

CAPITAL ASSISTANCE PAPER

**Proposal and Recommendations
For the Review of the
Development Loan Committee**

INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION

Loan Amendment

AID-ILC/P-975/2

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

UNCLASSIFIED

AID-DLC/P-975/2

June 9, 1972

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - Ketenger Transmission and Distribution
Rehabilitation - Loan Amendment

Attached for your review are the recommendations for increasing by \$6,200,000 a loan (No. 497-H-025) made to the Government of Indonesia in an amount of \$21,000,000 to assist in financing the foreign exchange costs of equipment, materials and services necessary for the installation and rehabilitation of certain electrical transmission and distribution facilities of Perusahaan Listrik Negara to and in the Ketenger Electrical System in Western Central Java, and related technical assistance and training.

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

Rachel R. Agee
Secretary
Development Loan Committee

Attachments:
Summary and Recommendations
Project Analysis
ANNEXES 1-9

UNCLASSIFIED

UNCLASSIFIED

AID-DLC/P-975/2

June 9, 1972

INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION
LOAN AMENDMENT

TABLE OF CONTENTS

	Page
Summary and Recommendations	i
I. Purpose of Loan Amendment	1
II. Background	1
III. Description of Project Amendment	2
IV. Cost Estimates	2
V. Economic and Financial Considerations	5
VI. Implementation Plan	7
VII. Covenants and Conditions Precedent	8
VIII. Environmental Considerations	9

LIST OF ANNEXES

1. PLN Letter Requesting Loan, dated April 21, 1972
2. Loan Authorization Amendment
3. Original Loan Authorization
4. USAID Director's Certification
5. Country Team Recommendation
6. Map - Central Java Region X
7. One Line Diagram - Tjilatjap Area
8. Ketenger System Forecast (With Refinery)
9. Statutory Check List

UNCLASSIFIED

AID-DLC/P-975/2

June 9, 1972

1

INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION
LOAN AMENDMENT

SUMMARY AND RECOMMENDATIONS

A. BORROWER:

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

B. LOAN AMOUNT:

U.S. \$6.2 million Loan Amendment increasing Loan 497-H-025 from U.S. \$21.0 million to U.S. \$27.2 million.

C. TERMS:

40 year maturity, including 10 year grace, with 2% interest during grace period and 3% thereafter. GOI to reloan proceeds to PLN on terms and conditions agreeable to AID.

D. PURPOSE OF LOAN AMENDMENT:

In order to meet an unforeseen increase in power demand in the Ketenger area, the Amendment provides for the foreign exchange financing of engineering, procurement and installation of two gas turbine generators (2x20 MW) and subsidiary equipment, and construction of related facilities at Tjilatjap, Central Java. This power will be the initial principal supply for a proposed 100,000 barrel per day Pertamina oil refinery to be constructed at Tjilatjap.

E. ISSUES: None.

F. STATUTORY CRITERIA:

This loan meets all statutory criteria. See Annexes 4 and 9.

G. MISSION AND EMBASSY VIEWS:

USAID and the Country Team recommend that the loan be made. See Annex 5.

H. RECOMMENDATIONS:

Authorization of a loan amendment to Loan 497-H-025 to increase the loan from U.S. \$21.0 million to U.S. \$27.2 million in accordance with

the terms and conditions set forth in the draft authorization in Annex 2 amending the original loan authorization as shown in Annex 3. An outline of conditions precedent and covenants is set forth in Section VII.

USAID CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Chairman and Loan OfficerDennis Brennan
EngineerJohn Glaws
EconomicJames Norris
ControllerDenton Larson

AID/W CAPITAL ASSISTANCE COMMITTEE MEMBERS

Chairman and Loan OfficerAlexander Love
Power EngineerEarl Clark
LegalHerbert Morris
DeskLou Stamberg

June 9, 1972

1

INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION
LOAN AMENDMENT

I. Purpose of Loan Amendment.

As a result of an increase in electric power demand in the Central Java (Ketenger) system being financed under this loan, not anticipated at the time the loan was authorized, there is a need to install as soon as possible two 20 MW gas turbine generators at Tjilatjap at a foreign exchange cost of \$6.2 million. A request for a loan of this amount and for this purpose has been received from the GOI. See Annex 1. Since the generating facilities are an integral part of the Ketenger area coverage, it is proposed that the \$21.0 million loan be increased to \$27.2 million to reflect these requirements.

II. Background.

The Ketenger Transmission and Distribution Rehabilitation project with a foreign exchange cost of \$21.0 million was authorized on June 15, 1971 and the loan agreement executed on November 3, 1971. In the supply and demand estimates for electric power generation it was anticipated at the time of loan authorization that 25-30 MW of gas turbine generation at Tjilatjap would be required by 1979. However, as a result of a recent decision by the Government of Indonesia to construct a 100,000 barrel per day Pertamina oil refinery at Tjilatjap, about 16 MW of electric power will be required in mid-1975 at the time of the refinery startup and commencement of operations. PLN proposes to meet this requirement by the installation of two 20 MW gas turbines. ^{1/}

An essential element in the planned rehabilitation and development of Indonesia's electric power sector is recognition of the exclusive right of PLN to generate, transmit and distribute electricity throughout the country, and at a minimum to license generation where it is unable to provide the capacity itself. In view of PLN limited capacity and inadequate reliability, there has taken place an extensive growth of captive generation under control of private and public industries. The proposed construction of the Pertamina refinery at Tjilatjap offers PLN a major opportunity to intervene and begin to bring under control the growth of this captive generation. Pertamina is a major Indonesian public industrial organization and acceptance by this company of the principle that electric power will be supplied by the national electric power authority marks a far-reaching step in recognition of PLN's public authority.

^{1/} A 20 MW gas turbine delivering about 19 MW under the condition at Tjilatjap is considered by the consultant as the optimum size unit to meet refinery base load requirements estimated at 16 MW.

In view of the direct relationship between Tjilatjap generation to the rest of the Ketenger transmission and distribution, it is proposed that this loan be authorized as an amendment to the original \$21.0 million loan. The foregoing establishes the basis for a finding of economic, technical and financial justification for the Tjilatjap generation increment. Changes in conditions and covenants from the original Ketenger loan (No. 497-H-025) are reflected in the amended loan authorization (see Annexes 2 and 3).

The USAID Director has made the required section 611(e) certification (see Annex 4) and the Country Team recommends approval (see Annex 5).

III. Description of Project Amendment.

The project consists of the design and construction of a thermal power station in Tjilatjap (see map at Annex 6) and related technical assistance and training. The station will consist essentially of two 20 MW gas turbine generators. The generators will be connected to the Tjilatjap substation financed under the Ketenger Transmission and Distribution Loan (Loan No. 025) via a 150 KV transmission tie line and to the proposed Pertamina refinery via a 20 KV subtransmission connection. (see Annex 7). The units will be simple cycle, gas turbine types with a continuous rating of at least 19 MW when burning distillate fuel oil. Each unit will be complete with synchronous generator, exciter, turbine and generator control panels, metal clad switchgear, lube oil and cooling water systems, fire protection and compressed air systems, black start capability and fuel storage and handling facilities. Completion and operation is planned for mid 1975, approximately 34 months after signing of the loan amendment.

IV. Cost Estimates: Section 611(a)

The following costs are based on estimates made by and have been reviewed with PLN's consultants, C.T. Main. The cost estimates are considered reasonably firm and sufficient to meet the provisions of Section 6.11(a) of the FAA.

The total cost of the amendment is estimated to be \$6,850,000 consisting of U.S. dollar cost of \$6.190 million and local currency costs of \$.660 million equivalent. These estimates increase the total cost of the project to \$34.350 consisting of U.S. dollar cost of \$27.190 and local currency cost of \$7.160 equivalent. A summary of costs for both the amendment and the project follows:

TJILATJAP GENERATION

Summary of Project Costs
(\$000)

Item	US\$	Local Currency Equivalent	Total
Two - 20 MW Gas Turbines	3,800	-	3,800
Freight & Ins.	120	-	120
Del to site	-	10	10
Site preparation	25	50	75
Fuel storage	80	100	180
Land	-	180	180
Erection	80	50	130
Office & service bldg	-	50	50
Subtotals	4,105	440	4,545
Spare parts	300	-	300
Switch yard	780	55	835
Communications equipment	20	-	20
Training	15	5	20
Engineering	360	90	450
Escalation @ 4%	220	25	245
Contingency @ 7%	390	45	435
Total	6,190	660	6,850

Summary of Project Costs
(\\$000)

Item	US\$	Local Currency Equivalent	Total
1. 150 KV Transmission:			
Pekalongan - Tegal	1,425	397	1,822
Tegal - Purwokerto	2,157	601	2,758
Purwokerto - Tjilatjap	1,134	316	1,450
Subtotal	<u>4,716</u>	<u>1,314</u>	<u>6,030</u>
2. 150 KV Substations:			
Tegal	1,102	206	1,308
Purwokerto	990	184	1,174
Tjilatjap	747	141	888
Subtotal	<u>2,839</u>	<u>531</u>	<u>3,370</u>
3. Distribution Rehabilitation:			
Pekalongan	941	400	1,341
Tegal	2,008	919	2,927
Purwokerto	1,001	445	1,446
Tjilatjap	904	380	1,284
Subtotal	<u>4,854</u>	<u>2,144</u>	<u>6,998</u>
4. Improvement of Small Load Centers	2,007	985	2,992
5. Maintenance Equipment	500	-	500
6. Communications Equipment	60	-	60
7. Training	85	15	100
8. Engineering Services	1,600	300	1,900
9. Contingency <u>1/</u>	2,129	531	2,660
10. Escalation @ 4%	<u>2,210</u>	<u>680</u>	<u>2,890</u>
Subtotal	21,000	6,500	27,500
11. Tjilatjap Generation <u>2/</u>	<u>6,190</u>	<u>660</u>	<u>6,850</u>
Total	<u>27,190</u>	<u>7,160</u>	<u>34,350</u>

1/ Contingencies at 13% of dollar costs and 10% of local costs.

2/ Totals from preceding page.

V. Economic and Financial Considerations

1. Project Economic Consideration

The gas turbines are required in mid-1975 to provide firm power to the refinery. Following the extension of the Central Java 150 KV grid to Tjilatjap and installation of two 50 MW steam turbines at Semarang, scheduled for mid- 1976, the Tjilatjap gas turbines will be utilized for peak shaving and reserve duty for the Central Java System as a whole. (It should be noted that West Java is expected to experience a power shortage through 1977 which is when new steam generating facilities in Djakarta are expected to come on line. During the period mid-1976 thru 1977 it is anticipated that energy transfers up to about 50 MW will be made from the Central to the West Java System).

Previous studies of generation requirements for the expansion of the Central Java System showed the need and economic justification for installation of approx. 25-30MW of gas turbine capacity at Tjilatjap in early 1979. This requirement is justifiable irrespective of the refinery load and would provide the correct mix of base load and peaking capacity for the economic operation of the System.

Pertamina's decision to proceed with refinery construction for completion in mid-1975 raised a question as to whether captive power generation should be provided by Pertamina or whether power requirements would be met by PLN from Central Java system. The latter alternative was considered extremely desirable from PLN's point of view for a number of reasons: the refinery represents a large load at an extremely high load factor. The ability of PLN to meet the stringent reliability requirements of the refinery should provide an incentive for new industrial customers to take service from PLN and discontinue the use of captive generation. Maximum utilization of power furnished by the PLN is fully supported by Indonesian development objectives.

On the other hand, provision of firm power for the refinery in 1975 would result in the installation of larger-sized gas turbines about three and one-half years earlier than was originally planned. The key question for PLN was whether power could be sold to Pertamina at a rate which would be advantageous to Pertamina and which would offset the economic costs to PLN associated with the early installation of the gas turbines.

Discussions between PLN and Pertamina and their consultants have resulted in a conclusion that a power rate can be negotiated which will have mutual economic benefits for both entities. This rate will, by necessity, consider the high initial production costs for power delivered from the gas turbines and the offsetting substantially lower production costs when the refinery is connected to the Central Java transmission grid, the rate can be structured to provide a return to PLN at least equal to the cost of capital at 12%. Approval of this rate by A.I.D. will be a condition precedent to disbursement for other than engineering services.

2. Alternative Cost Comparison

In order for PLN to furnish power to Pertamina by mid-1975, it is clear that isolated generation would be required at Tjilatjap. A cost comparison has been made of the two most attractive schemes of providing power: two 20 MW gas turbines or seven 3.7 MW diesel followed by a 14.1 MW gas turbine in 1979 to provide for system requirements. Installation, sub-stations, and other associated initial costs are essentially the same for both alternatives. Operation and maintenance costs for the gas turbine are less than for the diesels; however, fuel costs for the turbines are considerably higher. Another important element in the cost comparison is the deferral of a substantial capital cost on the diesel alternative for approximately four years. Discounting the capital and operating costs of the two alternatives at 12% shows a present worth of \$5.3 million for the gas turbines and \$6.5 million for the diesels. Higher discount rates tend to favor the diesel alternative but the discounted cost spread still supports the gas turbine. On the basis of this analysis, the Project Committee concludes that the gas turbine is the most feasible alternative.

3. Region X Economic Considerations

The original Ketenger loan authorization discussed the problem of the existing PLN rate structure. The rates do not reflect the economic cost of power nor provide a reasonable return to PLN. As discussed in the original Ketenger CAP and by updated material in the West Java Transmission CAP, the IDA consultants to PLN are in process of recommending a revised rate structure. Rate revision should provide PLN with revenues sufficient to cover operating expenses, depreciation and interest and leave a reasonable surplus for partial financing of expansion.

The rate structure revision is intended to be implemented beginning in 1973. At present, there are indications that these changes will be carried out in three stages to be finally based upon an average rate of about 3.0¢ per KWH. Second step loan terms to PLN for Ketenger will not be fixed until the rate structure has been set and a basis established for determining appropriate terms.

PLN has already obtained financing for four separate but integrated power projects (including the Ketenger Loan) which will improve generating, transmission and distribution capacities in the Central Java Region. These projects represent a total capital investment of about \$100 million and are outlined in the original Ketenger Transmission and Distribution Loan. The cost of money to PLN was assumed at average terms of 30 years with a 5-year grace period on the repayment of principal and interest at 12% per annum. Other estimates were made of Region X operating, and maintenance and fuel costs and the cost of future capital additions in order to obtain total annual cash requirements. On the basis of load growth forecast for the Region, flat rates were derived which would be adequate to meet cash requirements. A rate of 2.48¢ per KWH resulted in a financial breakeven point in 1984. A 2.72¢ per KWH rate achieved a breakeven point about 1981. On the basis of the foregoing power rates the following internal rates of return for Region X were derived.

<u>Rate ¢/KWH</u>	<u>IRR %</u>
2.48	11.48
2.72	13.67

The conclusion of the Ketenger loan paper was that the financial and economic justification for the project depended upon the rate. It was concluded that if an average flat rate of approximately 2½¢ KWH were applied, the project economics would provide an internal rate of return on the project of about 12%. This was considered both reasonable and justifiable in terms of the present Indonesian economic situation.

Calculations of cost and cash requirements in the initial Ketenger loan paper took into consideration the installation in 1979 of 25-30 MW of gas turbine generation in Tjilatjap. Assuming an appropriate rate is agreed to between PLN and Pertamina, the installation of 40 MW of gas turbine power in 1975 does not significantly affect the cash flow requirements nor the conclusion that a 2½¢ KWH flat rate would both provide adequate cash flow and a 12% economic return estimated for the original project. In point of fact if the recommended 3.0¢ KWH rate is applied as is expected, the financial return will clearly improve and the internal rate of return will approach 14%.

VI. Implementation Plan.

Engineering design and supervision will be accomplished by amendment to the existing contract with Chas. T. Main, engineering consultants for the Ketenger Transmission and Distribution principal project. Site preparation, civil work and transmission line construction will be incorporated into the scope of work for the principle Ketenger T&D construction contract. This reflects for both engineering and construction the place of Tjilatjap generation as an integral element in the whole Ketenger T&D project. It also records the urgency involved in getting the Tjilatjap project underway with a minimum of contracting or other delays. Implementation of the Tjilatjap generation project will be completely phased with the schedule for the overall Ketenger project and accordingly no delay will arise in completion of the work under the principal project. Procurement of all materials, including the two 20 MW gas turbines, will be on a competitive basis. Installation will be carried out either by a supplier or a contractor depending on the award.

The project engineer will provide early preparation of specifications and invitations for bids, analysis and procurement of essential equipment and materials. He will also be responsible for 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.

The implementation schedule for Tjilatjap generator installation is set forth below:

Loan Agreement Amendment Signed	15 July	1972
Conditions Precedent to Initial Financing Satisfied	30 October	1972
Letter of Credit Amended for Engineering Services	15 December	1972
Procurement/Installation Letter of Credit Opened	15 June	1973
Ketenger T&D Construction Contract Letter of Credit Opened	31 March	1974
Turbines Installed	15 April	1975
Turbine Testing Completed	15 June	1975

VII. Covenants and Conditions Precedent.

There is no change from the original Ketenger loan agreement in conditions precedent and covenants except:

1. As separate conditions precedent to initial financing under the amendment legal opinions of the Minister of Justice of the GOI and of the principal legal officer of PIA attesting to the validity and legally binding character of the amendment will be required.
2. As a condition precedent to disbursement of the additional loan funds for other than engineering services, Beneficiary will submit in form and substance satisfactory to A.I.D. a copy of a contract or contracts between itself and the Indonesian State Oil and Natural Gas Company, Perusahaan Pertambangan Minyak dan Gas Bumi Negara ("Pertamina") for the provision of electric power by Beneficiary to the Pertamina oil refinery to be constructed at Tjilatjap and for the provision of fuel by Pertamina to Beneficiary at Tjilatjap;
3. As an additional condition precedent to disbursement of the additional loan funds for other than engineering services, Borrower will submit evidence, in form and substance satisfactory to A.I.D., of reasonable progress in the proposed construction of the Pertamina oil refinery;
4. As an additional covenant, abrogation of the contract or contracts provided for under 2 above or failure to achieve timely completion

of construction of the Pertamina oil refinery without justification and in such manner as to make it improbable that the loan will substantially fulfill the purpose for which it has been provided will constitute additional events of default under the loan;

5. The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable consistent with the terms and conditions of the original Loan Authorization signed June 15, 1971, as amended.

VIII. Environmental Considerations

The addition of two gas turbines at Tjiltjap to meet the immediate load of the Pertamina refinery is not expected to have a significant deleterious environmental impact.

The power supply to the refinery will be supplied by the gas turbines for 2 years and from the Semarang Steam Plant thereafter.

The environmental impact of the steam plant was fully addressed in the review of the Semarang loan. The environmental impact of the gas turbines when operating as peak and standby power is expected to be negligible. Operations as a base load plant will not extend beyond approximately two years. The units are expected to operate on low sulfur oil which will be available at the proposed refinery.



AID-DLC/P-975/2
NATIONAL DEVELOPMENT PLANNING AGENCY
REPUBLIC OF INDONESIA
2, DJALAN TAMAN SUROPATI
DJAKARTA — INDONESIA

UNCLASSIFIED

ANNEX 1, Page 1 of 3

Cable : Bappenas
Djakarta
Phone : 48553, 52961-
52966



Djakarta, April 21, 1972

Miss H. Louise Ramey,
Acting Director,
Agency for International Development,
American Embassy, Djakarta,
Indonesia.

Dear Miss Ramey,

The Government of Indonesia requests from the Government of the United States a loan of five million United States dollars (US\$ 5.0 million) for the following purpose and subject to the provisions hereinafter stated:

- Purpose: To finance the foreign exchange cost of imported equipment, engineering and construction services required to provide power generating capacity at Tjilatjap, Central Java. Specifically, through procurement and installation of two gas turbine generators the project will provide 30 MW (2x15MW) of generating capacity at site. This power will initially constitute the principle source to supply the energy demands of the proposed 100,000 barrels per day Pertamina refinery to be constructed at Tjilatjap. The estimated refinery load will be in the range of 13 MW and 100 million KWH per year. At the outset the two gas turbines to be financed by this loan will meet both base load and reserve requirements to ensure reliability of supply for the refinery. Installation of the units will be coordinated to ensure power availability for refinery start-up and commencement of operations. After initial operation of approximately one year, the refinery base load will be met by connection to the transmission grid being constructed through AID Loan 497-H-025, for the Ketenger System, with power supplied from the Semarang Steam Station to be constructed through AID Loan 497-H-24. Upon connection of the refinery load with the transmission grid, one or both of the gas turbines will continue as reserve for the refinery and for the energy requirements expected from development of the Tjilatjap Industrial Estate and city of Tjilatjap itself.

2. Project Justification:



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

UNCLASSIFIED
ANNEX 1, Page 2 of 3

Cable : Bappenas
Djakarta
Phone : 48553, 52961-
52966

No. : /Waket/4/72

Djakarta, _____ 19 _____

Encl : 1

- 2 -

2. Project Justification: An essential element in the planned rehabilitation and development of Indonesia's electric power sector is recognition of the exclusive right of the Perusahaan Listrik Negara (PLN-State Electricity Authority) to generate, transmit and distribute electricity throughout the country, and at a minimum to license generation where it is unable to provide the capacity itself. Previously, the lack of capacity and reliability have been limiting factors on the ability of PLN to establish its role as the authorized national source of electric power. In view of shortage of capacity and inadequate reliability PLN has been unable to enforce its public authority with the result there has taken place a continuous growth of extensive captive generation capacity under control of private and public industries. With rehabilitation and development of the electric power sector, PLN now being carried out through the Indonesian Government's Five Year Plan, PLN is approaching the point where it can enforce its public prerogative as sole national authority for generation, transmission and distribution of electric power.
- The proposed construction of the Pertamina refinery at Tjilatjap offers PLN a major opportunity to intervene and begin to bring under control the growth of this captive generation. Pertamina is a major Indonesian public industrial organization and acceptance by this company of the principle that electric power will be supplied by the national electric power authority marks a far reaching step in recognition of PLN's public authority. The precedent established will have effect beyond reach of Pertamina alone.
3. Cost Data: It is estimated that a total of US\$ 6.0 million will be expended on the proposed project. This cost is broken down as follows: \$ 5.0 million from the loan proceeds to cover the cost of imported, U.S. or low income country capital equipment and related engineering and construction services. Rupiah in the estimated equivalent of US \$ 1.0 million will be provided by the Government of Indonesia to meet local currency expenditures in connection with the project. Detailed cost estimate of the proposed project are being provided by the Chas T. Main engineering firm, consultants to PLN.

Such data ..



NATIONAL DEVELOPMENT PLANNING AGENCY
REPUBLIC OF INDONESIA
2/ DJALAN TAMAN SUROPATI
DJAKARTA — INDONESIA

UNCLASSIFIED

ANNEX 1, Page 3 of 3

Cable : Bappenas
Djakarta

Phone : 48553, 52961-
52966

No. : /Waket/4/72

Djakarta, _____ 19 _____

Encl : 1

- 3 -

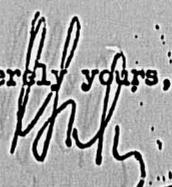
Such data are included herein by reference. Chas T. Main has supplied preliminary cost data, and these have been reviewed and concurred in by the Government of Indonesia.

4. Availability of Credit from Other Sources: Other sources of finance for this project are not available to the Government of Indonesia at present nor anticipated in the near future. Funds available from other donor countries have been allocated or are planned to be allocated to other priority projects within the afore mentioned Five Year Plan.
5. Validity of Financial Statements: As PLN is a government entity, its financial statements have been audited by the State Auditor's Office, whose audits reflect the financial conditions and operating results of PLN to the degree possible under current PLN accounting practices. Furthermore, all relevant accounts and records are available for examination and review by representatives of the U.S. Agency for International Development.

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

Thank you,

Sincerely yours,


Emil Salim
Vice Chairman

A.I.D. Loan 497-H-025
Project No. 497-22-220-213
AID-DLF/P-975

CAPITAL ASSISTANCE LOAN AUTHORIZATION AMENDMENT

Provided from: Development Loan Funds
(Indonesia: Ketenger Transmission and Distribution
Rehabilitation)

Pursuant to the authority vested in the Assistant Administrator, Bureau for Asia, Agency for International Development ("A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize pursuant to Part I, Chapter 2, Title I, the Development Loan Fund, the amendment of A.I.D. Loan 497-H-025 to the Government of Indonesia ("Borrower"), for reloan to Perusahaan Listrik Negara ("Beneficiary"), as follows:

- a. The amount of the loan is increased by Six Million Two Hundred Thousand Dollars (\$6,200,000) to a total amount not to exceed Twenty-Seven Million Two Hundred Thousand Dollars (\$27,200,000);
- b. The purposes of the loan will include the financing of foreign exchange costs for the procurement of the equipment, materials and services required to install two gas turbine generators and subsidiary equipment and to construct related facilities at Tjilatjap, Central Java;
- c. As a condition precedent to disbursement of the additional loan funds authorized hereunder for other than engineering services,

- 2 -

Beneficiary will submit in form and substance satisfactory to A.I.D. a copy of a contract or contracts between itself and the Indonesian State Oil and Natural Gas Company, Perusahaan Pertambangan Minyak dan Gas Bumi Negara ("Pertamina") for the provision of electric power by Beneficiary to the Pertamina oil refinery to be constructed at Tjilatjap and for the provision of fuel by Pertamina to Beneficiary at Tjilatjap;

d. As an additional condition precedent to disbursement of the additional loan funds authorized hereunder for other than engineering services, Borrower will submit evidence, in form and substance satisfactory to A.I.D., of reasonable progress in the proposed construction of the Pertamina oil refinery;

e. Abrogation of the contract or contracts provided for under c above or failure to achieve timely completion of construction of the Pertamina oil refinery without justification and in such manner as to make it improbable that the loan will substantially fulfill the purposes for which it has been provided will constitute additional events of default under the loan;

f. The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable consistent with the terms and conditions of the original Loan Authorization signed June 15, 1971, as amended herein.

Assistant Administrator for Asia

Date

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523OFFICE OF
THE ADMINISTRATORA.I.D. Loan 497-T-025
AID-DLC/P-975
Project No. 497-22-220-213CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds
(Indonesia: Perusahaan Listrik Negara;
Ketenger Transmission and Distribution Rehabilitation)

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 Twenty One Million Dollars (\$21,000,000) to assist in financing the foreign exchange costs of equipment, materials and services necessary for the installation and rehabilitation of certain electrical transmission and distribution facilities of Perusahaan Listrik Negara (hereinafter called "Beneficiary") to and in the Ketenger Electrical System in Western Central Java, and related technical assistance and training, 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).

A.I.D. Loan No. 497-1-025

- 2 -

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.

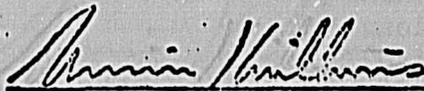
c. Unless A.I.D. agrees otherwise in writing, the GOI and the Beneficiary shall agree, either in the form of appropriate conditions precedent or covenants, or both, that:

(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 spare and replacement parts for diesel generator and other equipment maintenance.

(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 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..

A.I.D. Loan No. 497-H-025 -
KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION AMENDMENT
PROVIDING FOR TJILATJAP INTERIM GENERATION

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

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

- A. The existence of an IBRD project encompassing both large amounts of management assistance to the Central PLN organization and a thorough reform of PLN's management, operations, rate structure, etc.;
- B. the inclusion in existing AID capital assistance projects of technical assistance to PLN plus covenants to implement reforms derived from those carried out by Central PLN under the IBRD project;
- C. the inclusion in subject capital assistance project of training for 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;
- F. the positive and far-reaching step which this project represents in Government of Indonesia recognition of the role of PLN as sole and effective national public authority for generation, transmission, distribution and licensing of electric power throughout Indonesia

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. 165 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 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. This project will be based upon a Government of Indonesia encouraged firm agreement - including details of power reliability and rate for power provided - between the Indonesian State Oil and Natural Gas Company (Pertamina) and PLN to supply power to the proposed Pertamina oil refinery at Tjilatjap.
4. The Government of Indonesia has further demonstrated its adherence to sound business and economic principles by stabilizing the economy of Indonesia.

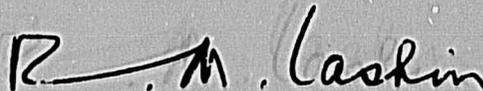
R. M. Cashin

Richard M. Cashin
Director, USAID Indonesia

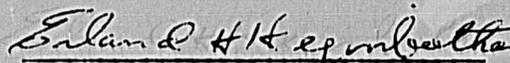
A.I.D. Loan No. 497-H-025 -
KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION AMENDMENT
PROVIDING FOR TJILATJAP INTERIM GENERATION

COUNTRY TEAM RECOMMENDATION

Subject loan amendment 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.



Richard M. Cashin
Director, USAID Indonesia



Erland H. Heginbotham
Counselor for Economic Affairs

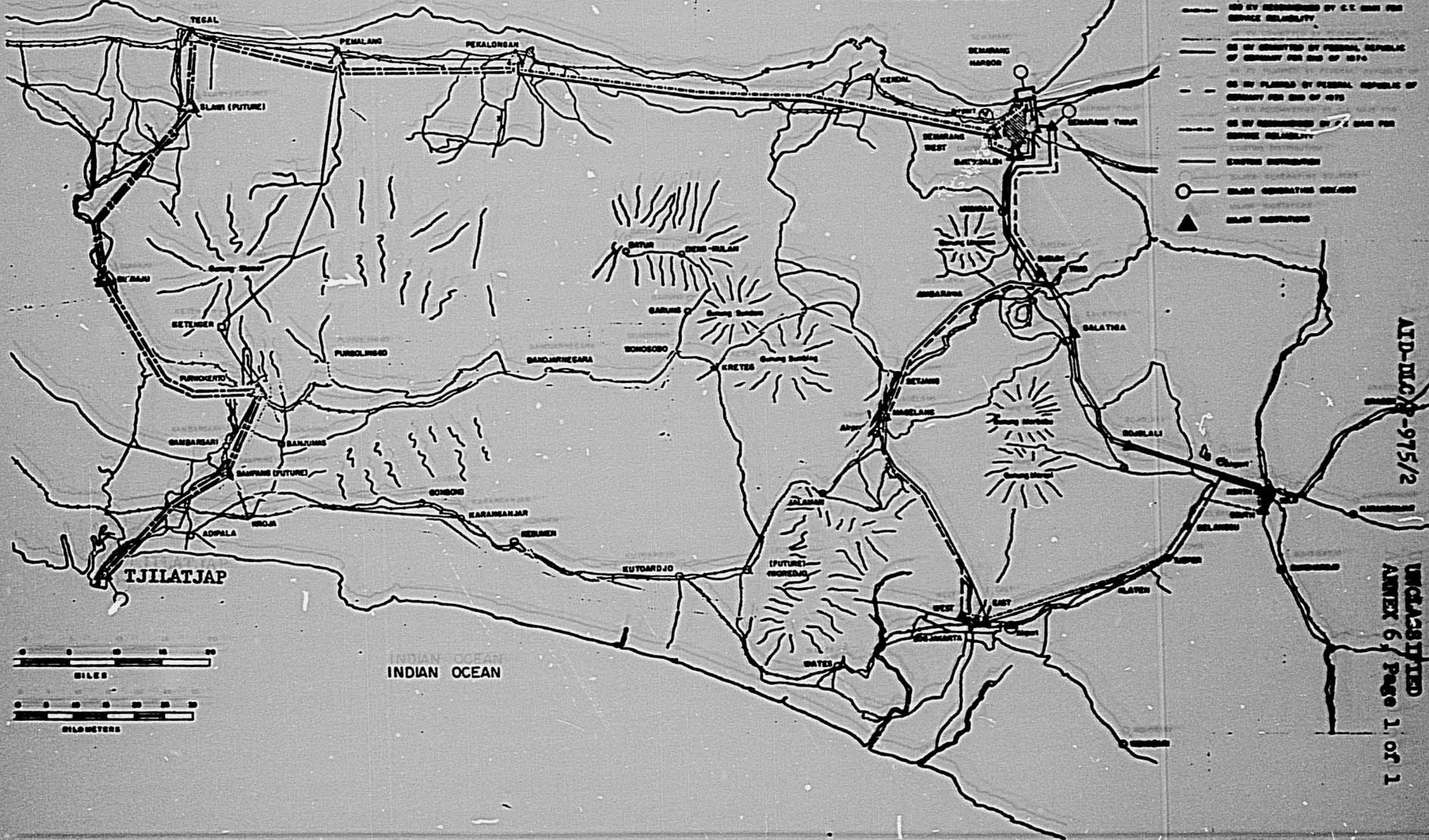
CENTRAL JAVA REGION X

KETENGER SYSTEM

TUNTANG SYSTEM

LEGEND

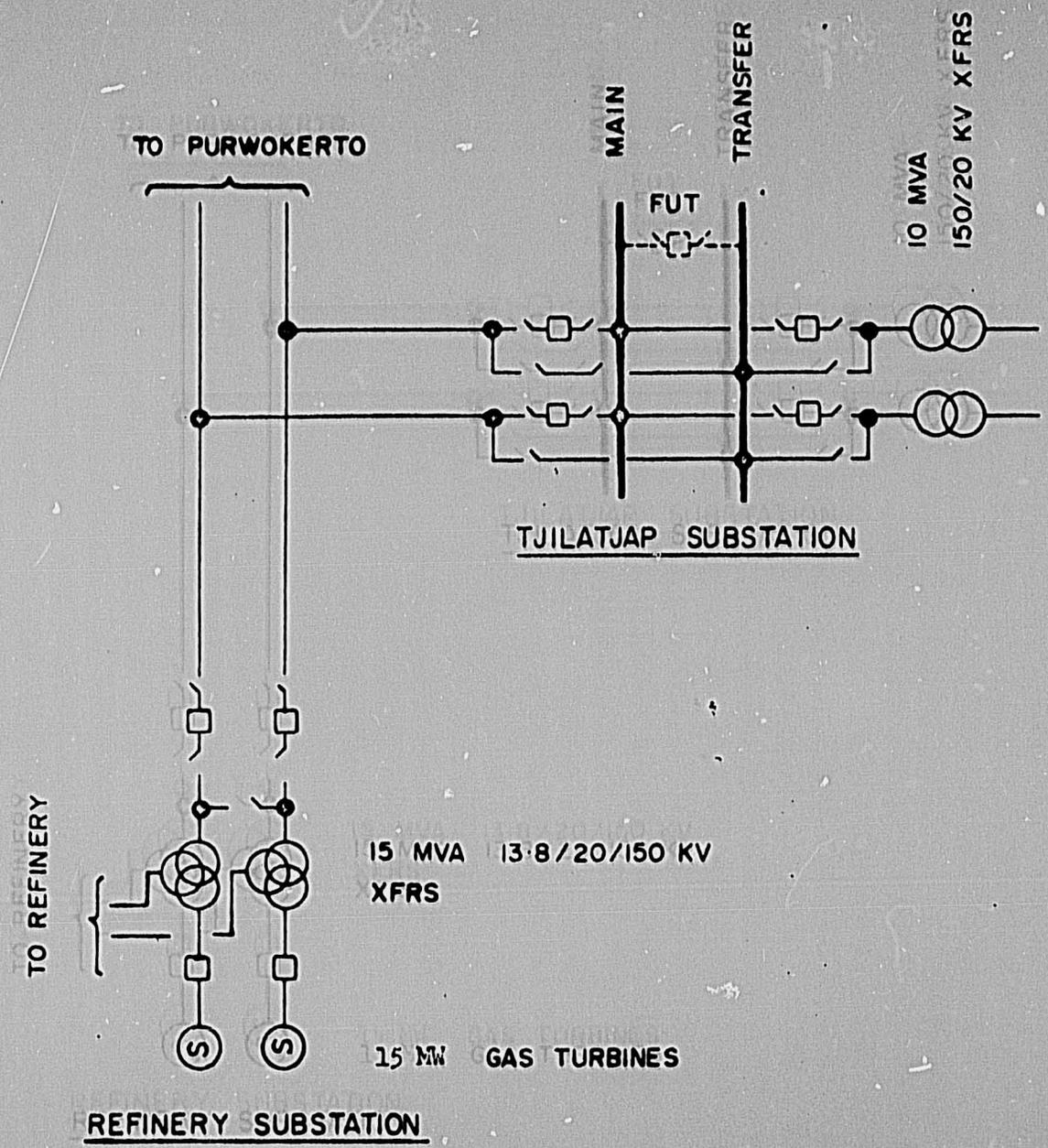
- 60 KV ACQUITTED UNDER 1950S LOAD AGREEMENT FOR END OF 1970
- 60 KV PLANNED BY FEDERAL REPUBLIC OF INDONESIA FOR END OF 1970
- 132KV SEMARANG PASIR-BOJONEGORO-LEMBANG WEST SUPPLY ONLY AS 60 KV FOR END OF 1970
- 60 KV RECOMMENDED BY U.S. AID FOR SERVICE RELIABILITY
- 60 KV ACQUITTED BY FEDERAL REPUBLIC OF INDONESIA FOR END OF 1974
- 60 KV PLANNED BY FEDERAL REPUBLIC OF INDONESIA FOR END OF 1975
- 60 KV RECOMMENDED BY U.S. AID FOR SERVICE RELIABILITY
- 60KV SUPERHIGHWAY
- 60KV GENERATING STATION
- ▲ 60KV GENERATOR



AID-DIC-915/2

UNCLASSIFIED
ANNEX 6, Page 1 of 1

TJILATJAP AREA
ONE LINE DIAGRAM



KETENGER SYSTEM FORECAST
(With Refinery)

DESCRIPTION	1969	1971	1973	1974	1975	1976	1977	1981	1986	1991	1996
RESIDENTIAL											
# Customers (1000)	33.412	34.	35.0	37.5	39.8	44.0	47.5	64.0	92.0	128.0	195.0
Kwh/Customer	758.	768.	845.	855.	880.	920.	980.	1160.	1450.	1800.	2220.
Millions Kwh	25.338	26.1	29.6	32.1	35.0	40.5	46.6	74.2	133.6	231.7	394.1
COMMERCIAL											
Millions Kwh	2.839	3.0	3.9	4.0	4.4	5.0	6.0	9.0	16.0	28.0	39.0
GOVERNMENT											
Millions Kwh	5.224	5.5	6.4	6.7	6.9	7.2	7.6	9.0	15.0	17.0	20.0
INDUSTRIAL											
Millions Kwh	4.999	5.1	13.5	18(+7) 25.	20(+60) 80.	40(+70) 110.	60(+70) 150.	115(+75) 190.	180(+75) 255.	260(+75) 335.	370(+75) 445.
ST. & TRAFFIC LIGHTS											
Millions Kwh	1.353	1.4	2.0	2.0	2.2	2.5	2.8	4.1	6.0	13.0	18.0
TOTAL SALES											
Millions Kwh	39.753	41.1	55.4	69.8	128.5	165.2	213.0	286.3	427.6	626.7	866.1
SUBSTA. USE MILLION KWH											
Millions Kwh	.062	.1	.1	.2	.3	.3	.4	.6	.8	1.2	1.7
UNACCOUNTED FOR											
\$ Sales	21.6	21.5	21.5	21.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Millions Kwh	8.585	8.9	11.9	14.7	19.3	24.8	32.0	42.9	64.1	93.7	129.8
NET PRODUCTION											
Millions Kwh	48.400	50.1	67.4	84.7	148.1	190.3	245.4	329.8	492.3	719.6	887.7
HOURS USE OF NET PEAK											
Hours	6205	6000	6000	6000	5700	5600	5300	5300	5300	5400	5400
NET PEAK MW											
MW	7.8	8.4	11.2	14.0	26.0	34.0	4.60	62.2	93.9	133.0	184.0

ADD-DIV/8-9/19/72

STATUTORY CHECK LIST

See Statutory Check List as Annex X to AID-DLC/P-975
Capital Assistance Paper (CAP) for the Ketenger
Transmission and Distribution Rehabilitation Loan
(A.I.D. Loan No. 497-H-025).

See also updated references for Indonesian Power Sector
in Statutory Check List, Annex XVI, to West Java
Transmission and Distribution CAP.