both the Tuntang and Ketenger Systems. (See Annex II.)

The Tuntang and Ketenger Systems will be linked by transmission lines from Semarang. The Federal Republic of Germany (FRG) is committing to finance transmission from Semarang south to and throughout the Tuntang System. AID's Loan 497-H-019 will finance the rehabilitation of distribution in the Tuntang System. FRG is also committing to finance a transmission line westward from Semarang to Pekalongan. AID has immediate plans to propose a project loan to finance (1) the continuation of that transmission line west to Tegal thence south to Purwokerto and Tjilatjap and (2) the rehabilitation of distribution in the Ketenger System.

The end result of the projects presently being implemented, this presently proposed Semarang project, and the upcoming FRG and AID Central Java transmission and distribution projects will provide a continuous unified Central Java power system by the close of 1975.

### 4. Finding of Technical Soundness

The scope of the project and plans for its implementation, including the provision of necessary technical assistance and training, are outlined in Section II. B. 1 and in Annexes III, IV, and V. These sections define

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

### C. FINANCIAL ANALYSIS

#### 1. 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-Governmental Group on Indonesia (IGGI). 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 requested by the GOI and supported by the IBRD resident mission. Other donors are also participating in loan assistance to the power sector (IBRD, Germany 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 does not currently make loans of this type in Indonesia.

#### 2. Financial Requirement - Project Cost

The total cost of the project is estimated to be \$25.5 million, consisting of U.S. dollar cost of \$19.7 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>Particular</u>	<u>US\$</u>	<u>Local Currency Equivalent</u>	<u>Total</u>
1. <u>Boiler Plant Equipment:</u>			
A. Boilers, Stacks and Accessories	2,230	270	2,500
B. Condensation & Feedwater Equipm.	540	70	610
C. Fuel Storage & Handling	170	95	265
D. Piping, Valves & Insulation	1,260	440	1,700
E. Misc. Mechanical Equipment	570	155	725
2. <u>Turbine Generator Equipment:</u>			
A. Turbine Generator & Accessories	3,560	240	3,800
B. Condensers & Circulating Water System	525	80	605
3. <u>Electrical Equipment, Switchyard &amp;     Instrumental Control</u>	1,830	675	2,505
4. <u>Civil Work:</u>			
A. Site Preparation	200	400	600
B. Power Plant & Admin. Bldg.	260	800	1,060
C. Water Intake & Discharge Structures	200	420	620
5. <u>Submarine Fuel Line</u>	400	110	510

6. Spare Parts	240	-	240
7. Construction Administration, Rental	1,650	610	1,660
8. Engineering	1,700	100	1,800
9. Training	875	125	1,000*
Sub Total	<u>15,610</u>	<u>4,590</u>	<u>20,200</u>
10. Contingency at 10%	1,600	470	2,070
Sub Total	<u>17,210</u>	<u>5,060</u>	<u>22,270</u>
11. Cost Escalation @ 4%/Yr.	<u>2,490</u>	<u>740</u>	<u>3,230</u>
Totals	19,700	5,800	25,500

\* includes \$175 to be financed under supplier contracts

Schedule of Disbursements

(\$000)

<u>Year</u>	<u>U.S.</u>	<u>Local Currency</u>	<u>Total</u>
1972	600	100	700
1973	2,000	1,200	3,200
1974	11,100	3,500	14,600
1975	<u>6,000</u>	<u>1,000</u>	<u>7,000</u>
Totals	<u>19,700</u>	<u>5,800</u>	<u>25,500</u>

### 3. Financial Plan

#### A. Arrangements for Provision of Funds

The proposed loan from A.I.D. will provide the U.S. dollar portion of foreign exchange costs. The loan will be made to the GOI with U.S. dollar repayment over 40 years including a 10-year grace period during which interest is to be charged at the rate of two percent and no amortization payments are required, and at three percent for 30 years, during which period the loan will be fully amortized in level semi-annual installments of principal and interest.

All local currency requirements for the project and any dollar overruns 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.

#### B. Arrangement for provision of the project proceeds to PLN

A.I.D. loan proceeds will be provided by the GOI to PLN on terms to be agreed upon and approved by A.I.D. 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. The Central Java Electric Power Rehabilitation Project, (Tuntang System), A.I.D. Loan 497-H-019, and the Medan Electric Power Rehabilitation Project, A.I.D. Loan 497-H-022, 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 under-way. 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 A.I.D. loans set to best suit the revised financial structure.

#### 4. Financial Condition of PLN

Past PLN accounting procedures and practices 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 are not consistently followed by the various regional offices either because complete information is unavailable, or personnel are not qualified or trained to maintain proper accounts. Existing financial statements do not reflect fixed assets acquired from the predecessor Dutch companies, have not been adjusted for inflation, and make no provision for uncollectible receivables. The most recent audited combined financial statement for CY 1966 is too deficient to be usable and is not presented.

PLN is remedying its accounting and financial procedures as a condition of the IDA Development Credit Agreement for the Djakarta Rehabilitation project. This agreement requires that PLN employ management consultants to: review and make recommendations on the organization and operation of the electrical power sector, including the electricity tariff structure; review, prepare and assist in the institution of appropriate methods and procedures for PLN related to records, accounting system and financial practices; and assist PLN in implementation of a valuation of fixed assets.

As discussed above, the current financial structure and condition of PLN are under review by an IDA-financed study by SOFRELEC, a French consulting firm. They will recommend a rather complete revamping of PLN's capital structure. They are currently providing management and technical services to PLN headquarters staff. This assistance will provide the major reforms and guidelines needed to

introduce sound utility practices and financial management. In order to ensure that PLN Region X gets on a sound financial basis, substantial management and technical services will be required. Under AID Loan No. 497-H-019, Central Java Electric Power Rehabilitation (Tuntang System), the general consultant will provide management service, technical assistance and on-the-job training to implement sound accounting practices and proper records-management. Additional training in accounting, financial reporting and supply management will be provided under the terms of the loan herein.

#### F. Tax Consideration

The GOI levies an income tax and reconstruction and development tax on State enterprises. Since current PLN operations are supported from the GOI Development Budget, tax assessments are either not significant or meaningless. However, after revaluation of assets and establishment of autonomous operation, tax considerations will be a significant factor in planning future operations, particularly with regard to internal cash generation for system maintenance and growth. A recommendation on tax consideration is expected from the IDA management consultants in the financial reorganization plan.



#### D. Economic Evaluation.

##### 1. General Economic Conditions in Central Java.

The area to be served by this power plant covers the entire middle third of the island of Java, most of the population of which (approximately 25 million people) is distributed along the two coastal plains and in the major river valleys. See map at Figure A.

The principal municipalities, Semarang (population 632,000), Jogjakarta (387,000) and Surakarta (399,000), are in the Tuntang Electrical System. These municipalities cover relatively small areas, so that their population densities are high, ranging from just under 10,000 per square mile in Surakarta to over 30,000 in Jogjakarta. Overcrowding and poverty are prevalent. Smaller municipalities are: Magelang (102,000), Pekalongan (109,000) and Tegal (104,000), with population densities in the 15-20,000 per square mile range, and Tjilatjap, Purwokerto and Pemalang, all of which except Magelang are in the Ketenger Electrical System. Each of these serves as a commercial and industrial center for a larger population in the surrounding area.

Although the cities and larger towns are generally connected by good all-weather highways, only dirt roads extend to the outlying villages. The area is well covered by a railroad system which is an important factor in the movement of freight in the area. In combination, the area's highways and railways comprise a transportation system which can be improved and extended as necessary to meet the requirements of an expanding economy. From the viewpoint of export or interisland commerce, however, the area currently suffers from the absence of a fully developed port. The only harbor of present major consequence is Semarang, which is limited to shallow draft vessels of 700 tons or less. Development plans are being made, but the shallow profile of the North coast in this area will always impose severe limits. Tjilatjap on the South coast has great potential and port development is underway, which may eventually turn it into a major port.

The economy of the area is predominantly agricultural. The fishing industry is relatively small, and there is presently very little mining in this part of Java. However there have been some potentially valuable iron sands deposits discovered in the area East of Tjilatjap and development for export is being undertaken. Offshore deposits of oil and gas are being explored. Home industry, or handicraftsmanship, employs many workers in the production of hand batik, wood and ivory carving, metal working and other native arts.

There are also several types of industrial plants, including mills for the processing of agricultural products; service industries such as foundries, machine shops and railway shops; and manufacturing plants. The latter include small shipyards, paper mills, machine batik plants, and cotton textile plants, some of which are fairly large and modern. However, in relation to the population and the size of the work force in the area, industrial development is at a very low level.

## 2. Present Electric Power Situation in Central Java.

The economy of the area suffers from a shortage of power including all three elements: generation, transmission and distribution. All classes of customers must endure frequent interruptions, low voltage, and severe restrictions; rates are regressive, and applications for new or additional service have accumulated in PLN's waiting lists because of this lack of capacity. Power shortages are most severe on the Ketenger System; the effect is somewhat less pronounced only in Semarang, where deficiencies in transmission have been minimized by the proximity of generating capacity. In all locations, the greatest loss to the economy has been in the industrial sector; a survey of factory managers indicates that the unfilled demand for industrial power is several times greater than the presently connected load. Because of expensive shutdowns and motor failures caused by low voltage, many industrial customers have been forced to install their own generating facilities. There is also a considerable amount of suppressed demand for residential and commercial power. Since the combination of these factors has resulted in very little growth for District X for several years, annual sales and production data, available on a District basis since 1967, are of little value for trend evaluation.

## 3. Forecast for Growth in Electric Power Demand.

### a. Projected Population Growth.

In usual electric power demand forecasting, population and load growth show a historical relationship. However, this type of analysis is not feasible for Central Java where normal load growth has been necessarily restricted by PLN. Since growth must be projected from 1969 levels and later from potential levels in 1976-77, greater than usual reliance must be placed on population growth. Demographic statistics provide a basic indication of future conditions; first, because population growth is generally more uniform than other factors; and, second and more important, our best knowledge of the future is that the present birth rate will determine the rate of family formation and the size of the work force 25 years from now.

Using the 1961 census data and the 1969 registration data, it was determined by the consultant that the Central Java annual population growth rate since 1961 was 2.08% for urban areas and 1.47% for rural areas. Although this figure is substantially below the range usually estimated for Indonesia as a whole, it is probable that any persons missed would be of the subsistence rural or indigent urban classes who would not be likely power customers anyway. The population projection tables are set forth in Annex VII

b. Projected Economic Growth.

In addition to the population projection, our long-range forecast is based on the region's current economic condition and its economic outlook. Total real income in Indonesia as a whole increased at about 2.3% per year between 1958 and 1966. Since this growth was roughly equivalent to population growth, there was no significant increase in real income per capita. After a moderate gain in 1967, total income increased 4.6% in 1968. In 1969 the increase in total real income was again 4.6%. Thus for 1968 and 1969, assuming a 2.0% annual increase in national population, there was an increase of 2.6% per year in real income per capita, the first significant improvement in purchasing power for many years. Informed Indonesian economists believe that the 1968-69 increase can be maintained for real income per capita, and that this rate of growth is reasonable for future planning.

Real income per capita for Central Java is not capable of being broken out statistically from the data for Java as a whole; compared to the rest of the island, Central Java is more predominantly agricultural, has a higher population density, and fewer natural resources. Its future economic prospects appear to be encouraging, however, although still slightly behind its neighbors. There are many plans to increase production and employment when electric power is made available; some new plants have been built, others are scheduled, and some are in the planning stage. New port facilities have been constructed at Semarang and more are scheduled. Harbor improvements are underway at Tjilatjap which has the potential of becoming a fine deep-water port; Australia is interested in this "front door" to Indonesia and is engaged in development planning for the area. While real income per capita for all Java is expected to increase at an annual rate of 2.5%, a 2.25% rate of annual increase is estimated in real income per capita in Central Java for our load forecast determination.

c. Projected Electric Power Demand Growth.

i. Residential.

PLN's restrictive policy has resulted in the very small increase in residential customers in District X from 152,409 in December 1967 to 154,238 in December 1969. All of the increase occurred within the Tuntang System in 1969, probably due to the installation of the gas turbine in Semarang in 1968.

In preparing demand forecasts it was essential to consider changing conditions. Following a continuing restrictive policy, no improvement was made in the projected customers-per-household ratio between 1967 and 1976, but in 1976 this ratio was increased to reflect the addition of the residential customer waiting list. (Actually, portions of the waiting list will be added starting in 1972 as distribution systems in successive areas are rehabilitated, and continuing through 1976 on the Ketenger System.) It was also assumed that a significant reduction in connection and capacity charges would be made by 1976, per Section 5.2(b) of AID Loan Agreement 497-H-019, bringing the cost of PLN service within reach of more households.

It is clear that many more households in the cities and towns served by PLN would become customers if they could afford it. Therefore, since the economic outlook for Central Java assumed an improvement in real income per capita of 2.25% per year, a 1.25% annual improvement in the ratio of customers to population has been assumed between 1976 and 1996 in all areas.

As the combined result of all these factors, the residential forecast for PLN Region X indicates an increase in customers from an average of 153,700 in 1969 to 444,000 in 1996. See Annex VIII.

Tariff schedules are established on a national basis. Until the beginning of relative economic stability in 1968, tariff schedules changed frequently and bore little relationship to cost of service. The latest revision (April 1968) established a complex schedule which was a preliminary step toward a more rational tariff structure. The principal classes of customers, social, residential, industrial, and commercial have considerably different average costs of power. The average cost/KWH for these classes \* is:

TABLE 1	
<u>Current Power costs</u>	
S-1 Unmetered Residential (approx.)	1.0¢/KWH
S-2 Hospitals, Churches etc.	0.8¢/KWH
R-1 and 2 Metered Residential	2.5¢/KWH
P Industrial **	3.0¢/KWH
K-1,2 and 3 Commercial	4.7¢/KWH

See footnote on following page.

In 1969, the estimated average annual use of S-1 customers varied from 607 to 717 KWH (out of a possible maximum of 960), while average annual use by R-1 and R-2 customers ranged from 1440 to 2185 KWH. For PLN Region X as a whole, 92% of residential customers were served on the S-1 rate and 8% on R-1 and R-2 rates. In each area, the average use of S-1 rate customers was calculated to hold constant until 1976, while R rate use was allowed to increase by a nominal 1% per year. Assuming that distribution system rehabilitation in Tuntang and Ketenger will be complete in 1975, the average use on both S and R rates has been lifted in those years to allow for the effect of voltage improvement. Subsequently, the increase in R rate use (excluding new customers diverted from the S rate by the anticipated revised rate policy) was set at 4% per year through 1981, and then cut back very slowly through 1996.

This annual increase in use by R-rate customers was based on judgment and extensive experience. By 1976-1977, when restriction will no longer be necessary, it is assumed that the R rates will become promotional. This change, the elimination of further S-rate additions and the gradual conversion of existing S-rate customers to the R rates are essential for a satisfactory growth rate for the PLN system.

The final consideration in forecasting consumption per customer is the reasonableness of the level of use at the end of the study period. For R-rate customers (excluding those acquired by restricting the S rate) 1996 average use will range from 3800 KWH to 5,550 KWH. These levels are comparable to the average consumption of customers without electric water heating in many areas of the United States today. These levels can be reached but certainly not exceeded.

Average consumption for R-rate customers diverted by the S-rate restriction was estimated at a much lower level, increasing to 2400 KWH by 1996. While the estimated consumption of these customers hardly equals the lower fringe of the range for the other R-rate customers, it represents a significant load increment which would not have been realized without S-rate restriction.

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\* Cost/KWH increased with consumption deterring increased use of electric energy.

\*\* Industrial consumers are prevented from taking service during the 5-11 p.m. peak.

ii. Commercial.

Commercial consumption levels are very low; even in municipalities there are very few first class hotels, large stores, or large restaurants. In outlying community centers, conditions are even bleaker from an electricity point of view; most trading is done in continuous rows of stalls along main streets, or in large open-air markets, all using predominantly kerosene lamps. The experience of other countries has been that competition is an important factor in commercial development. For the great bulk of commercial establishments this competition to attract customers will involve improved lighting before air conditioning. However, because of the low level of consumer income commercial development will be slow; proprietors will not be able to modernize their shops unless electricity costs are reduced to equitable levels, which means that PLN must establish a promotional rate structure.

The forecast of commercial load was based on the assumption that revised commercial rates will be equitable and promotional by 1976. For 1976 in Tuntang and 1977 in Ketenger, allowance is made for serving customers on the waiting list and for increased use due to voltage improvement. After 1981 the increase in commercial consumption was maintained at a constant rate of 6% to 8% per year, depending on the municipality or rural area.

iii. Government.

This class of load is composed of sales to military complexes and to national, provincial and district government departments. In 1969, District X sales to the government were 27.5 million KWH compared to commercial sales of 17.0 million KWH and industrial sales of 24.9 million KWH. PLN has had difficulty in collecting promptly and in full for such services, but it was agreed between the GOI and the World Bank in IDA Development Credit Agreement 165 IND that any arrears would be paid (by October 29, 1970) and that these charges will be handled hereafter on a completely businesslike basis systemwide. See Section III.A.

The size of this load indicates that it must have grown rapidly in past years, but in the opinion of informed local sources future growth will be at a much slower rate of 3 to 4% per year. On this basis, District X sales to government in 1996 are forecast to be 81 million KWH.

iv. Industrial.

Industrial activity in District X is low in relation to the work force. Some of the basic problems of Central Java, such as overpopulation and competition from other areas will continue for many years. However, other problems, such as the existing shortage of electric power, will be overcome as a result of this project, AID Loan 497-H-019 and the proposed Ketenger System loan.

Industrial sales of District X in 1969 were 24.9 million KWH; only 12.9% of total sales. This consumption was limited by two types of restrictions during the daily peak period: 1) no consumption during peak hours by plants with self-generating capability (parallel operation not permitted), and 2) consumption permitted at other plants during such hours only at special penalty rates.

Total industrial self-generating capability in District X is approximately 54 MW, including 17 MW in plants connected to the PLN system. The magnitude and importance of this existing industrial potential is underscored when compared to the current system peak of about 41.5 MW. Some of this unconnected potential is on the PLN waiting list and other plant owners or managers would apply for service if it would be made available to them. Since small high-speed diesels burn expensive fuel and have a rather short life, the balance of this potential will be realized either when PLN power becomes available or as soon thereafter as units require replacement.

The result of field investigations has been the confirmation that heavy industrial load increases can be expected in the various areas of District X in 1976, or as soon thereafter as 100% load capability is attained. For District X the combined result of all factors, including longer hours of operation, is expected to be an increase from 1971-77 of about 640% in industrial sales. In the next four years, by 1981, annual growth and PLN backdown of additional industrial generation is expected to result in a further increase of 50% above the 1977 level.

After 1981, growth of industrial sales has been estimated at 5% per year. This growth rate is compatible with the combined requirements of a work force increasing at about 1.4% per year, a 2.25% increase in real income per capita, and an allowance of about 1.4% to cover greater mechanization of production.

d. Peak Load Projections.

In 1969, the net peak load in District X was 41.5 MW. Net generation for calendar year 1969 of 246,044 thousand KWH represented the equivalent 5929 hours use of the annual net peak (out of 8760 hours in the year), so the annual load factor was 67.7%. For Tuntang, the load factor was 67.0%; for Ketenger, 70.8%.

There are two basic causes for these high load factors; 1) daily restriction of industrial load during peak hours, and 2) the large number of S-1 customers who habitually leave lights burning all night, partly for security, partly to inhibit rats and roaches and partly because they pay a flat monthly charge depending on volt-ampere demand rather than on energy consumption. By 1976, removal of industrial restrictions and freezing of the S-1 rate should tend to lower the system load factor.

However, the potential industrial load will require power usage for long hours for 2- to 3- shift operation. Also the residential forecast assumes an increase in consumption per customer partly realized by an increase in the use of refrigerators and other long-hour-use appliances. These changes will tend to prevent a reduction in system load factor.

It is estimated that the result of these conflicting influences will be an initial reduction in hours use when 100% load capability is attained (15% reduction in Tuntang by 1976 and 12.5% reduction in Ketenger by 1977). For both systems, the low point in 1981 will be followed by a moderate improvement up to 1996, which covers the balance of the period under study.



#### 4. Tariff Schedules and Charges

The existing PLN rate structure has a flat social rate for residential and small power users and another which applies to schools, churches and similar institutions. These rates do not reflect the economic cost of power, nor do they provide a reasonable return to PLN. Moreover, they provide no stimulus or significant concession to industrialization. As indicated in Section II.A.3, SOFRELEC of France is currently providing management and technical services for improvements of the PLN managerial and tariff-making functions which will lead to recommendations for a revised rate structure. It is expected this work will be completed sometime in 1972 and that the proposed rate structure will reflect the criteria contained in the SOFRELEC interim report cited in Section II.A.3 above.

The IDA Development Credit Agreement for the Djakarta Rehabilitation Project, under which SOFRELEC is financed, provides the following with respect to rates: the revised schedule of electricity tariffs and charges should provide PLN with revenue sufficient to cover all operating expenses of PLN, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on amortization of debt to the extent it exceeds depreciation, and finance a reasonable portion of PLN's capital expenditures.

In the absence of an economic rate structure and second step loan terms, in order to derive a reasonable estimation of PLN's cash flow requirements, and the economics of the proposed additions to PLN Region X, the Project Committee has derived several hypothetical power rates. Certain assumptions have been made with respect to the cost of money to PLN. Average terms of 30 years with a 5-year grace period on the repayment of principal, and with interest at 12% per annum have been established for all PLN borrowings for capital additions or replacements. The 30-year term reflects an average economic life of the various capital assets to be financed, ranging from perhaps 25 years in the case of steam generating facilities to 50 years for the high voltage transmission. The interest rate of 12% per annum reflects a reasonable cost of capital in Indonesia, and is a rate used by the GOI in assessing project returns. Applying these terms to the capital additions and calculating operating and maintenance costs for all parts of the system, total annual cash requirements are derived.

In order to meet these cash requirements, cash revenues resulting from the application of four illustrative rates have been calculated by applying each rate against the load forecasts projected by Chas. T. Main in its recent Central Java load forecast. See Annex VIII. It is recognized that the projected loads could vary from this projection; however, it is thought to be a conservative one by the Project Committee. The four illustrative rates are calculated as follows:

- 1) At A.I.D.'s request, Chas. T. Main calculated an illustrative rate structure for PLN based on what the consultants regard as the consumers' ability to pay in each rate category. This illustrative rate schedule is presented in Annex VIII-A and equates to an average rate based on total KWH consumed of 2.082¢ per KWH.

2) As it is unlikely that a new rate structure can be easily imposed on existing PLN customers now paying the low social rate, a second calculation has been made reflecting the existing customers at the social rate and future new customers at the higher Chas T. Main rate. This average rate based on total KWH sales is 1.8611¢.

3) A rate of 2.4751¢ per KWH reflects that charge which PLN would have to apply to KWH sales over a 30-year period in order to obtain cash revenues adequate to meet all cash expenses, including the cost of capital additions at the terms described above.

4) A rate of 2.7226¢ per KWH which would have to be charged by PLN in order to meet all of the cash requirements, and in addition achieve a net return of 10%.

It is clear from an examination of Annex VI that neither application of the Chas. T. Main rate will provide sufficient revenue in any year to meet cash requirements. The 2.48¢ per KWH rate will result in a financially self-sustaining project in approximately 1984, and the 2.72¢ per KWH will achieve break-even in about 1981.

#### 5. Benefit Evaluation

In order to examine the economics of PLN Region X, calculations have been made considering all of the capital additions to be made during the period 1971 through 1975. The five major capital projects and their amounts are given in Annex VIII-B. An internal rate of return for each of the illustrative rates discussed above has been calculated and is as follows:

<u>Rate (¢/KWH)</u>	<u>IRR (%)</u>
2.082	8.00
1.8611	5.97
2.4751	11.48
2.7226	13.67

It is clear that both the financial and economic justification for this project turns on the question of rates. The above internal rates of return reflect only the economic benefits and costs of the project resulting from the four illustrative rate structures. There are no additional economic costs that have been identified by the consultant or A.I.D. There are, however, additional economic benefits that can be contemplated although perhaps are not easily quantifiable. The provision of firm reliable power in the Central Java region will serve as a basis for increased industrialization and development of that area. As discussed in earlier sections, the lack of adequate power has been a major impediment to expansion of the small amount of industry that presently exists using captive power sources. Secondly, as much of the power produced and consumed in the early years will be purchased for residential consumption, significant social benefits should result, and both the quality and standard of life of the residents of Central Java should be improved.

In view of the fact that five separate but integrated power projects are being simultaneously undertaken by PLN Region X, representing a total capital investment of over \$80 million, it is not considered useful to attempt to measure the economics of one of the projects as a separate entity. As the five projects are all interrelated, the deletion of any one would have a significant financial and economic effect on the Region X system as a whole. The important economic conclusion is that the five projects taken together result in an economic and financially viable project at a cost of power to the consumer that is in line with established power costs in the rest of Asia.

As is apparent from the foregoing financial and economic calculations, the justification for this project depends on rates. It appears that PLN will have to set a flat rate of about 2.48¢ per KWH if the project is to be financially viable. It may be that such a rate would be more than the consumers in Central Java could sustain and a cost of power nearer the Chas. T. Main estimate of 1.8611¢ per KWH will apply. If this is the case, it is clear that Region X would not be financially self-sustaining without GOI assistance which might take the form of a direct subsidy to PLN or perhaps agreement on lower second-step loan terms than those postulated in this analysis. A.I.D. has no objection to the use of lower second-step loan terms if such terms are adequately justified and warranted by the circumstances. Assuming, however, that an average flat rate of about 2½¢ per KWH can be applied, the project economics will provide an internal rate of return to the economy of about 12% which is considered both reasonable and justifiable in terms of the present Indonesia economic situation.

### III. INDONESIA'S ECONOMIC PERFORMANCE AND DEBT SERVICE CAPACITY

#### A. Current Economic Developments

In 1968 and continuing to date, investment, output and exports all grew markedly despite the sharp drop in rubber prices early in FY 1970/71. Output of rice and textiles, the basic items of consumption, as well as other consumer goods, has increased. The volume of production of agricultural export commodities has also increased. A significant amount of building construction, both public and private, is underway, along with rehabilitation, improvement and expansion of irrigation, road, electric power, telecommunication and other infrastructure facilities.

This growth of investment and production has been accompanied by a similar increase in imports, financed in part by larger export receipts and in part by larger inflows of both private and official capital. Internal revenues, as well as budget expenditures, have both increased sharply above their 1969/70 levels, in accordance with the budget estimates for 1970/71.

Allocation of additional funds to the development budget must compete with proposed increases in the routine budget, some of which are of high priority to the development effort. Plans have been made to increase salaries and wages of Government officials by one-third. Debt service payments will require additional resource allocations and next year, for the first time, funds will be set aside to cover debts of government agencies to state enterprises. Even after meeting these additional financial needs in the current expenditure budget, the planned resource transfer to the development budget will be Rp52 billion compared to Rp34 billion in the current year, an increase of 53 percent.

The budget for the FY 1971/72 development program is Rp 155 billion (excluding estimated disbursements of project aid), an increase of 45 percent over the estimated 1970/71 expenditures of Rp 107 billion. The GOI will thus be providing a full one-third of development budget resources out of self-help funds, in addition to meeting all its routine expenditures. To meet these financial requirements an increase is also planned in the generation of program aid counterpart funds, from Rp 80 billion in 1970/71 to Rp 103 billion in 1971/72. Disbursements of program aid in 1971/72 of \$370 million are projected for this purpose; this amount would be substantially higher than the program aid disbursements of \$291 million in 1970/71, but is deemed capable of being achieved. Program aid commitments also in the amount of \$370 million have been requested for 1971/72.

An enlarged list of projects which merit project aid constitutes an appropriate basis for a project aid commitment request of \$270 million for 1971/72; total project aid disbursements (almost all under projects committed in prior years) are estimated at \$175 million. The resulting total foreign aid request is \$640 million in commitments for 1971/72; disbursements in that year are projected at \$545 million compared to an estimated \$401 million in 1970/71. Aid disbursements of this order will substantially augment projected export earnings which are expected to increase by about 19 percent. The increased foreign exchange resources thus available, after allowance is made for debt service payments and a token increase of foreign exchange reserves, will permit an increase of overall imports by 20 percent. Since this includes the higher disbursements projected for project aid and the larger inflow of imports financed by private capital inflows, other imports are, therefore, projected to increase by only 13.5 percent.

#### B. Price and Monetary Developments

The higher level of economic activity in 1970/71 has been accompanied by more stable prices than in previous years. The main elements making for price stability were the good rice crop and the availability of sufficient import supplies. A sizeable expansion of the money supply, 35.2 percent between December 1969 and December 1970, was not incompatible with the price stability achieved since this expansion resulted largely from an increase of bank credit to the business sector of the economy, and was at least partly offset by an increase of time and savings deposits in State Banks (which are the only ones providing reliable data) of 50 percent.

It presently appears, however, that FY 1971/72 may see considerably smaller credit expansion than 1970/71, notwithstanding active efforts by the banks to increase their deposits. The expansion of commercial credit to the business sector may also be somewhat limited as the medium-term investment program and the credit needs of the rice production program pre-empt a larger share of total credit resources.

Pressure on the cost of living is being largely contained by the new strength of the economy, the decline of inflationary psychology, and the continued supply of essential import commodities made possible by U.S. members' program aid. The rate of inflation has been sharply reduced (it was 635% in 1966, 120% in 1967, 85% in 1968, 10% in 1969 and under 0% in 1970) and rational pricing of goods and services is increasingly the rule. If supplies of rice and essential imports continue to be available, inflation should continue to be contained.

### C. Fiscal Policy

The 1970/71 fiscal year has produced a continuation of the excellent revenue growth of the two previous years. Internal revenues (excluding aid counterpart receipts) in 1969/70, at Rp 244 billion, were nearly Rp 16 billion higher than the original budget estimates. The present estimate of Rp 344 billion for 1970/71, an upward revision of the original estimate for the year, represents an increase of 41 percent over the preceding year in a year of substantial price stability. The 1971/72 budgeted increase of Rp 416 billion represents a further ambitious attempt at self-help.

These results have been achieved partly as a result of the return to more stable economic conditions. In 1966, after years of disorganization and hyperinflation, revenues were probably only 3 to 4 percent of the GDP. The proportion has been raised to perhaps 10 percent (although no reliable GDP estimate is available) by concentrating on sources which can readily be tapped at one or a few points, such as taxes on trade. Other taxes involving collection from multiple points and payers, sales and income taxes in particular, require better organization and procedures. The GOI is aware of this and is seeking more technical assistance on tax administration.

### D. Balance of Payments and Exchange Rate

While Indonesian export earnings (gross oil plus non-oil) have expanded from \$1,039 million in 1969/70 to \$1,196 million in 1970/71 and are projected to rise to \$1,420 million in 1971/72, they have not been sufficient to cover imports. As a result of the emphasis being placed on development as well as on stabilization, Indonesian import requirements have been increasing.

While non-food consumer goods imports have risen modestly from \$158 million in 1969/70 to \$185 million in 1970/71 and a projected \$210 million in 1971/72, Indonesia remains dependent on external sources for: 1) capital equipment needed in investment programs, 2) raw materials such as fertilizer, textile fibers, metals, and chemicals, for increased agricultural and industrial production, and 3) food grains and other edible needed to meet the gap between domestic production and consumption. Accordingly, total non-oil imports have grown from \$1,443 million in 1969/70 to \$1,612 million in 1970/71 and are expected to rise to \$1,926 million in 1971/72.

The current account deficit has in turn increased from \$404 million in 1969/70 to \$416 million in 1970/71 and is projected to reach \$506 million in 1971/72. In addition, Indonesia met debt service payments of \$85 million in 1969/70 and \$120 million in 1970/71 with a projected \$147 million for 1971/72, despite the favorable accommodations reached with foreign creditors.

For financing the current account deficit, Indonesia relies heavily on foreign assistance, with private capital and monetary reserves playing a secondary role. Food and Piner aid plus other program assistance, with disbursements ranging from \$307 million in 1969/70 to \$291 million in 1970/71 and a projected \$370 million in 1971/72, have accounted for most of the inflow. Project aid disbursements are expected to increase significantly from \$52 million in 1969/70 and \$110 million in 1970/71 to \$175 million in 1971/72. Private direct investment was \$41 million in 1969/70 and \$103 million in 1970/71 with \$150 million projected for 1971/72. See Annex VIII-C.

The external value of the rupiah remained stable in 1969, and the DP exchange rate (applicable to payments for services, to less essential imports, and to most private financial transactions) actually improved during the year from about Rp 385 per US \$1 in January to 378:1.

During 1970 two separate reforms were made in the Indonesian foreign exchange system, both with the encouragement of the International Monetary Fund. On April 17, a reform package was announced which in effect devalued the rupiah. The package merged the two foreign exchange markets which were in existence until that time and set a fluctuating foreign exchange rate pegged at Rp 378:\$1, to apply to all foreign exchange transactions except for imports financed by commodity assistance programs; importers utilizing commodity assistance had access to a rate of Rp 326:\$1. The retention of this preferential exchange rate for foreign aid imports (Devisa Kredit or DK) was deemed necessary in order to compensate for the disincentives of program loan (especially U.S.) procedures. However, this was less than complete rate unification and thus did not accord with a basic tenet of the IMF. Consequently, as of December 9, the DK rate was officially fixed at Rp 378, equivalent to the regular (DU or Devisa Umum) rate. This final step had been expected by most observers, including businessmen, ever since the April 17 reforms.

#### E. Debt Service Capacity

Indonesia's debt service burden continues to be extremely high and recently there has been a substantial increase in external debt due to large amounts of multi-donor assistance, despite concessional loan terms. This result was expected for a country starting from a low economic base and receiving major loan-funded development assistance.

Perhaps the most significant events improving Indonesia's ability to make loan repayments were the April 1970 and August 1970 debt rescheduling decisions made by the major governments holding Indonesia's pre-July 1966 debt. The creditors at the April meeting included Australia, France, West Germany, Italy, Japan, the Netherlands, the United Kingdom, and the U.S., all members of the so-called "Paris Club". The agreement they reached

provides for repayment of principal in 10 equal annual installments beginning in 1970 and of contractual interest in 15 annual installments beginning in 1968. No consolidation interest will be charged during the 10-year period. Indonesia will have the option to defer part of the payments of principal due during the first eight years; amounts so deferred will bear interest from deferral at 8 percent and will be repaid no later than 1980 in equal annual installments. The agreement is subject to review after 1980. No more favorable treatment is to be accorded to any other creditor country for the consolidation of comparable debts. Agreement was reached with the U.S.S.R. in August 1970 regarding the rescheduling of payments due on their debts incurred by Indonesia before July 1, 1966. Provisions of the agreement are generally in accordance with the Paris Club agreement terms, and the rest of the creditor countries are expected to follow suit.

The total principal together with rescheduled contractual interest and moratorium interest accrued prior to January 1, 1970, amounted to \$2,050.6 million. On an annual basis principal payments would amount to \$440.59 million before application of the bisque clause, and interest payments, which are to be repaid equally during the years 1985-99, would amount to about \$18 million. Individual nations which have already signed bilateral rescheduling agreements are the U.S.A., the U.S.S.R., France, the F.R.G., and the Netherlands. See Annex VIII-C, pages 2 through 5.

Past reschedulings left Indonesia with debt service ratios (calculated on the basis of non-oil exports plus net oil export earnings and including post-Sukarno debts) of 12% in 1968 and 8% in 1969. The debt service ratio for 1970 is projected at about 10%. On the assumptions of a conservative 6% growth in exports and further very sizeable inflows of foreign aid on which service payments must be made (Indonesia since mid-1966 has already contracted new obligations, including interest, of \$1.5 billion), Indonesia's debt service ratio is estimated under 20% in the 1970's and slightly higher in the 1980's. By international standards, these ratios are manageable.

With the soft terms of the loan herein proposed, particularly the 10-year grace period, the overall rescheduling of old debts already agreed upon and the Indonesian potential for export expansion, the repayment prospects for the proposed \$19.7 million loan appear reasonable. Our assessment of Indonesia's repayment prospects is shared by other IGGI members who are continuing with similar program and project lending programs of their own.



IV. Loan Administration.A. Timetable for Implementation.

A summary timetable for implementation of this project is set forth below. A more detailed schematic table appears in Annex II.

Loan Authorization	June 15, 1971
Loan Agreement Negotiated and Signed	August 15, 1971
Conditions Precedent to Opening of Letters of Commitment Met	November 15, 1971
Project Engineer Selected and Contract Negotiated	November 15, 1971
Specifications and Invitations for Bids Prepared for Long Lead Items	May 15, 1972
Bids Evaluated and Awards Made for Long Lead Items	August 15, 1972
Conditions Precedent to Construction Met and Construction Contract Approved	July 15, 1973
Construction Completed and Preliminary Operation Unit No. 1	June 15, 1975
Construction Completed and Preliminary Operation Unit No. 2	August 15, 1975
Commercial Operation Initiated: Unit No. 1	October 15, 1975
Unit No. 2	December 15, 1975
Engineering Supervisory Services Completed	August 15, 1977

## B. Project Execution.

### 1. Project Execution Plan.

The project will encompass four distinct but related operations: 1) detailed design of the power plant, 2) early procurement of long lead items (boilers and turbine generators), 3) construction, and 4) supervision.

Project implementation will require early contracting for consulting engineering services with the project engineer who will provide early preparation of specifications and invitations for bids, analysis and procurement of the long lead items and immediately essential equipment and materials. The project engineer will also be responsible for the detailed overall station design, preparation of invitation for bids for construction and supervision and enforcement of the construction contract on behalf of PLN.

The project engineer will also be responsible for training of the station supervisory and operating team who will be made available by PLN and assigned full time to this project and will be responsible for planning of participant training for selected personnel from this team. The project engineer will upon signing a contract with PLN, 1) prepare specifications and invitations for bids for the long lead items and review the bids and recommend award, 2) begin detailed design of the power plant and related facilities, and 3) prepare invitation for bids for the construction contract.

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.

Conditions precedent have been held to a minimum and include only standard provisions divided into two groups: 1) C.P. to initial disbursement, and 2) C.P. to construction financing.

### 2. Coordination.

Project execution, construction and supervision, operation and maintenance training and station start-up must be a coordinated and scheduled effort on the part of project engineer, construction contractor, PLN and USAID. In addition USAID will continue its close working relationship with PLN and with the IERD Resident Mission in Djakarta and undertake

as part of its monitoring responsibility to assure that adequate communications are maintained with all the contract organizations.

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

a. Conditions precedent to initial disbursement shall be met within three months after signing the loan agreement..

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

c. The terminal date for requests for new disbursing authorizations shall be thirty-five 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 disbursements shall be seventy-eight months after signing of the loan agreement. (See Annex II for implementation schedule.)

C. Impact on U.S. Balance of Payments.

The impact of this loan on the U.S. balance of payments should be favorable. Goods and services financed by this loan will be obtained from A.I.D. Geographic Code 941 (U.S. and Lower Income Countries), and it is expected the U.S. will supply a substantial amount of the goods and services supplied, 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.

Because of the detailed equipment specifications required for the components of the system and of the need for standardization among components, it is not anticipated that U.S. Government Excess Property can be used for this project.

V. Conditions Precedent and Covenants.

1. Conditions Precedent to Initial Disbursement  
(Project Engineering).

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

b. An opinion of the principal legal officer of PLN, or of other legal counsel satisfactory to A.I.D., that this 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.

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

d. A contract with an engineering firm. The selection of said engineering firm and the terms of said draft contract shall be in accordance with A.I.D. Capital Project Guidelines for engineering services.

e. Evidence that any rights of way, rights of entry, real property leases or acquisitions necessary for project implementation, system operation and future plant expansion have been obtained or plans made and financing provided therefor, all in form and substance satisfactory to A.I.D.

2. Conditions Precedent to Construction Financing.

a. A plan for implementation of the project, including training and scheduling of site preparation.

b. 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 A.I.D. shall agree to in writing, which shall be used for the execution of the project until the project is completed.

b. Completed final design of the steam power plant and related facilities and bidding documents for construction, including a refined cost estimate divided into U.S. dollars and Indonesian currency expenditures.

c. A contract or contracts for construction services between PLN and a firm or firms. The selection of said firm(s) and the terms of said contract(s) shall be in accordance with A.I.D. Capital Project Guidelines for construction services.

4. GOI Covenants.

GOI covenants and agrees that it shall:

a. Take all necessary actions to enable PLN to perform its obligations under Article II of the Project Agreement between PLN and the International Development Association within the time limits prescribed in said Project Agreement.

b. Make available foreign exchange to PLN necessary to purchase third country equipment necessary for PLN or a PLN local contractor to complete site preparation, and earthwork for the project.

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

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

e. 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.

5. PLN Covenants.

PLN covenants and agrees that it shall:

a. Perform its obligations as prescribed in Article II of the Project Agreement with the International Development Association within the time limits prescribed in said Project Agreement.

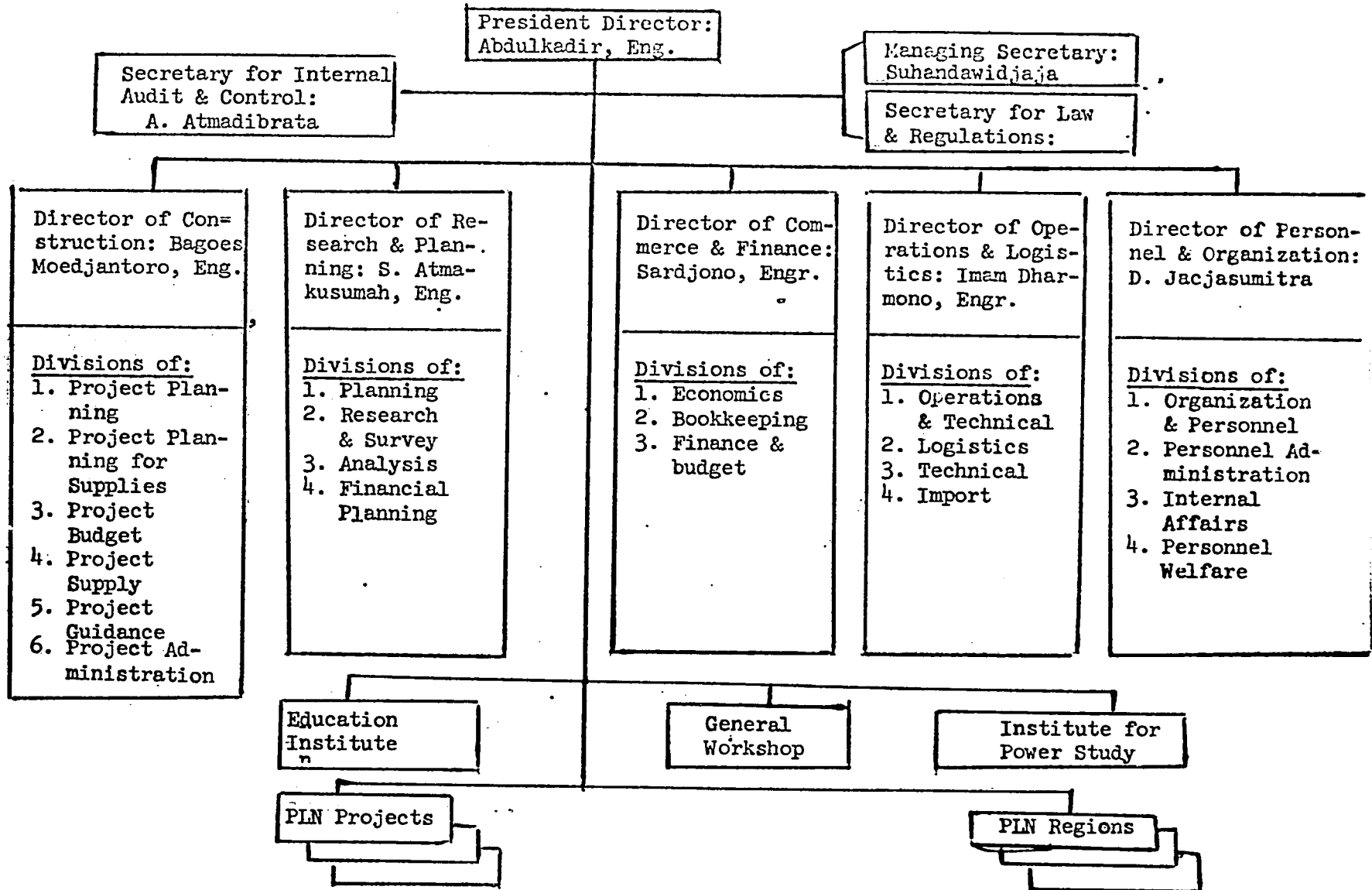
b. Replenish the Indonesian currency reserve fund whenever necessary to maintain said fund at the level set forth.

c. 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.

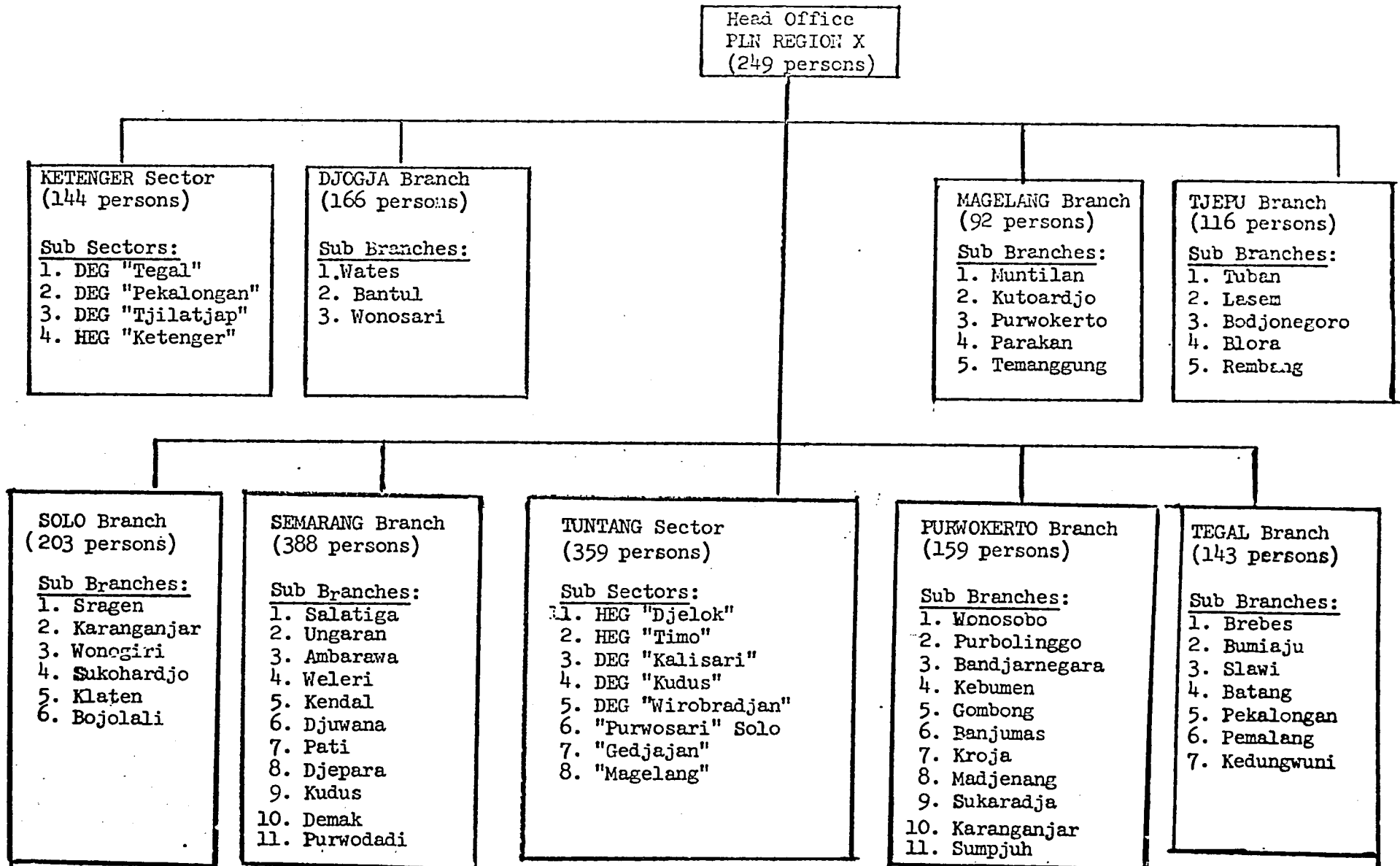
d. Submit all plans, specifications, contracts, schedules, and engineering construction or procurement arrangements for the project, and all modifications thereof, to A.I.D. for its approval prior to their implementation and carry out the project, or cause the project to be carried out in conformity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

e. Adequately maintain, repair and operate, in accordance with sound commercial practices, all Eligible Items and the constructed steam power plant and related facilities.

ORGANIZATION STRUCTURE  
P.L.N. CENTRAL

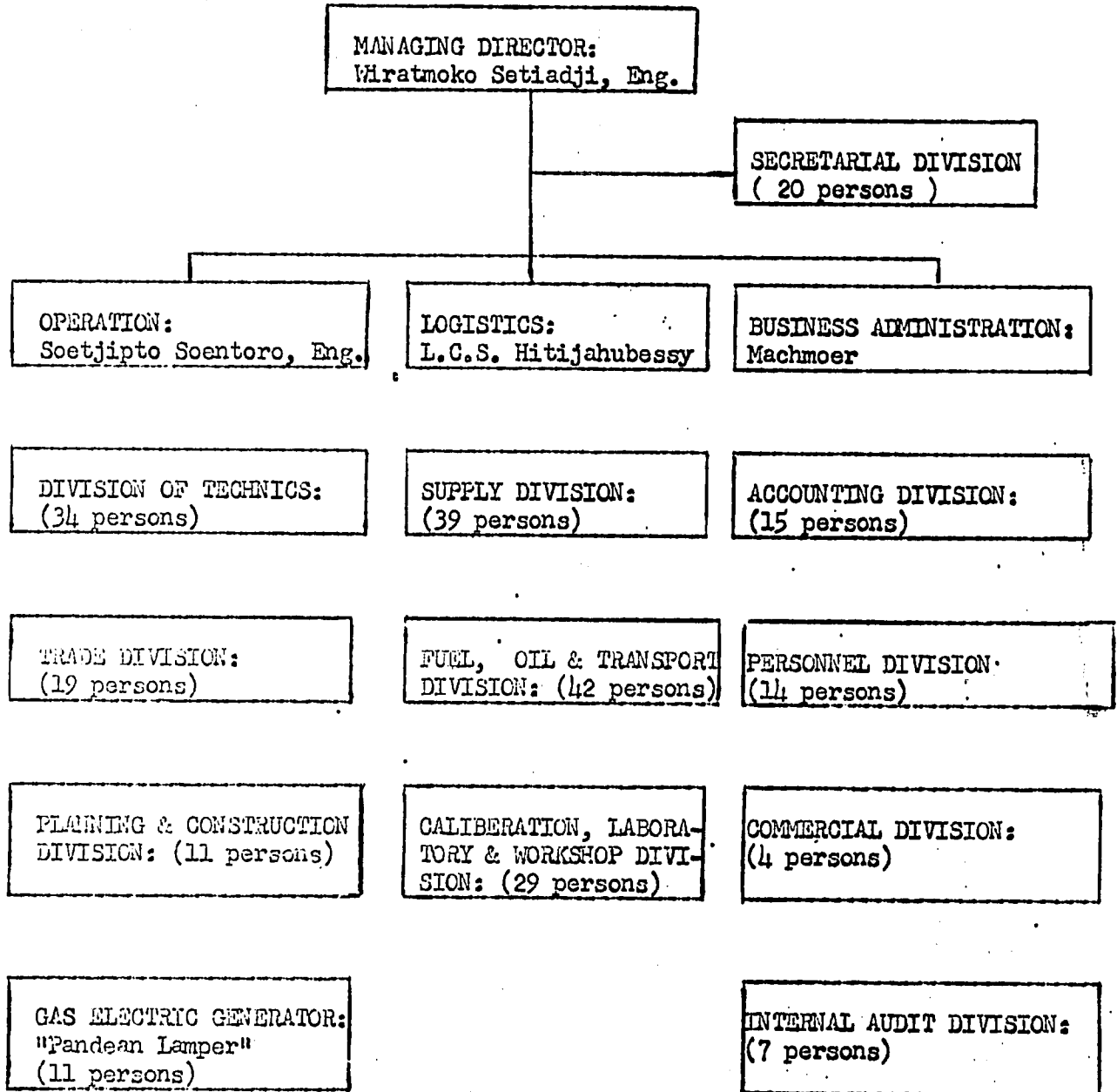


ORGANIZATION STRUCTURE  
PLN REGION X (CENTRAL JAVA)



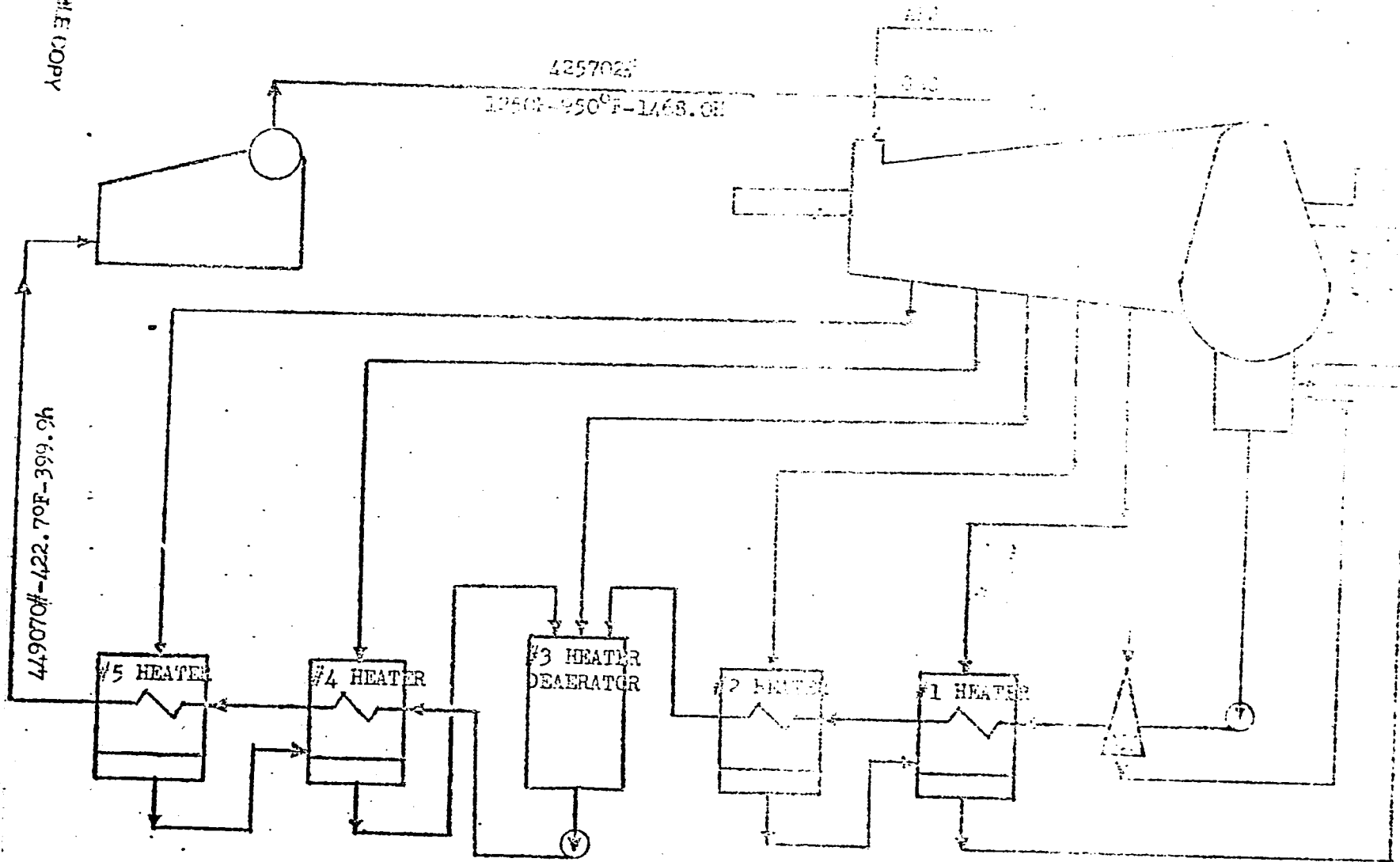


ORGANIZATION STRUCTURE  
PLN REGION X ( CENTRAL JAVA )  
HEAD OFFICE



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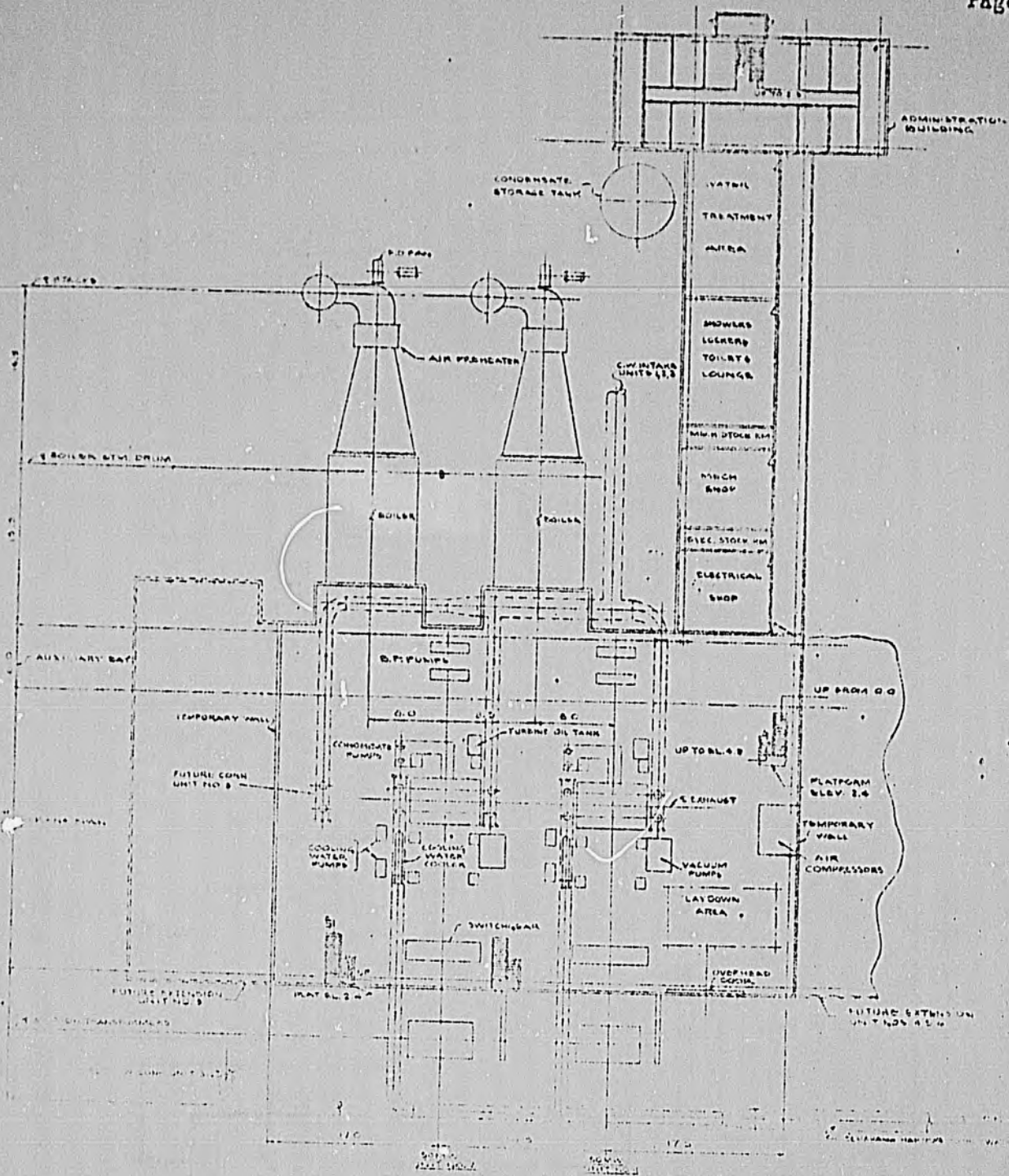
4257025  
12500-950°F-1468.0G



**LEGEND**

- H, h=Enthalpy
- °F=Temperature
- #=Flow. lb/hr
- P=Pressure, Psia

TURBINE HEAT RATE =  $425000(1468.0) - 449070(422.7)$



PLAN  
GROUND FLOOR

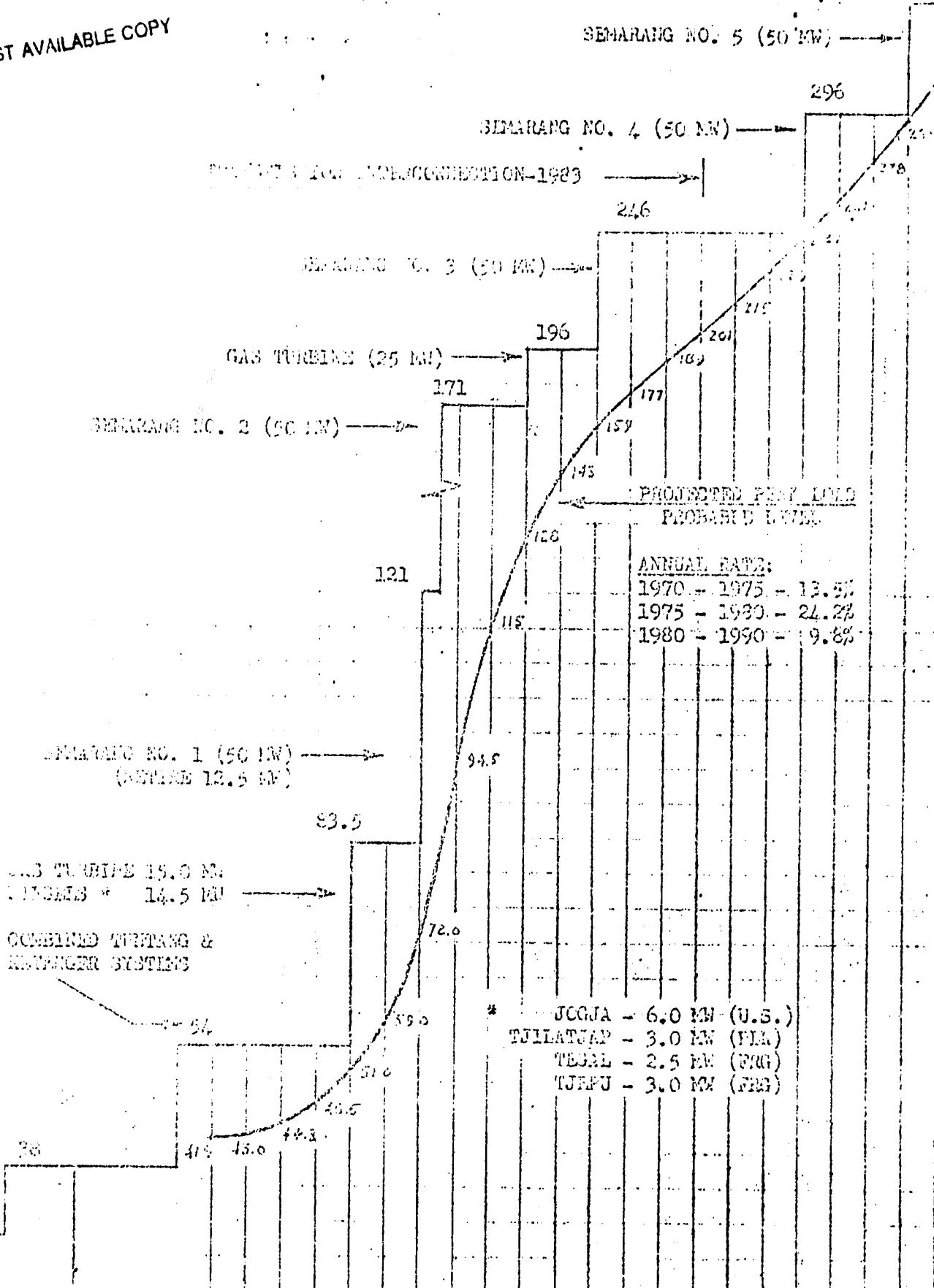
ELEV. 0.0

SCALE 1:100  
10 0 10 20 METERS

SEPT 1954

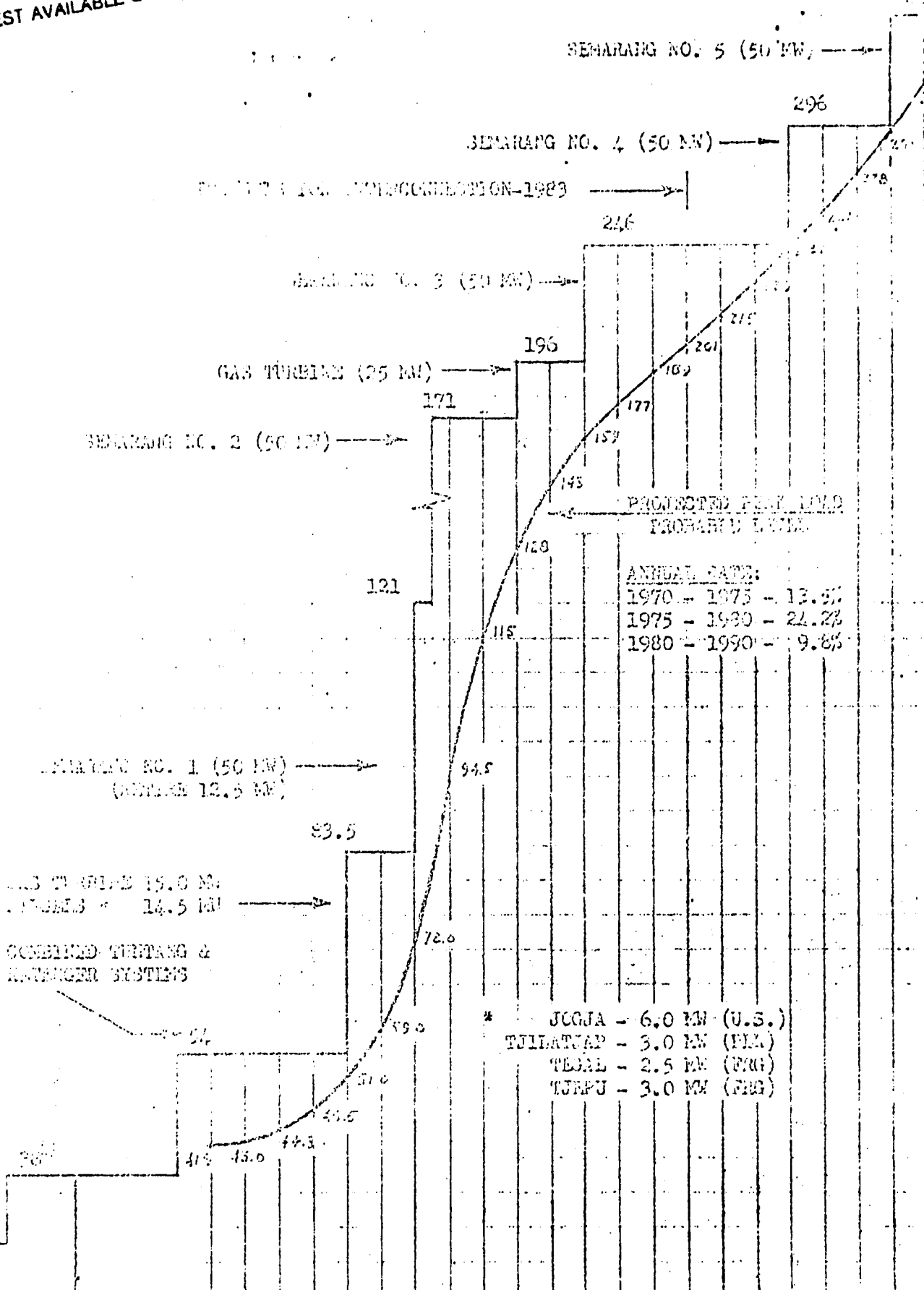
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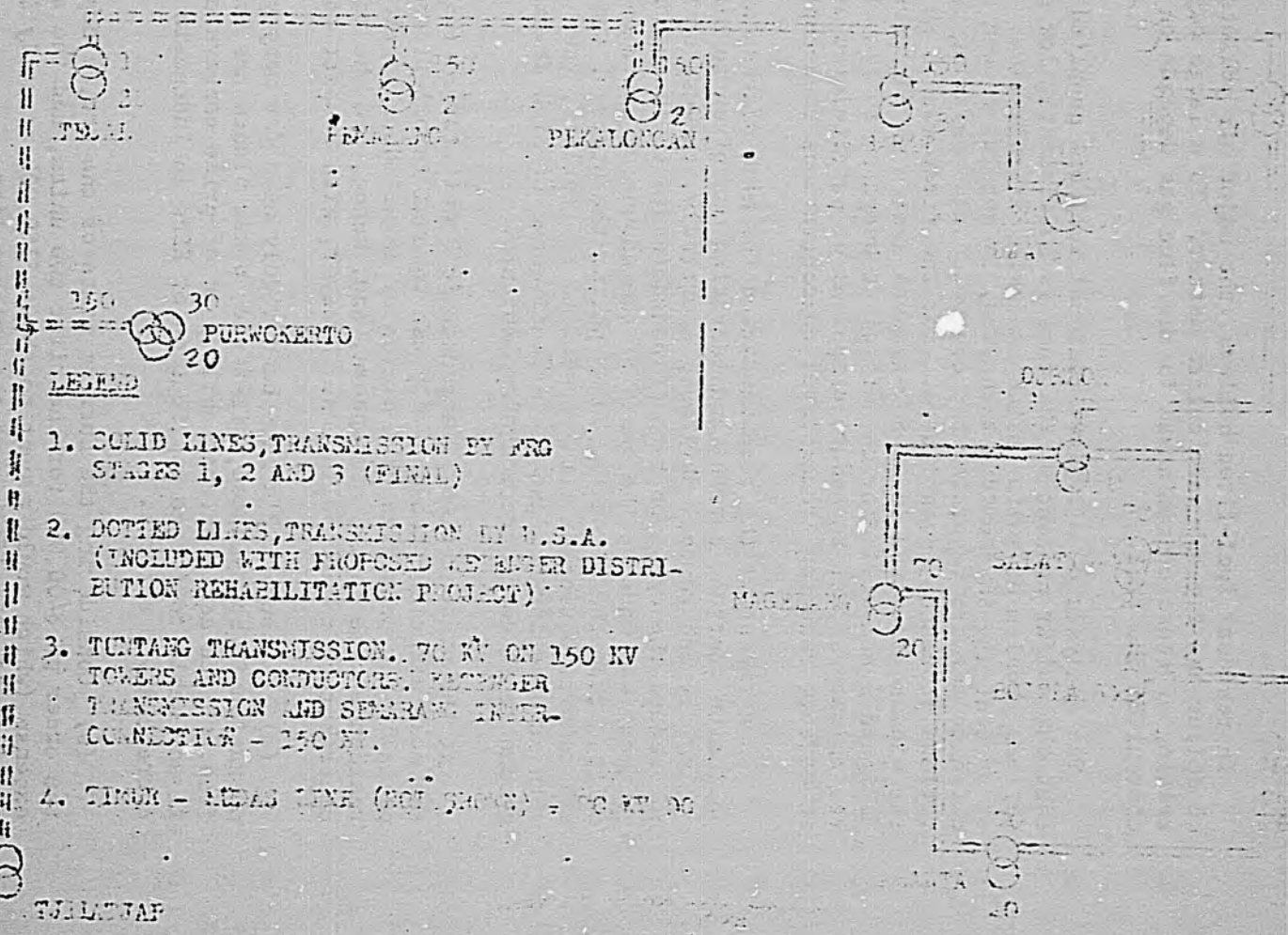
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GENERAL SYSTEM

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LEGEND

1. SOLID LINES, TRANSMISSION BY PRG STAGES 1, 2 AND 3 (FINAL)
2. DOTTED LINES, TRANSMISSION BY U.S.A. (INCLUDED WITH PROPOSED MEMBER DISTRIBUTION REHABILITATION PROJECT)
3. TUNTANG TRANSMISSION. 70 KV ON 150 KV TOWERS AND CONDUCTORS. RECUMBER TRANSMISSION AND SEPARATE INTER-CONNECTOR - 150 KV.
4. TIMOR - MELAS LINE (NOT SHOWN) - 70 KV DC



ENVIRONMENTAL ASPECTS

A. Air

The extent to which pollution abatement is accomplished should consider that the economic burden involved will increase with the degree of control desired. Reliable techniques to control pollution at a cost commensurate with appraisal of the degrees of severity have been included in the conceptual design.

In residual fuel-fired boilers, the major air pollutants are the oxides of sulfur and fly ash particulate matter. To a large degree, the concentration of these contaminants in the flue gas depends on the sulfur and ash content of the fuel.

The analysis of a typical residual fuel oil supplied by Pertamina indicates that the sulfur content of the fuel is sufficiently low so as to preclude a serious problem of sulfur oxide emission at this time. Furthermore, the state of present-day SO<sub>2</sub>-removal technology is not far enough advanced to provide definite answers regarding the economics and operating performance of the various processes investigated. For the first two 50 MW units, therefore, the expense involved in an SO<sub>2</sub>-removal system is not warranted. An adequately designed stack will provide sufficient buoyancy to the effluent gases through the chimney effect to assure dispersal of particulates over a wide area, thus, in effect, reducing ground level concentrations to acceptable limits.

In arriving at the recommendation for high stacks as a means of air pollution control, careful consideration was given to alternatives; specifically, fly ash removal devices. Admittedly, the use of high stacks alone does not reduce the emission rate of contaminants to the atmosphere. Final judgment was made on the basis of the amount of contaminants to be emitted from the first two 50 MW units; the state of the art of efficient fly ash removal equipment with respect to reliability, the high costs associated with such equipment, and the effectiveness of high stacks in minimizing ground level concentration of pollutants.

At the present time, Electrostatic Precipitators (ESP) provide potentially the most efficient means of fly ash removal in oil-fired power plants, especially for particles of 1 micron or less. Such particle sizes have the longest residence time in the atmosphere, and, hence, are the most significant contributors to air pollution. However, with respect to the first two units:

(a) Although ESP's have been widely used for many years, continuous operation in base-loaded, oil-fired, power plants has proven less than trouble free. Since equipment reliability is of prime concern on this project, it is advisable to forego application of ESPs in Indonesia at this time pending current R & D efforts.

(b) Considering the current state of the art, a capital cost increase in the order of \$400,000 for the first two units, and the additional operating expense (which would amount to about \$150,000 annually in the U.S.) is not economically justifiable at the present time.

In view of the current interest in the development of efficient, trouble-free air pollution abatement equipment, when plant expansion necessitates their utilization, they should be technically and economically acceptable for application in Central Java.

B. Water

Seawater, taken from Semarang Harbor, will be used to cool the proposed plant. Its temperature will be raised about 15°F. in passing through the power plant cooling system and will then be discharged into the East Flood Canal about one half mile from the Java Sea. In the power plant feasibility study C. T. Main states that the warm water discharged from these first two units will cool off to such an extent in the canal that there will be no noticeable temperature rise in the water when it discharges into the sea. We believe that for this initial installation there will be no noticeable ecological effect from the heated water. As additional generating units are installed at this site and the volume of heated water increases, the ecological problem should again be examined to determine whether or not supplemental cooling methods are necessary or desirable.

SEMARANG STEAM STATION  
UNIT NO. 1 & 2  
GENERAL EQUIPMENT

Each unit system will include the following major components:

1. Boiler

A steam generator designed for a rated steam flow of approximately 425,000 LB/HR with superheat outlet conditions of 1375 psig and 955°F when supplied with feed water at 423°F. The unit will fire residual fuel oil (Bunker C) and operate with an efficiency of approximately 88%. The boiler will be equipped with soot blowers, regenerative type air preheaters and motor driven forced draft fan. The boiler will be equipped with a self supporting gunnite lined steel stack.

2. Turbine Generator

A turbine generator with a maximum continuous rating of 50 MW, 62.5 MVA at .80 power factor, 13,8 KV, 50 cycles and 3000 RPM. The turbine will develop full rating with throttle steam conditions of 1250 psig, 950°F and 2.5 inch Hg back pressure with the entire cycle in normal operation and make-up at 3% of the throttle steam flow. The turbine will be straight condensing, single flow with five extraction points for feed-water heating and will be equipped with hydraulic relay governing system, control valves, stop valve, overspeed trip, shaft driven exerter, main and auxiliary oil pumps, oil reservoir and coolers. The generator will be hidrogen cooled with coolers designed for 100°F cooling water.

3. Condensing Equipment

The Condensor will be horizontal, two-pass divided water box type and sized to provide a back measure of 2.5 inch of Hg with 50 MW load on the turbine. Tubes will be 80-20 cupro-nickle alloy.

One full capacity vertical type circulating water pump will be provided for each condensor with one full-capacity spare installed for both units. Pumps will be located adjacent to the intake structure. Two full-capacity condensate pumps either of which will be capable of delivering the maximum full load condensate flow to the steam jet air ejector through two low pressure closed feed water heaters into the deaerator. Twin-element, two-stage air ejector unit and hogging ejector will be included with each condensor.

4. Feed Water Heaters

Four closed type feed water heaters will be provided, two high-pressure and two low-pressure. Heaters will be equipped with integral drain coolers and removable tube boundless. The two low-pressure heaters will be located in the neck of the condensor. An open tray type deaerator will be furnished for each unit. The deaerator will incorporate a minimum 10-minute storage supply of feedwater for the boiler feed pumps

and will also serve as a receiver for the high-pressure drains.

5. Boiler Feed Pumps

Each boiler will be provided with two full-capacity motor-driven boiler feed pumps. A start-up boiler feed pump will be provided with sufficient capacity to permit one unit to start-up from an outside power source. The Semarang gas turbine plant will be the power source for steam station start-up.

6. Cooling Water System

The condenser cooling water will be seawater drawn from the harbor area west of the plant and discharged to the East Flood Canal. The intake structure will be equipped with trash racks and traveling screens with a screen wash system. Piping at the condenser will be arranged so that flow of circulating water can be reversed to facilitate removal of marine growth and foreign material that may accumulate in the condenser and water boxes.

Water required for plant operation such as general sanitary use, washing, cooling and cycle make-up will be supplied from wells which will be developed near the plant site. Treatment and softening equipment will be provided for this system.

7. Electrical Equipment

The basic electrical equipment for the power plant will consist of two 50-MW turbine-generators with exciters, generator field and neutral grounding switchgear, main power transformers, auxiliary transformers and switchgear, outdoor 150-KV switchyard, battery and battery chargers, a communications system, switchgear for station controls, lighting system, motor control and other electrical equipment to provide a reliable and complete electrical system.

Each generator will be totally enclosed, hydrogen-cooled, and rated 62.5 MVA, 13.8 KV, 3-phase, 50 cycles. The exciters will be directly connected to the generator field through circuit breakers.

Metal-enclosed, isolated phase bus will connect the generators to the main power transformers and will be provided with taps for cable connection to the unit auxiliary transformers.

The auxiliary power for each boiler-turbine-generator unit will be supplied from unit auxiliary power transformers which will be connected to the main generator leads. The general bus will be supplied from a transformer connected to Timur substation. The latter transformer will supply the auxiliary load for one unit for start-up. Start-up power will be supplied from the gas turbine plant.

The control board in the main control room will provide for general station control, relaying, and instrumentation of the generators, power transformers, auxiliary power feeder circuits, and the 150 KV transmission feeders which will be connected to the outdoor switchyard.

A two-way combination telephone and public address system will be provided for communication between the central control room, key operating personnel, and all important operating stations.

The building and outdoor lighting will be provided in accordance with the requirements and accepted practice for adequate illumination in all working areas.

The outdoor 150-KV switchyard will be completely equipped with high-voltage buses, supporting steel structure, main step-up transformers, circuit breakers for the generators and outgoing line, disconnect switches, instrument transformers, grounding, and lighting systems.

In addition to the above both units will include such items on heater-drain pumps, condensate and service, water storage tanks, fuel oil unloading, handling storage, heating and pumping equipment, main and extraction steam. Boiler feed and condensate piping, chemical fuel equipment, water heating equipment and the normal station complement of controls, gages, meters and general and heavy maintenance equipment.

SEMARANG STEAM STATION  
UNIT NO. 1 & 2  
POWER PLANT PERSONNEL

As described in Section IIB. 1. the power plant will be staffed with the following supervisory, operating and maintenance personnel:

1. Supervisory and Technical

The Plant Superintendent will be in direct charge of all personnel and their activities and will generally administer the operation of the plant. He will be assisted in this work by the Chief Engineer who will be specifically in charge of all operating procedures. The Results Engineer will be specifically responsible for overall plant performance. He will institute such record-keeping and test routines that will insure the optimum performance of the station. He will be assisted in this work by the plant chemist and the instrument technician who will also have specific responsibility for all water treatment and plant instrumentation, respectively.

2. Operation

A Watch Engineer will be on duty at each shift and will be in direct charge of plant operation. His responsibility will be to direct the operating personnel on his watch and insure conformance with established plant procedures and regulations.

The center of plant operation will be the Control Room which will be in charge of the Control Room Operator. He will be assisted in this work by the Electrical Operator and the Assistant Control Room Operator. The controls will be arranged so that practically all the operating functions can be accomplished from this area.

Two Boiler Operators on each watch will attend the boilers and their associated auxiliaries, including lighting-off, cleaning burner tips, sootblowing, etc. One of the operators will be in charge of all fuel-handling, pumping and heating equipment.

A Turbine Operator assisted by an Auxiliary Operator will attend the turbine, boiler feed-pumps, condensers and other related auxiliaries. These men will also cover the cooling-water system, intake screens and washing equipment, water-treating facilities and potable water supply and chlorination equipment.

Several relief operators will be available to fill any of the above positions when the regularly assigned personnel are not available.

3. Maintenance

All plant maintenance and repair work will be accomplished by the maintenance personnel under the direction of a maintenance foreman who will

work with the Chief Engineer. This group would consist of mechanics, machinists, electricians with their helpers, and a qualified welder. During annual inspection and major equipment overhaul periods service personnel from the equipment suppliers should be present to direct this work.

Training of personnel for efficient station operation and maintenance will be the responsibility of the project engineer generally as described in Section II.B.1. In particular, the positions at the plant to be filled from the group trained in the United States, and the estimated period of training involved, will include the following:

<u>Supervisory</u>		<u>Duration of U.S. Training</u>
Plant Superintendent	(1)	16 mos.
Chief Engineer	(1)	16 mos.
Chief of Maintenance	(1)	12 mos.
Results Engineer	(1)	12 mos.
<u>Operational</u>		
Shift Foreman	(4)	12 mos.
Shift Operator	(4)	12 mos.
TOTAL	<u>(12)</u>	<u>152 man-mos.</u>

IMPLEMENTATION CONSIDERATIONSA. Consulting Engineering Services1. 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 for Borrower Procurement of Engineering and Other Professional Services of United States Source and Origin" (M.O. 1441.1).

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 give first priority to preparing invitations for bids for the long lead items. The consultant shall be responsible for the final design of the station, for preparation of bill of materials and specifications for all equipment, and for IFBs for all items of equipment 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. 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 assistance and training to station 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 plant operation and maintenance/parts handling, warehousing, and general plant supervision.

B. The Construction Contract1. 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 "Borrower Procurement of Construction Services of the United States Source and Origin" (M.O. 1441.2).

## 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.

The consultant will submit, prior to letting the contract for construction, a preliminary design of the power plant and supporting facilities which will also prepare drawings for the construction complete with material lists. He will prepare a cost estimate for the preliminary design based upon the total 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. In submitting bids, the construction contractor will be expected to provide a total price specifying the dollar and local currency component thereof. Award will be based on either the lowest total price or lowest dollar price, depending upon whether the local currency components would more advisably be bid on a fixed unit price or cost reimbursable basis. Payment to the contractor shall be made on the basis of monthly percentage of completion as stated in the executed contract, and amended from time to time.

## C. 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-U.S. flag carriers, and port charges shall be paid with foreign exchange provided by the GOI and a trust fund for such purpose will be effected through sideletter agreement.

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. 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 not to charge customs duties on imported commodities and equipment. Therefore, no problem is foreseen in obtaining customs clearance, but the arrangements for procurement which shall be provided as a condition precedent to early procurement shall include a plan for movement of commodities through customs.

PLM Region X Cash Flow (\$'000) 1971-2003				ANNEX VI Page 1 of 1 "A"											
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Cash Requirements</b>															
Fuel	1680	1830	2320	3180	866	1466	1726	1983	2397	2656	3019	3283	3649	4011	4381
Production	200	250	300	350	427	427	427	451	451	544	544	544	544	570	570
Transmission	-	-	-	-	47	51	55	59	60	63	65	69	73	75	77
General & Administrative	750	890	990	1100	1200	1300	1450	1600	1700	1840	2000	2100	2200	2300	2400
Sub total	2630	2970	3590	4630	2500	3264	3658	4093	4608	5113	5628	6143	6658	7173	7688
<b>Debt Service</b>	-	276	1848	4764	8748	10524	11134	12219	12912	13900	14285	14742	15635	16313	17429
<b>Total</b>	2630	3206	5438	9394	11268	13768	14792	16312	17520	19013	19913	20738	22123	23249	25200
<b>Cash Generation</b>															
Sales in millions kWh	205.7	215.1	225.0	235.4	305.1	417.4	511.0	565.8	626.5	693.7	766.0	828.2	897.4	972.6	1114.8
Revenues at 1.8611¢/kWh	4000	4500	5000	5700	6380	7200	8805	9900	11100	12500	14064	15150	16350	17600	18900
Revenues at 2.082¢/kWh	5000	5800	6400	7200	7980	8900	10500	11731	12982	14204	15467	16998	18171	19426	20767
Revenues at 2.4751¢/kWh	5091	5324	5569	5826	7332	10331	12648	14204	15507	17170	18959	20499	22039	23778	25117
Revenues at 2.7226¢/kWh	5600	5896	6126	6409	8307	11364	13912	15404	17097	18887	20895	22949	24242	25935	27649

- 1/ Includes distribution costs.  
 2/ Calculated on basis of external financing for all capital expenditures at terms of 30 years, 5 year grace period and interest at 12% per annum.  
 3/ Based on C.T. Main most probable load forecast.  
 4/ Average rate based on hypothetical C.T. Main rate schedule applied to all new customers together existing social rate applied to all present customers.  
 5/ Average rate based on hypothetical C.T. Main rate schedule applied to all PLM Region X customers.  
 6/ Average rate which, over a 30 year period, will yield revenues equal to all cash requirements assuming debt service on all capital additions at 12%.  
 7/ Average rate derived as in 6/ above and including 10% profit.



1969 POPULATION, HOUSEHOLDS, CLASSIFIED SALES AND PRODUCTION

	Rates (Tariffs)									District V
		Area #3	Area #4	Area #5	Area #6	Lumpang System	Area #1	Area #2	Kotanger System	
<u>Population:</u> Total (Thous.)		4417.0	2533.4	7031.6	1066.6	15943.6	3807.4	4574.6	8361.4	23430.0
" In Cities & Towns Served		1272.2	754.4	1576.5	229.3	3832.4	1047.3	913.3	1961.1	5793.5
<u>Ave. Households</u> Total (Thous.)		1005	580	1605	244	3434	572	1053	1925	5359
" " In Cities & Towns Served		286	172	354	53	865	249	211	451	1316
<u>Residential Sales</u>										
<u>Ave. Customers</u> (Thous.)	S <sub>1</sub> R <sub>1</sub> R <sub>2</sub>	46.85	20.75	44.71	7.94	120.25	29.00	13.41	33.41	153.66
<u>Millions Kwh</u>		36.332	13.648	37.313	5.291	92.584	15.164	10.174	25.338	117.922
<u>Commercial</u> Millions Kwh	S <sub>2</sub> K <sub>1</sub> K <sub>2</sub>	5.585	1.746	6.441	.435	14.207	1.732	1.107	2.338	17.046
<u>Government</u> Millions Kwh	U <sub>2</sub> U <sub>3</sub>	7.760	5.091	8.196	1.262	22.309	2.629	2.694	5.224	27.533
<u>Industrial</u> Millions Kwh	P	11.861	1.835	5.194	.966	19.856	2.458	2.541	4.999	24.855
<u>Street &amp; Traffic Lights</u> Millions Kwh	U <sub>1</sub> FU <sub>1</sub> FU <sub>2</sub>	1.091	.527	1.553	.348	3.519	.659	.694	1.353	4.972
<u>Total Sales</u> Millions Kwh		62.629	22.847	58.697	8.302	152.475	22.633	17.120	39.753	192.228
<u>Substation Use</u> Millions Kwh		.097	.036	.090	.013	.236	.035	.027	.062	.293
<u>Unaccounted For</u> Millions Kwh		19.052	6.950	17.855	1.076	44.933	4.888	3.697	8.585	53.518
% Sales		30.4E	30.4E	30.4E	13.0A	29.5A		21.6A		27.8
<u>Net Production</u> Millions Kwh		81.778	29.833	76.642	9.391	197.644	27.556	20.844	48.400	246.044
<u>Generating Sta. Use</u> Millions Kwh		.650	.930	.280	-	1.860	.310	.330	.640	2.590
<u>Gross Production</u> Millions Kwh		82.428	30.763	76.922	9.391	199.504	27.866	21.174	49.040	248.544
<u>Gross Peak</u> December 20 MW (Allocated to Areas)		17.2	4.53	10.8	1.47	34.0	4.4	3.5	7.9	41.9
<u>Net Peak</u> December 20 MW		17.1	4.43	10.7	1.47	33.7	4.3	3.5	7.8	41.5
<u>Hours Use of Net Peak</u>		4780	6730	7160	6390	5865	6408	6125		5929

POPULATION FORECAST FOR PLN DISTRICT X SERVICE AREA

Thousands of Inhabitants

UNCLASSIFIED

ANNEX VII, Page 2 of 3

	ACTUAL				FORECAST											
	Census		Registration		1971		1976		1981		1986		1991		1996	
	1961	%/Yr.	1969	%/Yr.	1971	%/Yr.	1976	%/Yr.	1981	%/Yr.	1986	%/Yr.	1991	%/Yr.	1996	%/Yr.
<b>Area #3</b>																
Semarang	503.2	2.88	631.9	2.88	699	2.88	771	2.85H	887	2.779	1018	2.628	1154	2.400	1305	
Rural Districts	3321	1.65	3785	1.65	3911	1.65	4244	1.638	4604	1.592	4932	1.506	5369	1.376	5749	
% PLN Districts			16.9		16.9		16.9		22.1		27.3		32.5		37.6	
PLN Districts			<u>640.3</u>		<u>661</u>		<u>717</u>		<u>1017</u>		<u>1360</u>		<u>1743</u>		<u>2162</u>	
Total PLN		2.26	1272.2		1330		1488		1904		2378		2904		3467	
<b>Area #4</b>																
Magelang	96.4	.91	102.4	.91	104	.91	109	.90	114	.88	119	.83	124	.76	129	
Salatiga	58.1	2.20	69.3	2.20	72	2.20	81	2.18	90	2.12	100	2.01	110	1.84	121	
Rural Districts	2105	1.44	2362	1.44	2431	1.44	2611	1.43	2803	1.39	3003	1.31	3205	1.20	3402	
% PLN Districts			24.7		24.7		24.7		26.0		27.3		26.6		29.9	
PLN Districts			<u>582.7</u>		<u>600</u>		<u>645</u>		<u>729</u>		<u>820</u>		<u>917</u>		<u>1017</u>	
Total PLN		1.41	754.4		776		835		933		1039		1151		1267	
<b>Area #5</b>																
Jogjakarta	312.7	2.70	387.0	2.70	408	2.70	466	2.68	532	2.61	605	2.46	684	2.25	764	
Surakarta	367.6	1.05	399.6	1.05	408	1.05	430	1.04	453	1.01	476	.96	499	.88	521	
Rural Districts	5519	1.56	6245	1.56	6441	1.56	6960	1.55	7516	1.51	8101	1.42	8692	1.30	9272	
% PLN Districts			12.6		12.6		12.6		13.0		13.4		13.7		14.0	
PLN Districts			<u>789.9</u>		<u>812</u>		<u>877</u>		<u>977</u>		<u>1086</u>		<u>1191</u>		<u>1293</u>	
Total PLN		1.71	1576.5		1628		1773		1962		2157		2374		2583	
<b>Area #6</b>																
E. Java Districts	116.2	1.27	128.6	1.27	132	1.27	140	1.26	150	1.23	159	1.16	168	1.06	178	
C. Java Districts	<u>804.2</u>	1.92	<u>938.0</u>	1.92	<u>974</u>	1.92	<u>1072</u>	1.91	<u>1178</u>	1.85	<u>1291</u>	1.75	<u>1408</u>	1.60	<u>1524</u>	
Rural Districts	920.4	1.86	1066.6	1.86	1106	1.85	1212		1328		1450		1576		1702	
% PLN Districts			21.5		21.5		21.5		21.5		21.5		21.5		21.5	
PLN Districts			<u>229.3</u>		<u>238</u>		<u>261</u>		<u>286</u>		<u>312</u>		<u>339</u>		<u>366</u>	
Total PLN		<u>1.86</u>	1576.5		1628		1773		1962		2157		2374		2583	
<b>Tumpang System</b>																
Municipal	13380	2.18	1590.2	2.20	1661	2.23	1857	2.23	2076	2.22	2318	2.14	2576	1.97	2840	
PLN Districts		1.59	<u>2242.2</u>		<u>2311</u>		<u>2500</u>		<u>3009</u>		<u>3578</u>		<u>4192</u>		<u>4843</u>	
Total PLN		<u>1.83</u>	3832.4		3972		4357		5065		5896		6769		7683	

POPULATION FORECAST FOR PLN DISTRICT X SERVICE AREA  
 (Continued)

	1961	%/Yr.	1969	%/Yr.	1971	%/Yr.	1976	%/Yr.	1981	%/Yr.	1986	%/Yr.	1991	%/Yr.	1996
<u>Area #1</u>															
Pekalongan	102.4	.78	108.9	.78	111	.78	115	.77	119	.75	124	.71	128	.67	133
Tegal	89.0	1.92	103.7	1.92	108	1.92	118	1.90	130	1.65	143	1.75	156	1.60	168
Rural Districts	3210	1.42	3595	1.42	3695	1.42	3958	1.41	4256	1.37	4555	1.30	4859	1.19	5155
% PLN Districts			23.2		23.2		23.2		24.4		25.5		26.9		27.7
PLN Districts			<u>835.2</u>		<u>859</u>		<u>921</u>		<u>1038</u>		<u>1162</u>		<u>1292</u>		<u>1429</u>
Total PLN			1047.8		1078		1154		1287		1429		1576		1729
<u>Area #2</u>															
Rural Districts	4160	1.19	4574	1.19	4684	1.19	4969	1.18	5269	1.15	5579	1.09	5890	.99	6187
% PLN Districts			20.0		20.0		20.0		20.6		20.8		21.0		21.1
Total PLN			913.3		937		994		1065		1160		1237		1305
<u>Ketenangan System</u>															
Municipal	191.4	1.32	212.6	1.33	219	1.35	233	1.38	249	1.40	267	1.34	284	1.27	301
PLN Districts		1.30	<u>1748.5</u>		<u>1796</u>		<u>1915</u>		<u>2123</u>		<u>2322</u>		<u>2529</u>		<u>2733</u>
Total PLN		1.30	1961.1		2015		2146		2372		2589		2813		3034
<u>District X</u>															
Municipal	1529.4	2.08	1802.8	2.12	1880	2.14	2090	2.16	2325	2.14	2585	2.04	2860	1.92	3141
Rural Districts	19235	1.47	21627		22271		23964		25776		27670		29591		31467
Total	20764	1.52	23430		24150	1.530	26054		28101		30255		32451	1.295	34608
PLN Districts			<u>3990.7</u>		<u>4107</u>		<u>4415</u>		<u>5132</u>		<u>5909</u>		<u>6721</u>		<u>7575</u>
Total PLN			5793.5*		5987*		6505*		7457*		8485*		9581*		10717*
<u>Cent. Java &amp; Jogja</u> (Total Population)	20648	1.52	23302	1.52	24019	1.53	25914	1.52	27951	1.49	30096	1.41	32283	1.30	34430

PIN DISTRICT X  
COMBINED TUNTANG & KETENGER FORECASTS

	1969	1971	1976 Tuntang Forecast Ketenger Estimate	1977 Forecast	1981	1986	1991	1996
<u>RESIDENTIAL</u>								
# Customers (1000)	153.662	158.5			266	321	379	444
KWH/Customer	767	782			1293	1671	2129	2637
Millions KWH	117.922	124.0		220	344	536	606	1171
<u>COMMERCIAL</u>								
Millions KWH	17.045	18.1		27	40	61	93	140
<u>GOVERNMENT</u>								
	27.533	29.5		41	47	57	68	81
<u>INDUSTRIAL</u>								
	24.855	29.1		215	323	404	509	640
<u>ST. &amp; TRAFFIC LIGHTS</u>								
	4.872	5.0		8	12	19	28	39
<u>TOTAL SALES</u>								
Millions KWH	192.227	205.7		511	766	1077	1503	2071
Substa. Use (E)	.298	.4		1	2	2	3	4
<u>Unaccounted For</u>								
Millions KWH	53.518	57.4		75	113	159	223	308
% Sales	27.8	27.9		14.6	14.8	14.8	14.9	14.9
<u>NET PRODUCTION</u>								
Millions KWH	246.043	263.5	481	587	881	1238	1729	2383
Hours Use of Net Peak	5929	5880	5100	5100	4980	5090	5170	5220
Net Peak, MW	41.5	45	94	115	177	243	335	457



ILLUSTRATIVE MONTHLY RATES FOR ELECTRIC POWER SERVICE  
(Chas. T. Mein)

Residential & Small Power Rate:

8.8 Rp/KWH for 1st 50 KWH/month  
8.3 Rp/KWH for next 50 KWH/month  
7.8 Rp/KWH for next 100 KWH/month  
7.3 Rp/KWH for all over 200 KWH/month

Large Power Rate:

Demand: 1st 50 KW @1200 Rp/KW/month  
next 450 KW @1100 Rp/KW/month  
next 500 KW @1000 Rp/KW/month  
  
All over 1000 KW @ 900 Rp/KW/month

Energy: 1st 150 hours use of demand 4.0 Rp/KWH/month  
next 150 hours use of demand 3.6 Rp/KWH/month  
  
All over 300 hours use of demand 3.2 Rp/KWH/month

AID-ILC/P-974

ANNEX VIII-B

PLN REGION X  
Investment Expenditures  
(\$000)

<u>Project</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>Total</u>
AID Loan 497-H-019 (Tuntang Rehab.)								
A. US\$	300	2,900	6,300	5,300	2,000			16,800
B. Third Country	700	200						900
C. Local Currency	100	1,300	1,900	1,200				4,500
Semarang Steam Plant								
A. US\$		600	2,000	11,100	6,000			19,700
B. Local Currency		100	1,200	3,500	1,000			5,800
Ketenger Rehabilitation & Transmission								
A. US\$		2,700	6,500	7,800	4,000			21,000
B. Local Currency		900	2,000	2,400	1,200			6,500
FRG Transmission Project								
A. Third Country	1,000	3,500	3,500	1,500	500			10,000
B. Local Currency	<u>200</u>	<u>900</u>	<u>900</u>	<u>400</u>	<u>100</u>			<u>2,500</u>
Total Project Costs by Year	2,300	13,100	24,300	33,200	14,800	0	0	87,700
Accumulated Project Costs	2,386	14,558	38,670	77,918	88,535	90,165	90,165	90,165

**Table 3.1: Balance of Payments Estimates, 1969/70-1971/72**

(in millions of US dollars)

	<u>1969/70</u>	<u>1970/71</u>	<u>1971/72</u> :
<b><u>Exports of Goods and Services</u></b>			
Gross oil exports	380	447	580
Non-oil exports	659	749	840
<b>Total Exports</b>	<b>1,039</b>	<b>1,196</b>	<b>1,420</b>
<b><u>Imports of Goods and Services</u></b>			
Foodgrains	212	149	143
Other food	53	53	60
Non-food consumer goods	158	185	210
<b>Total Consumer Goods</b>	<b>423</b>	<b>387</b>	<b>413</b>
Agricultural inputs	56	26	30
Industrial inputs	234	247	270
Investment related goods (excl. oil)	394	560	733
Oil sector goods & services	121	139	175
Investment income payments	109	134	182
Non-factor services (excl. oil)	106	119	123
<b>Total Imports</b>	<b>1,443</b>	<b>1,612</b>	<b>1,926</b>
<b><u>Current Account Deficit</u></b>	<b><u>404</u></b>	<b><u>416</u></b>	<b><u>506</u></b>
<b><u>Financings</u></b>			
Project aid <sup>b/</sup>	52	110	175
Program aid <sup>c/</sup>	307	291	370
Direct private investment	51	103	135
Suppliers' credits	-17	-30	-
Short-term credits	-	37	-
<b>Total</b>	<b>393</b>	<b>511</b>	<b>680</b>
Debt service payments <sup>a/</sup>	-85	-120	-147
Monetary movements (excl. SDR)	78	13	-27
<b>Total capital and monetary movements</b>	<b>382</b>	<b>404</b>	<b>506</b>
Net errors and omissions	22	12	-

a/ Including debt service and hire-purchase payments of the oil sector.

b/ Based on L/C's opened for commitments since 1967 and arrivals for pre-1967 project aid.

c/ Based on L/C's opened.

Table 4.2: Outstanding Liabilities of Pre-1967 Debt  
as of January 1, 1970 1/ 2/

(In millions of US dollars)

	Original		Interest		Total		
	Principal (1)	Resched. (2)	outst. (3)	Moratorium Accrued (4)	Outst. (5)	Principal (1+2+4)	Interest (3+5)
<b>I. Participating countries<sup>3/</sup></b>							
1. France	77.6	10.1	1.4	3.8	17.8	91.5	19.2
2. Germany	106.0	9.7	6.6	3.1	17.0	118.8	23.6
3. Netherlands	26.8	2.2	0.9	0.6	3.9	29.6	4.8
4. Italy	110.4	8.0	3.1	4.7	23.7	123.1	26.8
5. Japan	69.4	3.6	2.2	3.4	13.5	76.4	15.7
6. U.S.A.	156.8	20.6	14.2	3.7	19.5	181.1	33.7
7. U.K.	20.2	2.3	0.2	1.2	5.5	23.7	5.7
	<u>567.2</u>	<u>56.5</u>	<u>28.6</u>	<u>20.5</u>	<u>100.9</u>	<u>644.2</u>	<u>129.5</u>
<b>II. CMEA countries, Yugoslavia and Mainland China</b>							
1. U.S.S.R.	675.5			76.8	53.9	752.3	53.9
2. Hungary	17.1			0.3	1.5	17.4	1.5
3. Czechoslovakia	64.5			1.3	12.7	65.8	12.7
4. Germany Democ. Rep.	45.7			0.3	16.6	46.0	16.6
5. Poland	94.2			0.1	32.4	94.3	32.4
6. Bulgaria	1.4			-	0.2	1.4	0.2
7. Rumania	13.1			-	2.6	13.1	2.6
8. Mainland China	21.0			0.5	0.7	21.5	0.7
9. Yugoslavia	95.1			0.6	24.5	95.7	24.5
	<u>1,027.6</u>			<u>79.9</u>	<u>145.1</u>	<u>1,107.5</u>	<u>145.1</u>
<b>III. Other Countries<sup>3/</sup></b>							
1. Pakistan	9.5	2.5	-	-	1.7	12.0	1.7
2. India	3.7	-	-	-	-	3.7	-
3. United Arab Rep.	3.6	-	0.8	-	-	3.6	0.8
4. Austria	2.5	-	-	-	-	2.5	-
	<u>19.3</u>	<u>2.5</u>	<u>0.8</u>	<u>-</u>	<u>1.7</u>	<u>21.8</u>	<u>2.5</u>
<b>Total</b>	<u>1,614.1</u>	<u>59.0</u>	<u>29.4</u>	<u>100.4</u>	<u>247.7</u>	<u>1,773.5</u>	<u>277.1</u>

1/ Subject to rescheduling based on agreed minutes April 1970 of participating countries and Protocol of August 1970 between Indonesia and U.S.S.R.

2/ All liabilities have been converted into US\$ based upon exchange rates to which parity change since December 1966 have been realized, except CMEA Countries, Mainland China and Yugoslavia.

3/ Excluded Non Guaranteed Debts.

Table 4.5: Debt Service, Pre-1967 Debt After Rescheduling Without Use of Bisque Clause /1  
(In millions of US dollars)

Year	Participating Countries /2			USSR, Eastern & Non-participating Other Countries /3			All Countries		
	Princi- pal	Interest	Total	Princi- pal	Interest	Total	Princi- pal	Interest	Total
1970	21.4	-	21.4	37.6	-	37.6	59.0	-	59.0
1971	-	-	-	-	-	-	-	-	-
1972	-	-	-	-	-	-	-	-	-
1973	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	21.4	-	21.4	-	-	-	59.0	-	59.0
1978	21.5	-	21.5	-	-	-	59.1	-	59.1
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-
1984	-	-	21.5	-	-	37.6	-	-	59.1
1985	-	8.6	30.1	-	9.8	47.4	-	18.4	77.5
1986	-	-	-	37.6	-	47.4	59.1	-	77.5
1987	-	-	-	37.7	-	47.5	59.2	-	77.6
1988	-	-	-	-	-	-	-	18.4	77.6
1989	-	-	-	-	-	-	-	18.5	77.7
1990	-	-	-	-	-	-	-	-	-
1991	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	9.8	47.5	-	-	-
1994	-	8.6	30.1	-	9.9	47.6	-	18.5	-
1995	-	8.7	30.2	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-
1999	21.5	8.7	30.2	37.7	9.9	47.6	59.2	18.5	77.7
2000	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>644.2</b>	<b>129.5</b>	<b>773.7</b>	<b>1,129.3</b>	<b>147.6</b>	<b>1,276.9</b>	<b>1,773.5</b>	<b>277.1</b>	<b>2,050.6</b>

/1 Option to defer part of the principal payments.

Source: Bank Indonesia

Table 4.4: Debt Service, Pre-1967 Debt After Reconciling with Full Use of Escrow Clauses<sup>1/</sup>  
(In millions of US dollars)

Year	Participating Countries				USSR, Eastern and Non-participating Other Countries				All Countries			
	Princi- pal	Interest	Defer- ment Int.	Total	Princi- pal	Interest	Defer- ment Int.	Total	Princi- pal	Interest	Defer- ment Int.	Total
1970	10.7	-	-	10.7	23.5	-	-	23.5	34.2	-	-	34.2
1971	-	-	0.4	11.1	-	-	-	23.5	-	-	-	34.8
1972	-	-	0.9	11.6	-	-	0.2	23.7	-	-	0.6	35.5
1973	-	-	1.3	12.0	-	-	0.4	23.9	-	-	1.3	36.1
1974	10.7	-	1.7	12.4	-	-	0.6	24.1	-	-	1.9	36.7
1975	17.8	-	2.1	19.9	-	-	0.8	24.3	34.2	-	2.5	44.3
1976	17.8	-	2.3	20.1	-	-	0.9	24.4	41.3	-	3.0	44.7
1977	17.9	-	2.4	20.3	23.5	-	1.1	24.6	41.3	-	3.4	45.1
1978	21.5	-	2.6	24.1	37.6	-	1.3	24.8	41.4	-	3.7	45.2
1979	-	-	-	-	-	-	1.5	39.1	59.1	-	4.1	63.2
1980	-	-	-	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	24.1	-	-	-	-	-	-	-	-
1985	-	8.6	-	32.7	-	-	-	39.1	-	-	-	63.2
1986	-	-	-	-	-	9.8	-	48.9	-	18.4	-	81.6
1987	-	-	-	-	37.6	-	-	48.9	59.1	-	-	81.6
1988	-	-	-	-	37.7	-	-	49.0	59.2	-	-	81.7
1989	-	-	-	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-	-	-	-
1991	21.5	-	-	32.7	37.7	-	-	49.0	-	-	-	81.7
1992	29.5	-	2.6	40.7	51.8	-	1.5	71.7	59.2	-	4.1	112.4
1993	-	-	2.2	40.3	-	-	10.1	71.5	81.3	-	12.7	111.8
1994	-	8.6	1.9	40.0	-	9.8	9.9	71.4	-	18.4	11.6	111.0
1995	-	8.7	1.6	39.8	-	9.9	9.7	71.2	-	18.5	11.1	110.6
1996	-	-	1.3	39.5	-	-	9.5	71.1	-	18.6	10.7	110.1
1997	29.5	-	1.0	39.2	-	-	9.4	70.9	81.3	-	9.6	109.6
1998	29.6	-	0.6	38.9	-	-	9.2	70.7	81.4	-	9.1	109.1
1999	29.6	8.7	0.3	38.6	51.8	9.9	9.0	70.5	81.4	18.6	-	2,211.5
2000	-	-	-	-	-	-	8.8	-	-	-	-	-
Total	644.2	129.5	59.0	832.7	1,129.3	147.6	101.9	1,378.8	1,773.5	277.1	160.9	2,211.5

<sup>1/</sup> Option to defer part of Principal Payments - up to 50% for participating countries and 37.5% for remaining countries.

Source: Bank Indonesia

**Table 4.3: Debt Service, Pre-1967 Debt After Rescheduling Without Use of Bisque Clause /1**  
(In millions of US dollars)

Year	Participating Countries /2			USSR, Eastern & Non-participating Other Countries /3			All Countries		
	Prin- cipal	Interest	Total	Prin- cipal	Interest	Total	Prin- cipal	Interest	Total
1970	21.4	-	21.4	37.6	-	37.6	59.0	-	59.0
1971	-	-	-	-	-	-	-	-	-
1972	-	-	-	-	-	-	-	-	-
1973	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	21.4	-	21.4	-	-	-	-	-	-
1978	21.5	-	21.5	-	-	-	59.0	-	59.0
1979	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	59.1	-	59.1
1981	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	-
1985	-	-	21.5	-	-	-	-	-	-
1986	-	8.6	30.1	-	9.8	37.6	-	-	59.1
1987	-	-	-	37.6	-	47.4	-	18.4	77.5
1988	-	-	-	37.7	-	47.4	59.1	-	77.5
1989	-	-	-	-	-	47.5	59.2	-	77.6
1990	-	-	-	-	-	-	-	18.4	77.6
1991	-	-	-	-	-	-	-	18.5	77.7
1992	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-
1994	-	8.6	30.1	-	9.8	47.5	-	-	-
1995	-	8.7	30.2	-	9.9	47.6	-	18.5	-
1996	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-
1999	21.5	8.7	30.2	37.7	9.9	47.6	59.2	18.5	77.7
2000	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>644.2</b>	<b>129.5</b>	<b>773.7</b>	<b>1,129.3</b>	<b>147.6</b>	<b>1,276.9</b>	<b>1,773.5</b>	<b>277.1</b>	<b>2,050.6</b>

/1 Option to defer part of the principal payments.

Source: Bank Indonesia

Table 4.4: Debt Service, Pre-1967 Debt After Rescheduling With Full Use of Waiver Clauses<sup>1/</sup>  
(In millions of US dollars)

Year	Participating Countries				USSR, Eastern and Non-participating Other Countries				All Countries			
	Princi- pal	Interest	Defer- ment Int.	Total	Princi- pal	Interest	Defer- ment Int.	Total	Princi- pal	Interest	Defer- ment Int.	Total
1970	10.7	-	-	10.7	23.5	-	-	23.5	34.2	-	-	34.2
1971	-	-	0.4	11.1	-	-	0.2	23.7	-	-	0.6	34.8
1972	-	-	0.9	11.6	-	-	0.4	23.9	-	-	1.3	35.5
1973	-	-	1.3	12.0	-	-	0.6	24.1	-	-	1.9	36.1
1974	10.7	-	1.7	12.4	-	-	0.8	24.3	34.2	-	2.5	36.7
1975	17.8	-	2.1	19.9	-	-	0.9	24.4	41.3	-	3.0	44.3
1976	17.8	-	2.3	20.1	-	-	1.1	24.6	41.3	-	3.4	44.7
1977	17.9	-	2.4	20.3	23.5	-	1.3	24.8	41.4	-	3.7	45.1
1978	21.5	-	2.6	24.1	37.6	-	1.5	39.1	59.1	-	4.1	63.2
1979	-	-	-	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	24.1	-	-	-	39.1	-	-	-	63.2
1985	-	8.6	-	32.7	-	9.8	-	48.9	-	18.4	-	81.6
1986	-	-	-	-	37.6	-	-	48.9	59.1	-	-	81.6
1987	-	-	-	-	37.7	-	-	49.0	59.2	-	-	81.7
1988	-	-	-	-	-	-	-	-	-	-	-	-
1989	-	-	-	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-	-	-	-
1991	21.5	-	-	32.7	37.7	-	1.5	49.0	59.2	-	4.1	81.7
1992	29.5	-	2.6	40.7	51.8	-	10.1	71.7	81.3	-	12.7	112.4
1993	-	-	2.2	40.3	-	9.8	9.9	71.5	-	18.4	12.1	111.8
1994	-	8.6	1.9	40.0	-	9.9	9.7	71.4	-	18.5	11.6	111.4
1995	-	8.7	1.6	39.8	-	9.9	9.5	71.2	-	18.6	11.1	111.0
1996	-	-	1.3	39.5	-	-	9.4	71.1	-	-	10.7	110.6
1997	29.5	-	1.0	39.2	-	-	9.2	70.9	81.3	-	10.2	110.1
1998	29.6	-	0.6	38.9	-	-	9.0	70.7	81.4	-	9.6	109.6
1999	29.6	8.7	0.3	38.6	51.8	9.9	8.8	70.5	81.4	18.6	9.1	109.1
2000	-	-	-	-	-	-	-	-	-	-	-	-
Total	644.2	129.5	59.0	832.7	1,129.3	147.6	101.9	1,378.8	1,773.5	277.1	160.9	2,211.5

<sup>1/</sup> Option to defer part of Principal Payments - up to 50% for participating countries and 37.5% for remaining countries.

Source: Bank Indonesia



Indonesia: Payments Due on External Debts  
Contracted from July 1, 1966 Through December 31, 1970<sup>1/</sup>

(In millions of U.S. dollars)

	Principal	Interest	Total
1971	10.9	26.6	37.5
1972	11.6	30.8	42.4
1973	11.7	33.1	44.8
1974	15.2	33.4	48.6
1975	22.2	32.9	55.1
1976	25.9	32.4	58.3
1977	38.7	31.2	69.9
1978	47.1	30.1	77.2
1979	51.6	29.8	81.4
1980	59.7	28.3	88.0
1981	63.9	28.9	92.8
1982	64.2	27.8	92.0
1983 and after	<u>1,030.9</u>	<u>324.5</u>	<u>1,355.4</u>
Total	1,453.6	689.8	2,143.4

Source: Data supplied by the Indonesian authorities.

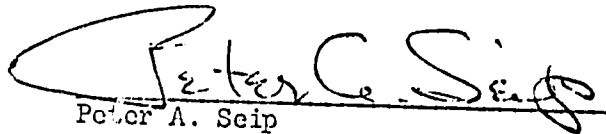
<sup>1/</sup> Excludes service payments due on \$20.0 million for which data are not yet available.

SEMARANG STEAM STATION  
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 thereof.



Richard M. Cashin  
Director, USAID Indonesia



Peter A. Seip  
Counselor for Economic Affairs

SEMARANG STEAM STATION

CERTIFICATION PURSUANT TO SECTION 611 (c) 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 an existing AID capital assistance project of substantial management and operating assistance to PLN Region X plus covenants to implement reforms derived from those carried out by Central PLN under the IBRD project;
- C. the inclusion in subject capital assistance project of substantial training for station supervision, operation and maintenance;
- D. the inclusion in subject capital assistance project of provisions for project implementation and local currency availability;
- E. 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

do hereby certify that in my judgment 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. 105 IND and will agree to the self-help objectives 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. The Government of Indonesia has further demonstrated its adherence to sound business and economic principles by stabilizing the economy of Indonesia, which had been subject to rapid inflation and severe price distortions under the previous Government.

  
Richard M. Cashin  
Director, USAID Indonesia

STATUTORY CHECKLISTI. COUNTRY PERFORMANCEA. Progress Towards Country Goals

1. FAA §§ 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 70 technical and capital assistance projects in the fields of Agriculture and Irrigation in its priority list of projects for fiscal year 1971/1972. 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. and enacted banking legislation which will permit foreign banks to open branches in Indonesia. 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 are scheduled for 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 expenditure 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. In addition, the GOI has contributed local currency and logistic support for contractor personnel conducting feasibility studies and housing, local transportation and per diem of USAID technicians through contributions to the USAID trust fund.

(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 Soeharto 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. The rate has remained stable at Rp.378/US\$1. The rate of inflation has been reduced from 636.8 percent per annum in CY 1966

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

to 9.4 and 8.8 percent in calendar year 1969 and 1970 respectively. Tax revenue in real terms have increased each year at the rate of 10 to 40 percent since 1967 and are projected at the rate 25 to 30 percent for FY 71/72. Approximately 16 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.

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(l). 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(l). 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, repayment of one FAA loan has 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 receiving U.S. assistance? 620(i). We have no information as to any such representational activity.



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?

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

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?

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(c). 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, \*Is the country diverting U.S. development assistance or P.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(c). (a) The Department of Defense portion of the State Budget has ranged from a high of 33% in CY 1967 to a low of 24% in the FY 1971/72 draft budget.

(b) We have no knowledge of any significant expenditures of foreign exchange for the military. Less than 10% of the military budget is allocated for foreign exchange purchases. Moreover, the Department of Defense budget includes substantial amounts for construction of roads, bridges and other civil work projects.

(c) We are aware of no such purchases. The cooperating country is currently distributing P.L. 480, Title I rice and cotton yarn to the armed forces. The rice distributed to the armed forces is part of the total distribution of rice allowance to Government employees and their dependents. The departments (including the military) and State Enterprises currently pay for the rice through budget transfers

\*and (c) has the country spent money for sophisticated weapons systems purchased since the statutory limitation became effective?

at the rate of Rp.45/Kg. which approximates the local market price. As much as 50% of P.L. 480 Title I rice may be distributed to the military forces. Cotton yarn P.L. 480, Title I valued at approximately \$8 million imported during the past three years has been utilized by the military to make uniforms. The military pays for the cotton yarn at prices approximating the local market price. Although the military utilize these commodities we are of the opinion that use of the commodities does not constitute diversion of development assistance inasmuch as the transaction is similar to a commercial sale and does not permit the military to expand its operation beyond that which can be accomplished through use of its budget allocation. Local currency sales proceeds of P.L. 480 imports are channeled through the development budget which is used almost entirely for economic and social development.

The government is placing primary emphasis on economic development and not diverting its own resources for unnecessary military expenditures.

## II. CONDITION OF THE LOAN

### A. General Soundness

#### Interest and Repayment

1. FAA 5F201(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 5201(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 IRRD 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 IRRD resident mission. Other donors are also participating in loan assistance to the power sector (IRRD, FRG, Japan). Inasmuch as the EXIM Bank does not currently make loans in excess of 1 year in Indonesia, it expressed to A.I.D. no interest in the project.

## 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?
- 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 implementation of these reforms.
2. FAA §611(a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonable firm estimate of the cost of assistance to the U.S., been completed?
- 611(a)(1). Yes.
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?
- 611(b). This is not a water or related land-resources construction project.
4. FAA §611(c). 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?
- 611(c). The certification of the USAID Director is in Annex IX.

B. Relation to Achievement of  
Country and Regional Goals

Country Goals

1. FAA 88207, 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 and management assistance to PLM Region X to develop a sound, autonomous institution. Additional assistance is being provided to the PLM central organization under IDA loan. These loans will require establishment of PLM as a fully autonomous institution. Development of capability by PLM personnel will be a key step in bringing about economic development through the initiative of people within Central 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.

A substantial program of technical assistance and training for PLM Region X 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; co-operatives 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 Central Java, will facilitate new commercial and industrial enterprises. There will be extensive training and improvement of basic labor and managerial 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?
- 201(b)(3). Increased and reliable electrical power capacity will provide a necessary basis for economic development.
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.
- 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 and managerial skills for additional personnel.
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?
- 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 ICGI). The assistance is being coordinated with the advice of the IBRD.



C. Relation to U.S. Economy

Employment, Balance of  
Payments, Private Inter-  
prise

1. FAA 55201(b)(6); 102,  
Fifth. What are the possi-  
ble effects of this loan  
on U.S. economy, with  
special reference to areas  
of substantial labor sur-  
plus? Describe the extent  
to which assistance is  
constituted of U.S. commo-  
dities and services, fur-  
nished in a manner consis-  
tent with improving the  
U.S. balance of payments  
position.  
201(b)(6). The goods and services  
financed by this loan will be ob-  
tained 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.
2. FAA 55612(b); 626(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 con-  
tractual and other servi-  
ces, and that U.S. foreign-  
owned currencies are uti-  
lized in lieu of dollars?  
612(b), 626(h). Local currency pro-  
vided by the SOI will be used to meet  
local currency needs of the project.
3. FAA 5601(d); App. 5115.  
If this loan is for a  
capital project, to what  
extent has the Agency en-  
couraged utilization of  
engineering and professio-  
nal 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 na-  
tionals of the country or  
qualified citizens of the  
U.S.? If so, has the re-  
quired waiver been obtained?  
601(d). All goods and services  
financed under the loan will be  
from A.I.D. Geographic Code 941.

4. FAA E608(a). Provide information measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.

608(a). U.S. Government excess property will not be used for this project, because the project requires standardization by PLN of components for this and other systems.

5. FAA E602. 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?

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

6. FAA E621. If the loan provides technical assistance, how is private enterprise or 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?

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.

7. FAA E611(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?

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

#### Procurement

1. FAA E602(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President?

602(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.

D. Other Requirements

1. FAA §201(b). Is the country among the 20 countries 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 Commu-  
nist 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, pro-  
motes 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?

110. 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. 9117. 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). 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 enterprises? 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. §104. 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? 104. Yes. The loan agreement will cover this requirement.

13. 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.

LOAN AUTHORIZATION

AID-DLC/P-974/A Draft

A.I.D. Loan

Project No. 497-22-220-204

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds  
(Indonesia: Perusahaan Listrik Negara;  
Semarang Steam Station)

Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "A.I.D.") 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 **Nineteen Million, Seven Hundred Thousand Dollars (\$19,700,000)** to assist in financing <sup>the</sup> foreign exchange costs of equipment, materials and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara (hereinafter called "Beneficiary") located in Semarang, 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 of 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 <sup>A.I.D. should otherwise agree in writing,</sup> equipment, materials, and services financed under this loan shall have their source and origin in countries under A.I.D. 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 A.I.D.

c. Unless A.I.D. 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) The GOI will make foreign exchange available to the Beneficiary, in addition to the proceeds of this loan for the purchase of third country equipment necessary for site preparation.

(2) 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 in the said estimates, or such lesser amount as A.I.D. shall agree to in writing, which shall be used for the execution of the project until the project is completed.

(3) Beneficiary shall institute reforms pursuant to recommendations of a management consultant made in accordance with a Project Agreement between Beneficiary and the International Development Association.

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

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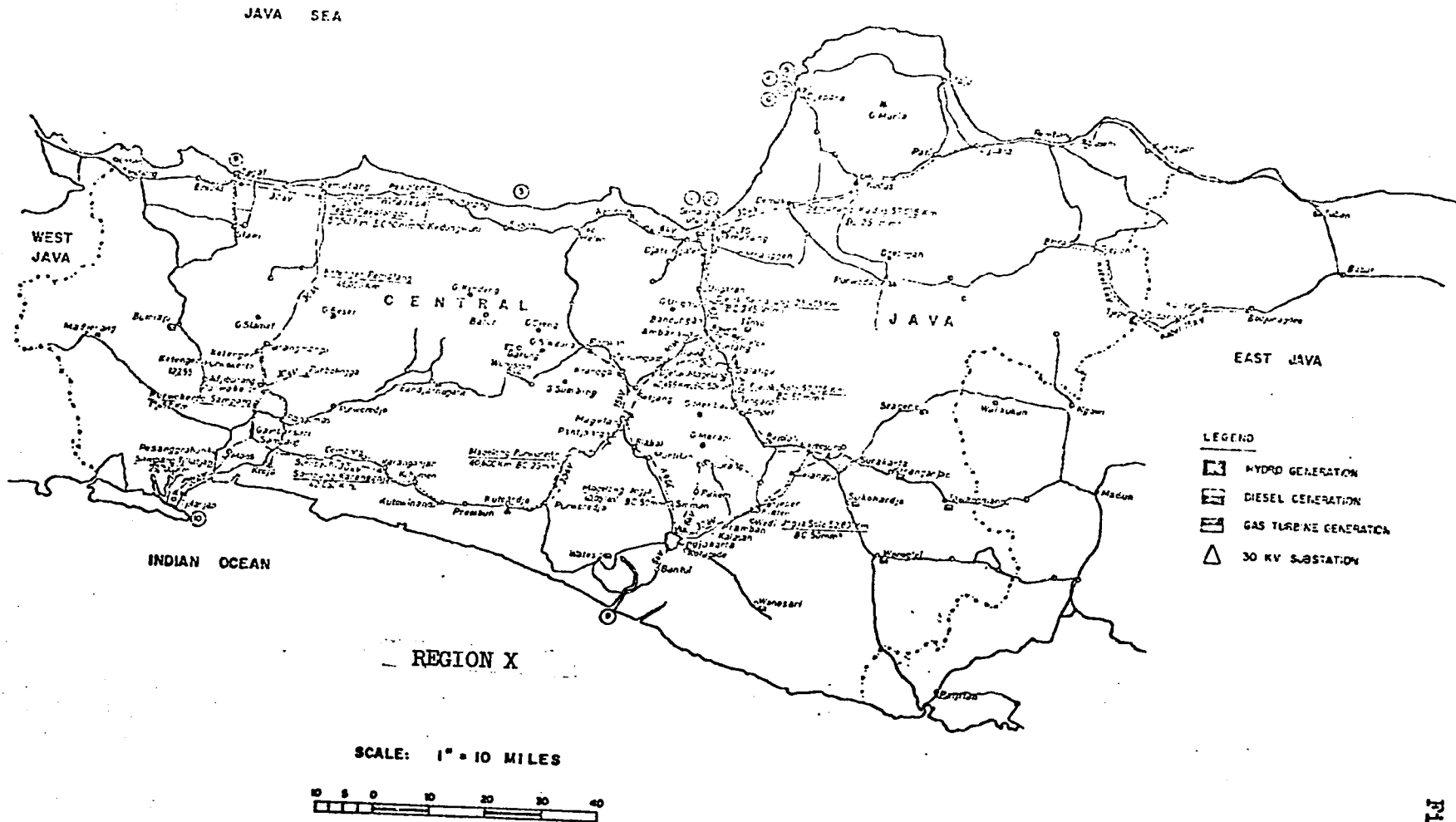
John A. Hannah

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Date

Clearances:





Thermal Station Sites Key Plan

FIGURE A

Figure A

AID-DC/P-974

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

OFFICE OF  
THE ADMINISTRATOR

A.I.D. Loan No. 497-2-024  
AID-DLC/P-974  
Project No. 497-22-220-204

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds  
(Indonesia: Perusahaan Listrik Negara;  
Semarang Steam Station)

Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "A.I.D.") 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 Nineteen Million, Seven Hundred Thousand Dollars (\$19,700,000) to assist in financing the foreign exchange costs of equipment, materials and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara (hereinafter called "Beneficiary") located in Semarang, 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 of 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 A.I.D. should otherwise agree in writing, equipment, materials, and services financed under this loan shall have their source and origin in countries under A.I.D. 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 A.I.D.

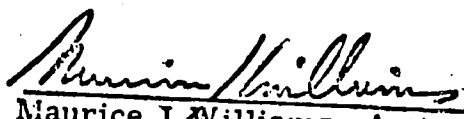
c. Unless A.I.D. agrees otherwise in writing, the GOI and the Beneficiary shall agree, either in the form of appropriate conditions precedent or covenants, or both, that:

(1) The GOI will make foreign exchange available to the Beneficiary, in addition to the proceeds of this loan for the purchase of third country equipment necessary for site preparation.

(2) 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 in the event actual Indonesian currency expenditures exceed said estimates, or such lesser amount as A.I.D. shall agree to in writing, which shall be used for the execution of the project until the project is completed.

(3) Beneficiary shall institute reforms, based on the recommendations of a management consultant made in accordance with a Project Agreement between Beneficiary and the International Development Association, as may be agreed upon by Borrower, Beneficiary and A.I.D.

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

  
Maurice J. Williams, Acting Administrator

JUN 15 1971

Date

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

UNCLASSIFIED

July 1, 1971

MEMORANDUM FOR THE FILES

SUBJECT: Dollar Development Loan  
Indonesia - Semarang Steam Station

In accordance with the Memorandum AID-DLC/P-974/1 dated June 2, 1971, a telephone poll was concluded on June 11, 1971 confirming that there were no objections to the recommendations for authorization of a loan in an amount not to exceed \$19,700,000 to the Government of the Republic of Indonesia to assist in financing the foreign exchange costs of equipment, materials, and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara located in Semarang.

The results of the poll were as follows:

State	(Mr. Boeker)	Concurred
Treasury	(Mr. Hennessy)	Concurred
Eximbank	(Mr. Lilley)	Concurred
Commerce	(Mr. Katz)	Concurred
A.I.D.	(Mr. Kaufmann)	Concurred

Rachel R. Agee  
Secretary  
Development Loan Committee

Distribution:  
EA/CDF 5 copies

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