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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

APPRAISAL OF
THE MARIA CRISTINA FALLS HYDRO POWER EXPANSION
IN MINDANAO
PHILIPPINES

October 29, 1962

Department of Technical Operations

CURRENCY EQUIVALENTS

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HYDRO POWER EXPANSION IN MINDANAO

PHILIPPINES

SUMMARY

- i. The National Power Corporation (NPC) has asked the Bank for a loan of \$3.7 million to cover the foreign exchange cost of a project which would increase by 50 MW the capacity of the existing (2 x 25 MW) Maria Cristina Falls hydro station on Mindanao. The total cost of the project is estimated to be \$7.1 million.
- ii. This would be the Bank's third loan to NPC. Both previous loans were for hydro power projects on Luzon. The project for which the first loan was made was successfully carried out within the total cost estimate. The second project is under construction.
- iii. The NPC management and staff would carry out this project without consultants. They are qualified to do so. The project is relatively simple, consisting of a single unit addition to an existing station plus minor river regulatory works and transmission. No problems should be experienced in meeting the scheduled completion date of December 1964. The cost estimate, which is based on good pricing data and adequate allowances for contingencies, is equivalent to \$142 per kw installed. This is a very low price for a project which would add 50 MW of 100% firm capacity to the system as well as transmission facilities.
- iv. The project is needed to meet load growth of industrial consumers. No alternative source of power could provide the required energy as economically.
- v. NPC's financial position has been weak. While it is improving, it is not realistic to assume that it would reach desired levels until the rate structure between NPC and its main customer, the Manila Electric Company (which accounts at present for about 70% of NPC's total revenues), is allowed to be increased. As Manila Electric has a contract which requires a three year notice for cancellation, it may take three years for rate adjustments to be made. Of course, it is possible that such adjustments could be made sooner, but it has been assumed in this report that they would not.
- vi. On this basis, the rate of return on NPC's net fixed power assets in operation, which averaged 5.4% over the past four years, would average about 6.6% during the next four years (fiscal years 1962-65) and then improve to 9% in 1966 and remain above 8% through 1972. NPC's ability to provide financing from earnings for its future construction program would show corresponding improvement.
- vii. Given this improving situation, the project would be suitable for a loan of \$3.7 million for a term of 18 years including a grace period of 2½ years on amortization payments.

APPRAISAL OF THE MARIA CRISTINA FALLS

HYDRO POWER EXPANSION IN MINDANAO

PHILIPPINES

I. INTRODUCTION

1. The National Power Corporation (NPC) has applied for a loan of \$3.7 million to cover the foreign exchange cost of a 50 MW expansion to its Maria Cristina Falls hydro plant in Mindanao. The total cost of the project is estimated to be \$7.1 million. This report covers its appraisal.
2. The Bank has previously made two loans to NPC. The first, of \$21 million in 1957, later reduced to \$18.5 million, (183 FH) was for the Binga hydro project in northern Luzon. The second, of \$34 million in 1961 (297 FH) was for the Angat hydro project near Manila. The Binga project was completed on schedule within the total original cost estimate. The Angat project is now under construction.
3. The Bank had considered including the foreign exchange cost of the Maria Cristina expansion with the Angat loan in 1961. The project was described in the Angat appraisal report (Report TO 298 b of October 5, 1961). However, since it appeared at the time that there would be a delay of six to eight months before the industrial demand which justifies the expansion would be confirmed, the decision on the Maria Cristina loan was deferred.
4. The power market is developing rapidly on Mindanao. It now appears that NPC will have to proceed within a year with construction of a second station upstream from Maria Cristina as well as with the immediate installation of the 50 MW addition to Maria Cristina.
5. This report is mainly related to power developments on Mindanao and to updating financial projections on total NPC operations. It is supplemental to the Angat report which contains background information on NPC and its long range program.

II. THE BORROWER

6. NPC is a Government owned entity with authorized stock capital of ₱ 250 million. It has borrowing power of up to ₱ 500 million including \$100 million equivalent in foreign exchange to be guaranteed by the President of the Philippines.
7. The General Manager is appointed by the National Power Board, subject to the approval of the President of the Philippines. The NPC management and staff are competent to carry out the project without outside assistance.
8. NPC's major investment is in its Luzon properties which constitute the Luzon grid. Most of its operating revenues accrue from the Luzon grid, and, within the grid, the largest percentage of revenues are derived from the

Manila Electric Company (MERALCO). Meralco is the retail distributor in Manila and vicinity. It also owns generating facilities but depends on large bulk power purchases from NPC to supply its franchise area. Meralco, a former holding of General Public Utilities of the U.S., was sold early this year to the Meralco Securities Corporation, a Philippine investment group.

9. The relative importance of the three spheres of NPC's operations (Luzon, Mindanao and all other) can be judged from the following comparison of electric plant assets as of June 30, 1961 and of energy sales for the fiscal year 1961.

<u>Location</u>	<u>Gross Fixed Assets (P Millions)</u>	<u>Energy Sales (kwh millions)</u>
Luzon Grid	244	830 ^{1/}
Mindanao (Agus Grid)	12	154
All other	15	41

III. THE POWER MARKET

Mindanao (Agus Grid)

10. The market served by the Agus grid is largely industrial. It is supplied by the existing two-unit (2x25 MW) Maria Cristina station. Major customers include the National Steel and Shipyard Corporation (NASSCO), the Marcelo Fertilizer Company and Maria Cristina Chemical Industries (MCCI). These customers accounted for a demand of 34 MW on the 50 MW total capacity in 1961. Two new customers, the Mindanao Portland Cement Company (MPCC) and the Central Philippines Milling Corporation will increase the load to 39 MW before the end of 1962. The station will be fully loaded by early 1964.

11. The system load is expected to reach 59 MW by mid 1965 and increase to 93 MW the following year. This sharp increase is due to expansion plans by some of the existing customers and establishment in the area of new customers. Two of these, which account for the major part of the increase in demand, are described below:

12. The Marindukue Iron Mining Company: This company is planning to develop a base metal complex with copper fabricating facilities near NPC's Maria Cristina station. Ammonium sulfate fertilizer would also be produced. The development is expected to be undertaken in two phases, the fertilizer plant first and a copper/zinc reduction and fabricating plant second.

13. The development has been studied and tested by Marindukue and its consultants since early 1959. A U.S. Ex-Im Bank credit was applied for in late 1959 and, in January 1961, Ex-Im issued a letter of commitment for a loan of \$13 million dependent among other things upon large scale pilot trials. These trials were completed and accepted by Ex-Im in January 1962. Cost estimates for the complete development with process design based on the pilot runs were completed in March 1962. The new, and for the first time complete, estimate

1/ Sales to Meralco were 681 million kwh or 82% of NPC sales on Luzon (66% of sales from all NPC operations).

totalled about \$27 million plus P 45 million. These estimates are now being studied by Ex-Im.

14. Meanwhile, \$12 million of the original \$13 million credit will be available for immediate construction of an ammonium sulfate plant. The initial power requirements of the plant would be about 8.5 MW. When the second phase of the project is completed the power demand would increase to 20 MW.

15. As the immediate justification for the proposed project is to meet system demand resulting from the Marindukue fertilizer plant, the final presentation of this proposed loan has been delayed while waiting for reasonable evidence that the Ex-Im credit to Marindukue would be made.

16. Philippine Integrated Steel Mill: A scheme to install an integrated steel works in Mindanao has been pending for several years. A \$62.3 million U.S. Ex-Im credit for that purpose was authorized in late 1960. The formation of a corporation which would meet conditions of the Ex-Im Bank and thus allow the credit to be released is expected soon.

17. The steel mill construction program would require four to five years. When completed, the load added by the steel mill would cause total system demand to exceed the 100 MW capacity of the Maria Cristina station. NPC plans to construct a new plant (Agus 2) upstream from Maria Cristina to meet this increased demand. The Agus 2 plant would not be started, however, until the steel program was financed and under construction.

18. The present estimates of capacity and energy requirements are summarized below:

(Fiscal years end 6/30)	Demand (MW) - Agus Grid				
	1964	1965	1966	1967	1968
Existing <u>1/</u>	40.0	46.0	52.0	55.9	58.8
Marindukue Mining Company	8.5	8.5	20.0	20.0	20.0
Steel Mill	-	-	13.5	28.5	51.5
Miscellaneous new loads <u>2/</u>	1.5	4.5	7.5	10.6	13.7
Total	50	59	93	115	144
NPC plant rating	50	100	100	200	200
Installation	MC-1,2	MC-3		Agus 2	

Luzon Grid

19. The power market forecasts for the Luzon Grid were covered in detail in the Angat appraisal report. The data therein was reviewed in April 1962 and left substantially unchanged. In summary, the market consists of the Manila Metropolitan Area served by Meralco and the "provincial area" to which NPC supplies wholesale bulk power for distribution by various retailing agencies.

1/ Includes reasonably firm expansions planned by existing customers.

2/ Mostly accounted for by the City of Cagayan de Oro. Rights-of-way for the transmission line to serve the city are now being negotiated.

System planning is based on a growth rate of around 11% per year. The long range forecast of capital additions on which NPC's financial projections are based takes this growth rate into account.

IV. THE PROJECT

General Description

20. The expansion of generating capacity to meet the demand of the Agus grid would utilize the Agus River's excellent hydro power potential. This river, 36 kilometers long, connects Lake Lanao at elevation 700 meters above sea level to Iligan Bay on the north central coast of Mindanao. Its course provides seven sites suitable for the ultimate development of about 750 MW.

21. Lake Lanao is large, having a surface area of about 350 square kilometers and drainage area of some 2,100 square kilometers. The level of the lake remains fairly constant, the maximum fluctuation during 21 years of record being only 1.41 meters. With its large volume it thus provides an easily regulated natural reservoir for power developments planned along the Agus river. Storage reservoirs would consequently not be required at the individual plant sites.

22. The seven power sites are designated Agus 1 through Agus 7 from the lake to the sea. The existing development is called the Maria Cristina Falls station. It is also Agus 6. The project would expand its present capacity of two 25 MW units by a single 50 MW addition.

23. The layout of the plant is simple and economical. A net head of about 159 meters (520 feet) is gained by diverting water from above the Maria Cristina falls to the plant at the foot of the falls. Only part of the water is diverted at present. Facilities for the third unit would closely parallel those existing and would also provide intake bays for future units 4 and 5. The project would include a small regulation dam at the outlet of Lake Lanao and 32 circuit kilometers of 69 kv transmission necessary for distribution of the plant's increased capability.

24. The capability of the plant would be 100% firm after completion of the partial lake regulation included in the project.

Cost Estimate

25. The total cost of the Maria Cristina expansion, including the Lake Lanao regulating works, transmission, intake bays for future units 4 and 5 and interest during construction would be equivalent to about \$7.1 million. This includes contingencies and provisions for local price increases which make up about 18% of the direct cost estimate. The total cost, expressed as cost per installed kilowatt of new capacity, would be about \$142 per kilowatt. This is a very low price for firm hydro capacity.

26. The estimate is summarized below:

<u>Item</u>	<u>Cost (in \$ thousands)</u>		
	<u>Foreign</u>	<u>Local</u>	<u>Total</u>
<u>Hydraulic Plant</u>			
Land and camps	-	65	65
Structures and dikes	475	2,020	2,495
Turbine and generator	980	50	1,030
Miscellaneous electrical	285	25	310
Miscellaneous mechanical	175	10	185
Sub-total	1,915	2,170	4,085
<u>Transmission Plant</u>			
Land and R.O.W's	-	45	45
Substations	1,115	15	1,130
Poles and conductor	185	60	245
Sub-total	1,300	120	1,420
<u>Supervision and Administration</u>	55	160	215
Sub-total (Direct Cost)	3,270	2,450	5,720
<u>Contingencies</u>	430	315	745
<u>Price Increases</u>	-	310	310
<u>Interest During Construction</u>	300	-	300
	4,000	3,075	7,075

27. The estimate is based on unit prices experienced in similar construction. Cement and reinforcing steel would be procured locally. A contingency of about 12 1/2% for local price increases has been included. Bids for the major foreign equipment were received in 1958 and are still firm. Since the suppliers have been willing to keep the bids firm and because of an unexpected good response on Angat equipment bidding, NPC expects that some savings would result through readvertising the original specifications. Invitations have consequently been readvertised. The construction period is short and as the project has been well investigated, no particular problems are expected. The cost estimate should prove reliable.

Rate of Expenditure and Method of Finance

28. The scheduled expenditures including interest during construction on the proposed loan are shown below:

(Fiscal year ends 6/30)	<u>Expenditures (in \$ thousands)</u>			
	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>Total</u>
IBRD Loan	2,250	1,000	450	3,700
IBRD Interest	70	175	55	300
Local Costs	1,560	1,000	515	3,075
Total	3,880	2,175	1,020	7,075

29. The direct foreign exchange cost of \$3.7 million would be financed by the proposed Bank loan. Interest during construction and local costs would be met from NPC's own resources.

Schedule of Construction

30. Construction is scheduled for two years from the time of making awards for the major imported equipment. As awards should be made by the end of November the plant should be in operation by December 1964. This scheduled completion date should be achieved without difficulty.

Engineering and Supervision of Construction

31. The existing two unit station was designed by NPC. Construction was mainly by contract under NPC engineering supervision. Since then NPC as an organization has gained additional experience on Binga construction, for which it shared engineering responsibility with consultants. In the circumstances there is no reason for NPC to engage consultants for the Maria Cristina addition. Civil works construction would again be by contract awarded on the basis of competitive bidding. NPC follows satisfactory procedures in advertising for and evaluating bids. The organization is capable of executing the project.

V. JUSTIFICATION FOR THE PROJECT

32. The 50 MW expansion to the Maria Cristina station is necessary to meet forecast industrial load growth. The total project cost is about the equivalent of \$142 per kilowatt. The expanded capacity of the station (100 MW) would be 100% firm.

33. No alternative source of power could compete on either an economic or technical basis.

VI. FINANCIAL ASPECTS

34. As will be discussed later, NPC's past financial position has been weak. Its efforts to meet financial objectives agreed with the Bank as desirable in the past have not been particularly successful. A two-year delay was experienced in implementing a rate increase which NPC had undertaken to seek in connection with the Binga loan in 1957. Furthermore, the rate increase finally obtained resulted in about an 18% increase in revenue instead of the objective of 25%. In connection with the Angat loan in 1961 NPC agreed to take action before June 30, 1962 to seek further rate adjustments so that at least 25% of new investments during fiscal years 1962-63 to 1964-65 could be financed from cash generated internally. NPC will not realize this aim until rates applying to Manila Electric are revised upward.

35. Ability to meet the various objectives of the past has not been entirely within the control of NPC. The recent freeing of exchange regulations and subsequent drop in value of the peso, although beyond the control of NPC, is a

significant factor in forecasting its debt servicing ability and also contribution of earnings toward expansion. The underlying problem is one of rates, not only in respect to the general price level but also to the type of tariff structure.

Rates

36. NPC's rates are subject to approval of the Office of Economic Coordination (OEC), an agency responsible for supervision of government-owned corporations. Rate adjustments, when approved by OEC, are passed on to most customers within a reasonable period of time as most of NPC's power contracts contain provisions for price adjustments. The major exception is the contract between NPC and Meralco which is in the form of a long-term bulk supply contract with no provision for price adjustment and subject to cancellation only upon three years' written notice by either party.

37. In March 1962, NPC received OEC authorization for a general rate increase of around 17 $\frac{1}{2}$ % to be effective by July 1. In addition a general escalation clause was introduced which provides for automatic rate adjustments for fluctuations in the exchange rate from a base of US\$ 1:₱ 3.50. However, in view of the protection afforded by the three-year contract cancellation provision, Meralco may not accept this increase unless allowed to pass on the higher charges to its customers. Since the major portion of NPC's revenues are derived from sales to Meralco, NPC's earnings position would not be much improved by further rate increases applied only to customers other than Meralco. NPC has consequently decided to give notice of contract cancellation to Meralco so that the form of the contract can be changed at the latest in three years if it should prove impossible to do so earlier through mutual agreement.

38. Because of this time delay and the further likelihood that the present increase would be inadequate for the future, the assumption has been made for the purpose of this study that new rates applying to Meralco starting thus in 1966 would be increased more than the 17 $\frac{1}{2}$ % presently authorized. Demand charge is assumed to increase from ₱ 60 to ₱ 70 per kilowatt year with a provision for escalation from a base exchange rate of 3.5:1, and energy charge to increase from ₱ 0.0105 to ₱ 0.0150 per kwh. This would amount to an increase (before escalation) of about 28% over present rates at 50% load factor. With a 50% load factor and exchange rate of 4:1, the assumed new rates would result in a sales price to Meralco equivalent to US 8 mills per kwh.

39. This general rate problem was explored during loan negotiations and several measures agreed upon which should provide a solution for the future. These measures are:

- i) NPC has arranged to have a financial and rate study made. The scope of the study and the arrangements for having it undertaken are satisfactory to the Bank. It is expected to be completed by early November and to result in recommendations for revising the form of contracts as well as the price levels charged for power and energy.

- ii) Following the study NPC will attempt to renegotiate a new contract with Meralco. The success of these negotiations will depend largely on whether Meralco will be allowed to pass on the increase to its customers.
- iii) The Government is aware that a solution to NPC's rate problem can not be made without considering its effect on Meralco. Meralco's rates are regulated in turn by the Public Services Commission (PSC), a quasi-judicial body having regulatory functions in the electric utility field, except over NPC. The Government therefore has agreed to direct the PSC to investigate the effect on Meralco of NPC rate revisions with the aim, if necessary, of allowing secondary rate relief for NPC rates to be revised.

Present Financial Position

40. Condensed balance sheets for the fiscal years ended June 30, 1958 through 1961 and as of December 31, 1961 are shown in Annex 3.
41. NPC's accounts, which are kept in accordance with accepted business principles and practices, are audited by independent auditors appointed by, and responsible to, the Auditor General of the Philippines.
42. As of June 30, 1961, fixed power assets and work in progress totalled about ₱ 289 million. Deducting the depreciation reserve of ₱ 13 million, net fixed power assets were ₱ 276 million. The net fertilizer investment of ₱ 13.7 million represents receivables on account of the sales of NPC's fertilizer plant which are due in 30 equal semi-annual installments at 6%.
43. NPC's authorized capital stock, wholly owned by the Government, amounts to ₱ 250 million, of which about ₱ 231 million had been issued as of June 30, 1961: ₱ 82 million against prior government advances, ₱ 10 million by conversion of surplus and about ₱ 139 million for conversion in 1961 of NPC's then outstanding local bonded indebtedness. The NPC Act as amended in May 1961 requires that: a) cumulative interest [at 4%] has to be paid on ₱ 221 million of the presently issued ₱ 231 million capital stock [the ₱ 10 million of stock converted from surplus is interest free]; b) cumulative interest [at 6%] has to be paid on the difference between the authorized [₱ 250 million] and outstanding [₱ 231 million] capital stock when and as issued provided, however, that interest accrued under both a) and b) will be capitalized and converted to additional share capital up to June 30, 1970 and c) ₱ 158 million of the total authorized ₱ 250 million capital stock has to be repaid starting July 1, 1970 [30-year, 3½% sinking fund]. The foregoing is summarized in the following table:

Authorized Share Capital

<u>Amount</u>	<u>Origin</u>	<u>Interest Payable</u> ^{1/}	<u>Redemption</u>
a) ₱ 10 million	Surplus	none	none
b) ₱ 82 million	Government advances	4%	none
c) ₱158 million	i) Conversion of bonded debt - ₱ 139 million	4%) 30-year sinking fund, 3½%, starting July 1, 1970
₱250	ii) Future government advances - ₱ 19 million	6%	
d) ₱ 85 million (estimated)	Accrued capitalized interest on b) and c) above	none	none

44. A substantial portion of NPC's capital stock thus assumes the character of long term debt with fixed repayment terms. It cannot be considered equity. A more apt description for this portion of NPC's capital structure would be capital notes instead of capital stock. Consequently NPC's total capitalization as of June 30, 1961 can be shown as follows:

Capitalization as of June 30, 1961

<u>Equity</u>	<u>Pesos (in millions)</u>	<u>% of Total</u>
Authorized and issued capital stock	92.0	29.5
Reserves and net surplus	<u>15.1</u>	<u>4.9</u>
Total equity	107.1	34.4
<u>Debt outstanding</u>		
Authorized capital stock: ₱ 158 million repayable after July 1, 1970, of which issued	139.2	44.5
Foreign currency loans (exchange rate: US\$1:₱2):		
Export-Import Bank, 4%, 1952-75	28.4	
IBRD (Binga), 6%, 1957-82	<u>33.6</u>	
Sub-total	62.0	19.9
Local currency loans	3.9	1.2
Total debt outstanding	<u>205.1</u>	<u>65.6</u>
Total capitalization	312.2	100.0

^{1/} To be capitalized and converted to additional capital stock up to June 30, 1970, (See item d).

45. About 20% of NPC's capitalization at June 30, 1961 was in foreign currency loans consisting of a \$20 million loan from the U.S. Ex-Im Bank for construction of the Ambuklao hydro project and the IBRD loan of \$21 million, later reduced to \$18.5 million, for the Binga hydro project. A further IBRD loan of US \$34 million at 5-3/4% for 25 years was made during the fiscal year 1961-62 for the construction of the Angat project. A Japanese war reparations loan was also made for transmission line extensions in Luzon and Mindanao; it is equivalent to ₱ 11 million, bears interest at 3% and is repayable over a period of ten years.

46. Foreign exchange loans were serviced at the official exchange rate of US \$1 = ₱ 2.0 until December 1961 and after that date at the free market rate resulting from liberalization of foreign exchange controls. During the current fiscal year NPC was able to make forward arrangements for debt service payments when the free market rate was 3:1. The present exchange rate is around 4:1. This exchange rate was therefore used for the forecasts in this report.

47. Local currency loans were reduced to an insignificant figure through the conversion of local bonded indebtedness (paragraph 43) into capital stock in May 1961. The remaining total of ₱ 3.9 million consists of ₱ 2.7 million interest-free government advances without repayment terms and two small 4% loans amounting to ₱ 1.2 million.

Earnings Record

48. Summarized income statements for the fiscal year ended June 30, 1961 and the 6 months ended December 31, 1961 are shown in Annex 4. For reasons pointed out earlier NPC's past earnings have not been satisfactory. The rate of return on net power assets in operation (excluding the fertilizer investment) averaged only 5.4% in the fiscal years 1958-61, and was 6.1% in 1961. (There was a slight improvement for the first six months of the last fiscal year). Contributions of earnings to expansion were only about 5% during these four years as shown in Annex 6 and interest and debt service were barely covered. In order to improve this situation NPC was granted the rate increase previously described.

Financing Plan

49. Annex 5 presents sources and applications of funds for the twelve fiscal years 1960-61 through 1971-72. It is based on similar assumptions of energy sales (modified by current estimates of Mindanao sales) and future capital investments as the forecast of the Angat project appraisal report of October 1961. The major changes from the previous forecast are a) an exchange rate of 4:1 is now used instead of 3:1 as in October's report and b) revenues are based on the rate increase discussed in paragraph 36. No increase in rates applying to Meralco is assumed until fiscal year 1966 when the present contract would expire if NPC gives cancellation notice now.

50. During the 3-year period ending June 30, 1965 in which the proposed Maria Cristina project would be built and would start operation, plant additions including interest during construction would amount to about ₱ 272 million (Annex 6) of which the Maria Cristina expansion would represent about 10%. Under the proposed plan NPC would finance about ₱ 56 million or 21% of its requirements from net cash earnings, about ₱ 10 million or 3% from existing

cash and construction inventories and from the proceeds of the fertilizer plant sale, ₱ 13 million or 5% from additional purchases of shares by the Government, and the balance of roughly ₱ 193 million or 71% from borrowings.

51. The borrowings assumed over the period 1961-62 to 1971-72 are as follows:

- a) A Bank loan of US \$3.7 million would be obtained in 1961-62 for the addition of the 3rd unit to the Maria Cristina plant in Mindanao, at an assumed interest rate of 5 3/4% and for a term of 18 years including a 3-year grace period.
- b) Another foreign exchange loan of US \$6.4 million, to be obtained in 1963-64, is assumed for the Agus 2 project in Mindanao at an assumed interest rate of 5 3/4% and for a term of 25 years including a 3-year grace period.
- c) Further foreign exchange loans totalling about US \$114 million would be obtained in the 9 fiscal years 1963-64 through 1971-72 for the financing of NPC's future expansion.
- d) Local currency 6% 30-year bond issues totalling ₱ 25 million would be required during the next 3 fiscal years and will probably be allocated to the financing of the Angat and Agus 2 projects. This assumption is based on the present practice that NPC is allowed to issue annually a certain amount of bonds which are placed with government financial institutions. Additional ₱ 35 million in bond issues are assumed for the period 1965-66 through 1971-72.

Estimated Future Financial Position

52. NPC's earnings level is still weak. In a side letter to Section 5.09 of the Angat loan agreement the Government and NPC agreed with the Bank to establish rates at such a level that NPC's internal cash generation after debt service would finance not less than 25% of the new construction during fiscal years 1962-63 to 1964-65. As already indicated, the present rate increase will not achieve this aim mainly because it is not applicable to Meralco due to the 3-year cancellation clause. The deterioration of the peso exchange rate also contributes to NPC's problems because, within a few years, close to half of its capitalization would be in foreign exchange debts. The escalation clause authorized by OEC (paragraph 37) is intended to compensate for changes in the exchange rate but it is not clear at this time that the formula used would be entirely adequate. This is one of the reasons why the rate study is being made (paragraph 39).

53. Forecast income statements for the 11 years ending June 30, 1972 are given in Annex 4. Net income before interest is expected to rise from ₱ 20.6 million in 1962 to ₱ 32 million in 1965. In 1966 it would increase to ₱ 52.2 million on account of new capacity added in 1965 and also because of assumed new rates applied to Meralco, and would then rise to ₱ 92.9 million in 1972. The return on net fixed assets in operation would increase from 7.3% in 1962 to 8.1% in 1964 and would, after a drop to 6.9% in 1965, rise to 9% in 1966.

It would then stay above the 8% level throughout the period under review. Year-end interest and debt service coverage ratios as shown in Annex 5 would remain at an acceptable level through 1970 averaging 2.3 times and 1.8 times respectively. In 1971 when interest and sinking fund payments on capital stock become due as pointed out in paragraph 43, coverages would drop to 1.7 and 1.3 times respectively. Cash earnings (including depreciation), after deduction of interest and amortization on existing and proposed debt (excluding interest during construction financed by the Angat loan), are expected to provide about ₱ 56 million or 21% of total requirements between 1963-65. The equivalent figures for the period 1966-72 would be ₱ 235 million or 32%.

54. The debt limitation covenant of the Angat and Binga loan agreements requires Bank approval prior to the incurrence of debt by NPC unless maximum future debt service is forecast to be covered 1.4 times by net revenues of the last fiscal year (adjusted for rates in effect at the time of the calculation) plus 75% of the estimated net revenues from plants under construction and to be constructed. This covenant has proven difficult to check in actual practice.

55. A revision was therefore agreed upon during negotiation. The revised covenant would require the Bank's agreement before NPC could incur debt unless a) its net revenues for the previous 12 month period (or fiscal year) shall have been at least 1.3 times the maximum annual debt service requirement for any succeeding fiscal year or b) its net revenues for the previous 12 month period (or fiscal year) plus 75% of the estimated increase in net revenue from all NPC's power operations for the first full year's operation after completion of the facility for which the proposed debt would be incurred, shall be at least 1.5 times the maximum annual debt service requirement for any succeeding fiscal year. Allowance would be given for the effect of any rate increase approved at the time of the test. This covenant would be included in the proposed loan agreement.

VII. CONCLUSIONS

56. The project is sound and is necessary to provide the capacity required to meet the estimated increase in power demand in Mindanao.

57. The management of NPC is competent. Its staff is well qualified to construct and operate the project.

58. The recent rate increase, which also provided for escalation based on the peso/dollar exchange rate, will not achieve its purpose until applied to NPC's main customer, Meralco, which is protected by a contract with a 3-year cancellation clause.

59. Once this contract has been changed the long-range financial position of NPC appears acceptable. If it can not be changed sooner than after the 3-year notice of contract cancellation, the Bank would have to accept, for the proposed loan, a forecast of 21% contribution of earnings toward expansion rather than the objective of 25% covered by the side letter to the rate covenant of the Angat loan agreement.

60. NPC's financial situation is improving and the measures agreed upon during negotiations should lead to a satisfactory position for the future. The proposed project is considered suitable for a loan of \$3.7 million, for a term of 18 years including a grace period of 2½ years on amortization payments.

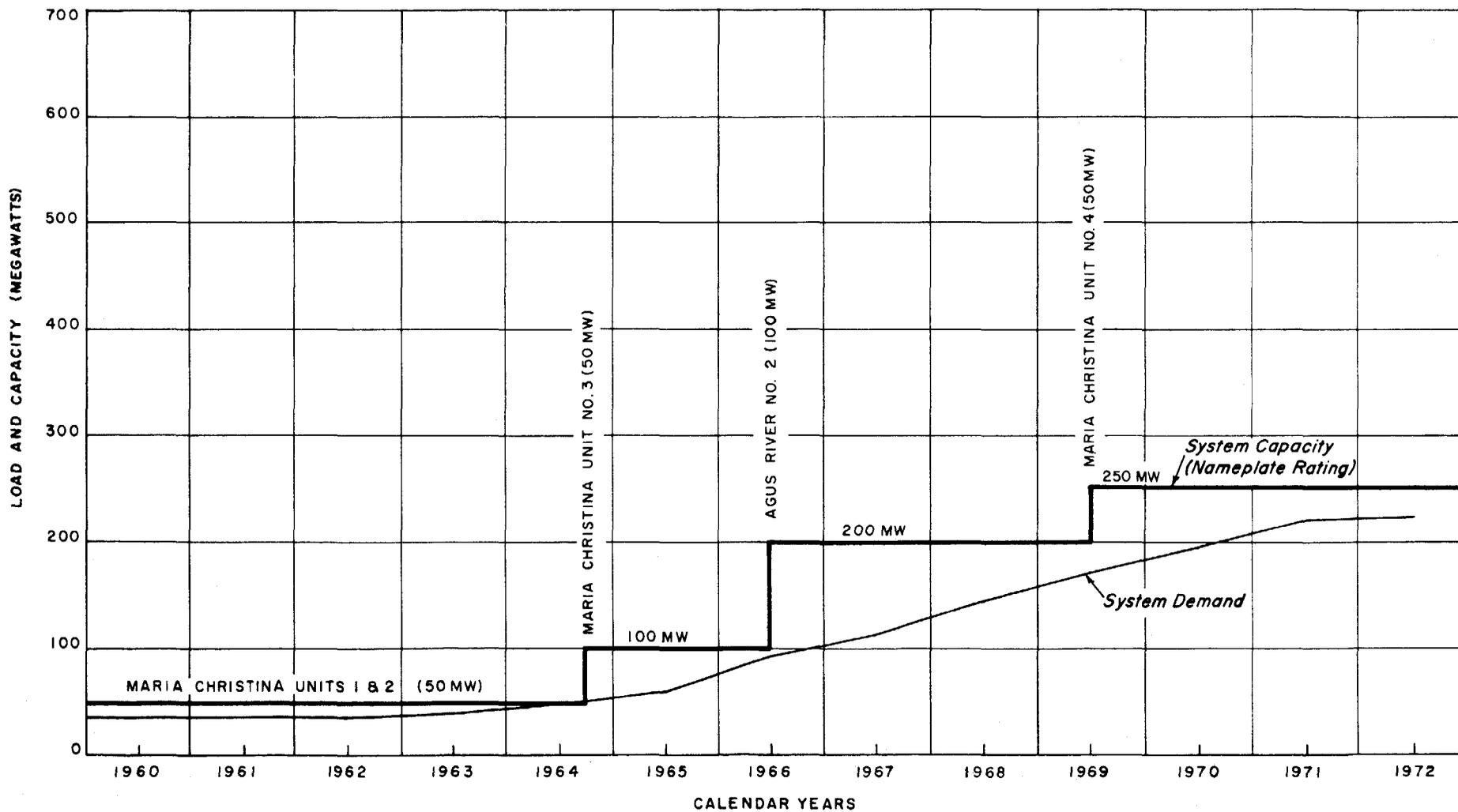
MINDANAO (AGUS) GRIDLOAD AND ENERGY FORECAST

<u>Year</u> <u>(ends 6/30)</u>	<u>Aggregate</u> <u>Demand</u> <u>(MW)</u>	<u>Total</u> <u>Sales</u> <u>(kwh millions)</u>
1956/57	33.6	145.5
1957/58	33.0	174.0
1958/59	33.0	200.6
1959/60	34.0	176.3
1960/61	34.0	153.6

-- F O R E C A S T --

1961/62	39	188
1962/63	41	198
1963/64	50	257
1964/65	59	309
1965/66	93	512
1966/67	115	582
1967/68	144	897
1968/69	171	1,073
1969/70	195	1,246
1970/71	221	1,310
1971/72	224	1,323

PHILIPPINES
 AGUS GRID-MINDANAO
 LOAD AND CAPACITY DEVELOPMENT



ANNEX 2

NATIONAL POWER CORPORATION

MANILA

Balance Sheets 1961-62 to 1971-72
(In millions of Pesos - Rate of exchange: US\$1 = ₱2 until 1962, ₱4.00 thereafter)

Fiscal Year Ending June 30	ACTUAL					1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
	1958	1959	1960	1961	Dec. 31 1961											
ASSETS																
Fixed assets in operation	169.70	170.37	264.80	270.87	272.65	286.10	359.40	364.90	613.93	623.49	753.13	814.21	942.50	1,048.62	1,119.67	1,297.94
Less: Depreciation reserve	5.46	7.35	9.86	12.86	14.38	15.98	22.60	29.58	38.81	50.21	64.03	80.12	98.60	119.82	143.36	170.17
Net fixed assets in operation	164.24	163.02	254.94	258.01	258.27	270.12	336.80	335.32	575.12	573.28	689.10	734.09	843.90	928.80	976.31	1,127.77
Surveys, work in progress etc.	35.68	77.38	13.19	17.67	20.99	64.63	137.91	227.45	75.45	170.64	148.69	177.71	173.71	208.15	226.34	140.35
Total net fixed assets	199.92	240.40	268.13	275.68	279.26	334.75	474.71	562.77	650.57	743.92	837.79	911.80	1,017.61	1,136.95	1,202.65	1,268.12
Net fertilizer investment	13.10	12.10	10.99	13.65	13.02	13.04	12.39	11.70	10.97	10.20	9.38	8.51	7.59	6.61	5.57	4.47
Net current and other assets	16.89	10.73	12.72	9.09	17.90	11.25	7.55	3.67	3.72	3.40	3.14	3.74	4.67	6.35	5.61	15.70
Sinking fund assets ^{1/}	-	-	-	13.75	14.02	14.23	14.73	15.44	16.46	17.72	19.21	20.75	22.45	24.40	-	-
TOTAL ASSETS	229.91	263.23	291.84	312.17	324.20	373.27	509.38	593.58	681.72	775.24	869.52	944.80	1,052.32	1,174.31	1,213.83	1,288.29
LIABILITIES																
Equity																
Capital stock issued ^{2/}	-	-	92.00	231.19	231.19	237.00	247.50	250.00	250.00	250.00	250.00	250.00	250.00	250.00	179.76	179.76
Interest accrued on debt converted into capital stock ^{2/}	-	-	-	-	-	8.85	18.05	27.88	37.86	47.84	57.82	67.80	77.78	87.76	-	-
Reserves and net surplus	12.19	15.37	11.02	15.09	19.67	22.16	30.41	42.52	58.39	85.98	112.94	143.61	182.04	222.40	264.49	313.68
Total equity	12.19	15.37	103.02	246.28	250.86	268.01	295.96	320.40	346.25	383.82	420.76	461.41	509.82	560.16	444.25	493.44
Debt																
Foreign currency loans ^{3/}																
Export Import Bank loan	34.55	32.52	30.49	28.45	27.44	26.42	48.78	44.72	40.66	36.60	32.54	28.48	24.42	20.36	16.30	12.24
IBRD 183 PH: Binga	6.81	25.16	32.81	33.56	34.56	35.02	68.16	66.16	64.04	61.80	59.40	56.88	54.20	51.36	48.32	45.12
IBRD 297 PH: Angat	-	-	-	-	-	33.96	74.69	115.46	134.40	131.12	127.64	123.96	120.04	115.92	111.56	106.92
Proposed IBRD loan: Maria Cristina ³	-	-	-	-	-	-	9.00	13.00	14.48	13.84	13.16	12.44	11.68	10.88	10.04	9.12
War reparation loan	-	-	-	-	2.52	6.12	9.22	8.12	7.02	5.92	4.82	3.72	2.62	1.52	.42	-
Future loan: Agus 2	-	-	-	-	-	-	-	4.00	14.00	24.00	25.71	25.11	24.47	23.80	23.09	22.34
Assumed future loans	-	-	-	-	-	-	-	8.32	32.64	80.08	137.60	185.04	252.40	327.64	368.64	413.13
Sub-Total	41.36	57.68	63.30	62.01	64.52	101.52	209.85	259.78	307.24	353.36	400.87	435.63	489.83	551.48	578.37	608.87
Local currency loans ^{2/}																
Local currency loans ^{2/}	182.55	198.08	136.56	3.88	8.82	3.74	3.57	13.40	28.23	38.06	47.89	47.76	52.67	62.67	220.67	220.67
Less: Sinking fund assets ^{1/}	(6.19)	(7.90)	(11.04)	-	-	-	-	-	-	-	-	-	-	-	(29.46)	(34.69)
Sub-Total	176.36	190.18	125.52	3.88	8.82	3.74	3.57	13.40	28.23	38.06	47.89	47.76	52.67	62.67	191.21	185.98
Total debt	217.72	247.86	188.82	65.89	73.34	105.26	213.42	273.18	335.47	391.42	448.76	483.39	542.50	614.15	769.58	794.85
TOTAL LIABILITIES	229.91	263.23	291.84	312.17	324.20	373.27	509.38	593.58	681.72	775.24	869.52	944.80	1,052.32	1,174.31	1,213.83	1,288.29

^{1/} The sinking fund created for repayment of the local debt converted into capital stock in 1960-61 will be kept on NPC's books and will continue accruing 3½% interest per annum until 1970; during this 10-year period it is therefore shown as an asset rather than a deduction from long-term local currency debt.

^{2/} ₱ 158 million of the authorized, issued share capital will be repayable after July 1, 1970 and is therefore shown as long-term local debt from then on. Interest accrued on capital stock is capitalized up to June 30, 1970 and is considered additional authorized capital pursuant to Republic Act No. 3043.

^{3/} The balances of the Exim Bank loan and the IBRD (Binga) loan, outstanding as of July 1, 1962, are revalued to reflect the free exchange rate of ₱ 4.00 = US\$1; it has been assumed that fixed assets would be revalued to the same extent. The Angat disbursement in 1961-62 is shown at the exchange rate of ₱ 4.00 = US\$1.

^{4/} Adjusted for a foreign exchange loss of ₱ 900 thousand on amortization payments in 1961-62.

NATIONAL POWER CORPORATION

MANILA

Income Statements 1961-62 to 1971-72

Fiscal Year Ending June 30	— ACTUAL —												
	1961	6 months to Dec. 31, 1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Sales in millions of KWH	1,025		1,223	1,237	1,308	1,607	2,204	2,690	3,251	3,685	4,262	4,790	5,325
Operating revenues	23.14	13.88	28.31	35.40	40.31	47.98	70.90	85.83	100.54	114.44	130.64	147.83	167.11
Operating costs:													
Operating expenses	3.68	2.34	4.14	4.68	4.91	5.57	5.80	15.83	21.70	21.26	30.44	40.16	44.08
Real estate tax	.62	.03	1.31	1.32	1.37	1.89	2.19	2.36	2.47	3.01	3.11	3.27	3.67
Depreciation	3.04	1.52	3.12	6.62	6.98	9.23	11.40	13.82	16.09	18.48	21.22	23.54	26.81
Total operating costs	7.34	3.89	8.57	12.62	13.26	16.69	19.39	32.01	40.26	42.75	54.77	66.97	74.56
Operating income	15.80	9.99	19.74	22.78	27.05	31.29	51.51	53.82	60.28	71.69	75.87	80.86	92.55
Other income (net) ^{1/}	.51	.18	.81	.77	.73	.69	.65	.60	.55	.50	.44	.38	.32
Net income before interest	16.31	10.17	20.55	23.55	27.78	31.98	52.16	54.42	60.83	72.19	76.31	81.24	92.87
Income deductions:													
Total interest payable	11.84	5.92	6.17	10.84	14.02	17.59	20.92	24.39	27.07	30.20	34.06	47.45	49.56
Total interest accrued on capital stock	-	-	8.85	9.20	9.83	9.98	9.98	9.98	9.98	9.98	9.98	-	-
Interest charged to construction (credit)	-	-	(1.96)	(4.24)	(7.66)	(10.92)	(5.75)	(6.29)	(6.22)	(5.69)	(7.30)	(7.45)	(4.86)
Interest earned on sinking fund (credit)	(.38)	(.18)	(.48)	(.50)	(.52)	(.54)	(.58)	(.62)	(.67)	(.73)	(.79)	(.85)	(1.02)
Total income deductions	11.46	5.74	12.58	15.30	15.67	16.11	24.57	27.46	30.16	33.76	35.95	39.15	43.68
Net profit from power operations	4.85	4.43	7.97	8.25	12.11	15.87	27.59	26.96	30.67	38.43	40.36	42.09	49.19
Net profit or (loss) from fertilizer operations ^{2/}	(.78)												
Net profit	4.07												
Return on net fixed assets in operation	6.1	7.8	7.3	6.8	8.1	6.9 ^{3/}	9.0	8.5 ^{3/}	8.2	8.5	8.2	8.3	8.2
Return on average total net fixed assets	5.8	7.2	6.5	5.6	5.2	5.1	7.4	6.8	6.9	7.4	7.0	6.9	7.5

^{1/} From 1961-62 on: interest earned on the unpaid balance of the sales price for the fertilizer plant.

^{2/} The fertilizer plant was sold by NPC in 1960-61.

^{3/} Return on average net fixed assets as Angat (1964-65) and Agus 2 (1966-72) are assumed to operate for only half a year.

NATIONAL POWER CORPORATION

MANILA

Sources and Applications of Funds 1960-61 to 1971-72
(In millions of Pesos - Rate of exchange: US\$ 1 = ₱ 2 until 1962, ₱ 4 thereafter)

Fiscal Year Ending June 30	Actual 1961	1962 ^{1/}	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
SOURCES OF FUNDS												
Internal cash generation												
Net income before interest	16.12	20.55	23.55	27.78	31.98	52.16	54.42	60.83	72.19	76.31	81.24	92.87
Depreciation	3.04	3.12	6.62	6.98	9.23	11.40	13.82	16.09	18.48	21.22	23.54	26.81
Total	19.16	23.67	30.17	34.76	41.21	63.56	68.24	76.92	90.67	97.53	104.78	119.68
Receipts from sale of fertiliser plant	3.18	.61	.65	.69	.73	.77	.82	.87	.92	.98	1.04	1.10
Government contributions	5.86	5.81	10.50	2.50	-	-	-	-	-	-	-	-
NWSA contribution to Angat ^{2/}	-	4.50	7.00	6.50	3.50	-	-	-	-	-	-	-
Borrowings												
Foreign currency loans												
IBRD 183 PH: Binga	1.71	2.48	-	-	-	-	-	-	-	-	-	-
IBRD 297 PH: Angat	-	33.96	40.73	40.77	20.54	-	-	-	-	-	-	-
Proposed IBRD loan: Maria Cristina 3	-	-	9.00	4.00	1.80	-	-	-	-	-	-	-
War reparation loan	-	6.81	4.20	-	-	-	-	-	-	-	-	-
Future loan: Agus 2	-	-	-	4.00	10.00	10.00	2.00	-	-	-	-	-
Assumed future loans	-	-	-	8.32	24.32	47.44	57.52	52.08	73.68	81.92	54.64	61.12
Sub-Total	1.71	43.25	53.93	57.09	56.66	57.44	59.52	52.08	73.68	81.92	54.64	61.12
Local currency loans	1.00	-	-	10.00	15.00	10.00	10.00	-	5.00	10.00	-	-
Total borrowings	2.71	43.25	53.93	67.09	71.66	67.44	69.52	52.08	78.68	91.92	54.64	61.12
TOTAL SOURCES OF FUNDS	30.91	77.84	102.25	111.54	117.10	131.77	138.58	129.87	170.27	190.43	160.46	181.90
APPLICATIONS OF FUNDS												
Additions to plant												
IBRD 183 PH: Binga	4.07	2.48	-	-	-	-	-	-	-	-	-	-
IBRD 297 PH: Angat ^{2/}	-	49.50	60.80	58.55	28.45	-	-	-	-	-	-	-
Proposed IBRD project: Maria Cristina 3	-	-	15.24	8.00	3.86	-	-	-	-	-	-	-
Agus 2	-	-	-	10.00	23.50	23.50	6.00	-	-	-	-	-
Assumed major generation additions	-	-	-	11.83	31.07	65.94	86.59	72.30	105.50	126.74	76.74	81.92
Other additions, including transmission	6.49	12.75	11.86	5.50	2.73	9.56	8.81	11.58	13.10	6.52	5.05	5.50
Total additions	10.56	64.73	87.90	93.88	89.61	99.00	101.40	83.88	118.60	133.26	81.79	87.42
Interest												
Foreign currency loans												
Export Import Bank: Ambuklao	1.16	1.46	2.08	1.92	1.76	1.60	1.44	1.24	1.08	.92	.76	.60
IBRD 183 PH: Binga	1.76	2.61	4.24	4.12	4.00	3.88	3.72	3.44	3.28	3.08	2.88	2.92
IBRD 297 PH: Angat	-	1.96	3.96	5.96	7.32	7.72	7.52	7.32	7.08	6.88	6.64	6.36
Proposed IBRD project: Maria Cristina 3	-	-	.28	.70	.86	.84	.80	.76	.72	.68	.64	.56
War reparation loan	-	.10	.24	.28	.24	.21	.18	.14	.11	.07	.04	.01
Future loan: Agus 2	-	-	-	.15	.65	1.15	1.50	1.48	1.44	1.41	1.37	1.33
Assumed future loans	-	-	-	.25	1.23	3.40	6.51	9.82	13.33	17.22	21.34	24.20
Sub-Total	2.92	6.13	10.80	13.38	16.06	18.80	21.67	24.36	27.20	30.46	33.87	35.98
Local currency loans	5.64	.04	.04	.64	1.53	2.12	2.72	2.71	3.00	3.60	3.60	3.60
Interest on capital stock	3.28	-	-	-	-	-	-	-	-	-	9.98	9.98
Sub-Total	8.92	.04	.04	.64	1.53	2.12	2.72	2.71	3.00	3.60	13.58	13.58
Total interest	11.84	6.17	10.84	14.02	17.59	20.92	24.39	27.07	30.20	34.06	47.45	49.56
Amortization												
Foreign currency loans												
Export Import Bank: Ambuklao	2.03	2.65	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06
IBRD 183 PH: Binga	.96	1.30	1.88	2.00	2.12	2.24	2.40	2.52	2.68	2.84	3.04	3.20
IBRD 297 PH: Angat	-	-	-	-	1.60	3.28	3.48	3.68	3.92	4.12	4.36	4.64
Proposed IBRD loan: Maria Cristina 3	-	-	-	-	.32	.64	.68	.72	.76	.80	.84	.92
War reparation loan	-	.69	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Future loan: Agus 2	-	-	-	-	-	-	.29	.60	.64	.67	.71	.75
Assumed future loans	-	-	-	-	-	-	-	4.64	6.32	6.68	13.64	16.63
Sub-Total	2.99	4.64	7.04	7.16	9.20	11.32	12.01	17.32	19.48	20.27	27.75	30.62
Local currency loans												
Amortization	.06	.14	.17	.17	.17	.17	.17	.13	.09	-	-	-
Sinking fund	2.50	-	-	.19	.48	.68	.87	.87	.97	1.16	4.21	4.21
Sub-Total	2.56	.14	.17	.36	.65	.85	1.04	1.00	1.06	1.16	4.21	4.21
Total amortization	5.55	4.78	7.21	7.52	9.85	12.17	13.05	18.32	20.54	21.43	31.96	34.83
Total debt service	17.39	10.95	18.05	21.54	27.44	33.09	37.44	45.39	50.74	55.49	79.41	84.39
TOTAL APPLICATIONS OF FUNDS	27.95	75.68	105.95	115.42	117.05	132.09	138.84	129.27	169.34	188.75	161.20	171.81
Annual cash accrual (deficit)	2.96	2.16	(3.70)	(3.88)	.05	(.32)	(.26)	.60	.93	1.68	(.74)	10.09
Cash balance at beginning of year	10.10	13.59	15.75	12.05	8.17	8.22	7.90	7.64	8.24	9.17	10.85	10.11
Cash balance at end of year	13.59	15.75	12.05	8.17	8.22	7.90	7.64	8.24	9.17	10.85	10.11	20.20
Number of times net income covers interest payable and accrued ^{2/}	1.4	1.4	1.2	1.2	1.2	1.7	1.6	1.6	1.8	1.7	1.7	1.9
Number of times net income covers interest payable	1.4	3.3	2.2	2.0	1.8	2.5	2.2	2.2	2.4	2.2	1.7	1.9
Number of times cash generation covers total debt service	1.1	2.2	1.7	1.6	1.5	1.9	1.8	1.7	1.8	1.8	1.3	1.4

1/ The foreign exchange portion of expenditures and disbursements on the Angat project in 1961-62 are shown at the exchange rate of ₱ 4 : US\$ 1. Debt service payments on the Exim- Bank loan and the IBRD (Binga) loan represent actual ₱ amounts paid by NPC (exchange rates: ₱ 2 and ₱ 3 : US\$ 1).

2/ NWSA contributions to Angat will not enter NPC's books and are therefore not considered as part of fixed assets in the balance sheets.

3/ Including ₱ 3.05 million of sinking fund payments on ₱ 158 million of capital stock.

4/ Increased by ₱ 530 thousand in adjustment for a decrease in working capital (₱ 1.67 million) and charges to surplus (₱ 1.14 million).

5/ See income statement for interest accrued on capital stock.

NATIONAL POWER CORPORATION

ANNEX 6

MANILA

Net Cash from Operation Contributed towards Expansion

(in millions of Pesos - Rate of Exchange US\$1 = ₱ 2 until 1962 ^{1/2} ₱4.00 thereafter)

Fiscal Year Ending June 30	1958	1959	1960	1961	4 years 1958 - 61		1962 ^{1/}	1963	1964	1965	4 years 1962 - 65		3 years 1963 - 65	
					Total	%					Total	%	Total	%
Internal cash generation	10.87	13.49	14.24	19.16	57.76	45.5	23.67	30.17	34.76	41.21	129.81	38.8	106.14	39.1
Less: Total debt service	11.73	13.38	17.90	17.39	60.40	47.5	10.95	18.05	21.54	27.44	77.98	23.3	67.03	24.7
Interest during construction (credit) ^{2/}	(1.15)	(2.92)	(5.02)	-	(9.09)	(7.1)	(1.96)	(3.96)	(5.96)	(7.32)	(19.20)	(5.8)	(17.24)	(6.3)
Net cash from operation	0.29	3.03	1.36	1.77	6.45	5.1	14.68	16.08	19.18	21.09	71.03	21.3	56.35	20.7
Decrease in working capital ^{3/}	-	5.71	3.42	-	4.91	3.8	-	3.70	3.88	-	5.37	1.6	7.53	2.8
Sale of fertilizer plant	-	-	-	3.18	3.18	2.5	.61	.65	.69	.73	2.68	.8	2.07	.8
Sub-Total: own cash resources	0.29	8.74	4.78	4.95	14.54	11.4	15.29	20.43	23.75	21.82	79.08	23.7	65.95	24.3
Government equity contributions	-	-	-	5.86	5.86	4.6	5.81	10.50	2.50	-	18.81	5.6	13.00	4.8
Borrowings	32.62	33.86	37.29	2.71	106.48	84.0	43.25	53.93	67.09	71.66	235.93	70.7	192.68	70.9
Total Sources ^{4/}	<u>32.91</u>	<u>42.60</u>	<u>42.07</u>	<u>13.52</u>	<u>126.88</u>	<u>100.0</u>	<u>64.35</u>	<u>84.86</u>	<u>93.34</u>	<u>93.48</u>	<u>333.82</u>	<u>100.0</u>	<u>271.63</u>	<u>100.0</u>
Additions to plant ^{5/}	30.50	39.68	37.05	10.56	117.79	92.9	60.23	80.90	87.38	86.11	314.62	94.2	254.39	93.7
Interest during construction ^{2/}	1.15	2.92	5.02	-	9.09	7.1	1.96	3.96	5.96	7.32	19.20	5.8	17.24	6.3
Increase in working capital	1.26	-	-	2.96	-	-	2.16	-	-	.05	-	-	-	-
Total Applications ^{4/}	<u>32.91</u>	<u>42.60</u>	<u>42.07</u>	<u>13.52</u>	<u>126.88</u>	<u>100.0</u>	<u>64.35</u>	<u>84.86</u>	<u>93.34</u>	<u>93.48</u>	<u>333.82</u>	<u>100.0</u>	<u>271.63</u>	<u>100.0</u>

^{1/} See also footnote 1 of Annex "Sources and Applications of Funds".

^{2/} For the period 1962-65 this represents interest during construction financed by IBRD loan 297 PH; other interest during construction for the same period is included in total debt service above.

^{3/} Most of this decrease represents the investment in plant of funds borrowed for construction or accumulated in earlier years. This does not affect NPC's working capital position as far as operations are concerned.

^{4/} Only the net variation of working capital is shown in the three and four-year totals.

^{5/} Additions to plant 1962-1965 exclude contributions from NWSA of ₱ 21.5 million for Angat as they will not enter NPC's books.

