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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

GRANDPASS THERMAL POWER PROJECT

CEYLON

Public Disclosure Authorized

June 30, 1958

Department of Technical Operations

CURRENCY EQUIVALENTS

(rounded figures)

1 US \$	▪ 4.8 Ceylonese Rupees (official rate 4.762)
1 Rupee	▪ 21 Cents (US)
US \$ 1 million	▪ Rs. 4,800,000
Rs. 1 million	▪ US \$ 210,000

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GRANDPASS THERMAL POWER PROJECT

CEYLON

S U M M A R Y

The Government of Ceylon has asked the Bank to consider a loan of \$7.4 million to finance the foreign exchange cost of an expansion of the power system operated by the Department of Electrical Undertakings (DGEU). The project consists of a 25 MW thermal plant with associated transmission lines and distribution facilities.

ii. DGEU now operates one hydro and two thermal plants, with a total installed capacity of 77 MW, and a transmission grid which supplies power to the south western part of Ceylon including the city of Colombo. About half of Ceylon's population lives in this area.

iii. DGEU is a part of the Ministry of Transport and Works and as such is subject to a very detailed control and supervision by this and other Ministries. The present organization makes it increasingly difficult for DGEU to operate its system efficiently and in accordance with sound public utility practices. The responsibilities of DGEU for distribution and generation of power should therefore be transferred to an autonomous organization. The Government is now considering this step and in addition intends to retain the services of foreign experts to advise on technical, financial and organizational problems. This, together with an expanded program of training of staff, both in Ceylon and other countries, should improve the organization and ensure an efficient operation of the power system.

iv. The Department's fixed assets as of September 30, 1957, shown at original cost, amounted to Rs. 185.5 million (US\$39.0 million). Total long-term debt amounted to Rs. 151.3 million (US\$31.5 million). Earnings in recent years have been satisfactory.

v. The Bank made in July 1954 a loan of \$19.11 million to the Government of Ceylon to finance the foreign exchange cost of the previous expansion program carried out by DGEU. The main parts of this project including the addition of 25 MW of generating capacity in the Laksapana hydro plant, have been completed and put into operation.

vi. The market for power in the area served has grown rapidly. By the middle of 1960 the present capacity in the system will no longer be sufficient to meet the demand and load restrictions will be required until new capacity can be brought into operation in December 1961.

vii. The project proposed for Bank financing consists of the 25 MW Grandpass thermal plant, the extensions to the 132 kv and 33 kv transmission system and the expansion of the distribution system in Colombo. The total cost of the thermal project is estimated at the equivalent of \$11.10 million of which \$7.4 million will be required in foreign exchange. The 25 MW of new capacity is estimated to be absorbed by the middle of 1962.

viii. The local currency cost of the project would be financed by long-term Government loans and to a smaller extent from revenues earned by DGEU.

iv. The average rate of return on the investment for the 6-year period 1958/9 to 1962/3 would amount to about 5%. Total debt service would be fully covered, although with narrow margins.

x. The thermal plant project is suitable as a basis for a Bank loan of \$7.4 million with a term of 20 years. A grace period of up to $3\frac{1}{2}$ years would be appropriate.

GRANDPASS THERMAL POWER PROJECT

CEYLON

I. INTRODUCTION

1. The Bank has received a request from the Government of Ceylon for a loan of \$7.4 million to cover the foreign exchange cost of an expansion of the power system operated by the Department of Government Electric Undertakings (DGEU). The project consists of a 25 MW thermal plant, with associated transmission lines and distribution facilities, and forms part of the program known as Aberdeen-Laksapana Stage II B.
2. This report covers an appraisal of the project. It is based on a report prepared by the Consulting Engineers, Preece, Cardew and Rider of London, and on information obtained by Bank staff during a visit to Ceylon in March, 1958.

II. DGEU

Present Facilities

3. DGEU was formed in 1927 to take over the operation of a small private power supply system, which was purchased by the Government. Power was originally supplied only to the city of Colombo, but the area covered has been gradually extended and amounts at present to some 3,500 square miles or about 15% of the total area of Ceylon (see map). The population in this area amounts to about 4 million or half of the total population of the island.
4. The generating capacity of the integrated system is at present 77,000 kw of which 50,000 kw is hydro capacity, 12,000 kw steam and 15,000 kw diesel capacity; hydro capacity of 25,000 kw came into operation in February 1958.
5. The steam thermal units which are installed in the Stanley and Pettah power stations in Colombo are of small size and operate under low steam conditions (240 p.s.i.). They have been in service for more than 20 years and, while well maintained, are close to the end of their useful life. The hydro capacity has been installed during the last eight years in the Laksapana power house.
6. The transmission system consists of 180 miles of 132 kv and 66 kv high tension lines and 917 miles of 33 kv and 11 kv distribution lines.
7. DGEU distributes power in the city of Colombo, which is by far the most important load center, and the four towns Nuwara Eliya, Peradeniya, Kurungela and Diyatalawa. Most small towns in the DGEU system are, however, supplied with bulk power for distribution by local authorities.
8. DGEU also operates a number of individual diesel plants not connected to the transmission system. These also mostly supply power in bulk to local

authorities. For the city of Jaffna in the north, DGEU purchases power from the Kankasanturai cement factory.

Financial Position

9. A condensed balance sheet showing the Department's financial position as at September 30, 1957 is given in Annex 1.

10. The fixed assets are shown at original cost and total Rs. 185.5 million, including construction work in progress. Total investments during the last 5 years amounted to some Rs. 110 million.

11. DGEU's total loan liabilities as of September 30, 1957, amounted to Rs. 151.3 million, of which Rs. 35.8 million represented withdrawals as of this date on the IBRD loan made in July 1954. This loan has a term of 25 years. The balance consisted of government loans with terms ranging from 25 to 50 years and with interest rates varying from $3\frac{1}{2}\%$ to 5%. Recent loans have been made at $3\frac{3}{4}\%$. A detailed list of the loan liabilities is given in Annex 2.

12. Reserves and surplus totalled about Rs. 49 million^{1/} accumulated from retained earnings during past years.

Past Earnings Record

13. DGEU's earnings record for the past six years (1951/2 - 1956/7) is shown in Annex 3. This annex has been prepared in a form which conforms to the way in which the Department calculates its net income, and requires the following comments.

14. The Department has to meet all debt service, including amortization, out of operating revenues and in the Department's revenue accounts, **this debt service** is shown as a charge to income, but no allowance is made for depreciation.

15. Although the Department is not liable for income taxes, it has to make equivalent payments to the Treasury as a contribution to Government revenues. These payments are shown in the Department's revenue accounts as "payments in lieu of income taxes"^{2/}. During the last three years these payments totalled about Rs. 10 million.

16. The earnings record shows that after these payments and after deduction of debt service payments, annual net revenues remained varying from Rs. 3.5 million to Rs. 7.3 million, totalling Rs. 31.8 million over the six year period 1951/2 - 1956/7.

1/ Before any deduction of accumulated depreciation on plant in operation; no depreciation has been recorded in past years.

2/ These payments are calculated in the same way as income taxes are calculated for corporations. The variations in the amounts paid during past years is not only due to fluctuations in the net profits, but also to special rebates allowed in years when new plant is put into operation.

17. The net figures arrived at in the way outlined above do not represent the actual net profits realized from operations, because the Department's revenue accounts are to a large extent merely cash statements. In order to determine the net profits for the years in question, the Department's figures have been adjusted, as shown in Annex 4. A realistic annual provision for depreciation was assumed instead of the annual amortization components included in total debt service payments. Other adjustments had also to be made in the figures for operating costs. The adjusted income statements show net profits, for the last four years, of about Rs. 6.6 million, before deduction of "payments in lieu of income taxes" and from Rs. 3 million to Rs. 4 million after deduction of these payments. Interest (excluding interest capitalized) was earned about 3.4 times.

18. The revenues of DGEU, not being an autonomous agency, form a part of the general revenues of the Government. All the Department's revenues are paid directly into the Government Treasury and its capital and operating expenditures are all voted each year by the legislature.

Organization and Management

19. DGEU is a part of the Ministry of Transport and Works. As such it is subject to very detailed control and supervision both by this Ministry as well as the Ministry of Finance. In addition, all matters regarding supply of power to local authorities have also to be approved by the Ministry of Local Government and Cultural Affairs.

20. DGEU has two functions: the operation of all Government-owned power facilities and the granting of licenses for construction and operation of other power installations and the inspection of these installations. Its operation is governed by the Electricity Act No. 19 of 1950 with the accompanying Electricity Regulations.

21. DGEU is headed by a General Manager. He also fills the position of Chief Electrical Inspector. He reports to the Minister through the Permanent Secretary of the Ministry of Transport and Works. He is assisted by four principal officers, Chief Engineer and Deputy General Manager, Chief Commercial Officer, Chief Accountant and Chief Administration Officer. These positions were established in 1957 as a result of reorganization of the Department, which was carried out to obtain a delegation of authority along functional lines. The position of Commercial Officer has not yet been filled because no qualified candidate could be found in Ceylon. After long delays, an experienced man has now been found in England and he is to assume his duties in July 1958. The Chief Accountant reports also to the head of the Government Accounts within the Ministry of Finance. The operation of the distribution systems is handled by four regional divisions. Their managers report directly to the General Manager.

22. Upon the Bank's recommendations, the Government established in 1955 the position of an Electrical Engineering Advisor, and an experienced public utility executive from the British Electricity Authority was retained through the Colombo Plan Organization to fill this position. He has carried out a detailed analysis of the various organizations which supply power in Ceylon and also made

a market survey. In his report he points out that the detailed rules and regulations under which DGEU is required to operate as a Government department make it increasingly difficult to operate the power system efficiently. He recommends the establishment of an independent Electricity Board which would be responsible to the Parliament, through the Minister of Transport and Works. This step was urged by the Bank during the negotiation for the first loan. As the size of the power system has been substantially increased the need for an independent organization has become even more urgent.

23. The Government is aware of this problem and is at present studying the suitability of establishing an autonomous entity to be responsible for the operation of its electric undertakings. It is expected that the Government, on the basis of this study, will prepare the necessary legislation to be approved by the Parliament. The Bank will be invited to give its comments on the draft legislation for the establishment of the new organization.

24. The contract of the present Electrical Engineering Advisor expires in October 1958. To provide the Department with continuous advice on technical, organizational and financial problems the Government intends either to extend the services of the Advisor or to retain qualified consultants. In either case the specific terms of reference will be established in cooperation with the Bank.

25. DGEU has already started a training program to obtain qualified personnel for the efficient operation of its system. This program will be continued and expanded by training both in Ceylon and, to the extent necessary, in other countries, consistent with the increasing activities of the Department.

26. The various steps now considered by the Government should improve the management and organization of its electrical enterprise and put it in a position to carry out more efficiently the expansion of its facilities and the operation of its system.

III. PROGRESS ON PREVIOUS LOAN

27. In July 1954 the Bank made a loan of \$19.11 million to the Government of Ceylon to finance the foreign exchange cost of the expansion of the 25,000 kw Aberdeen-Laksapana hydro project. The expansion included the construction of the Castlereagh storage dam on the Kehelgamu River, the installations in the power house of 25,000 kw additional capacity and the erection of the necessary transmission lines and distribution facilities. This is known as the Aberdeen-Laksapana Stage II A.

28. The contracts were awarded during the last part of 1954 and construction work was started in the spring of 1955. The Castlereagh dam and the extension to the Laksapana power plant were scheduled to be completed by October 1957. The work was delayed by difficult rock conditions at the dam foundations and by shipping delays as a result of the closing of the Suez Canal. The dam was closed in March 1958 permitting the filling of the reservoir to start. The

two 12,500 kw generating units were ready for operation in February 1958. The main transmission lines and substations included in the project have also been completed and put in operation but repeated rejections of all bids for the equipment for distribution substations in Colombo will postpone the final completion of the project to the end of 1959. The delayed substation equipment will delay the change of the primary distribution in Colombo from 11 kv to 33 kv.

29. The foreign exchange requirements have been less than estimated and as a result the loan was reduced by \$1.74 million to \$17.37 million in November 1957. The total cost of the project has been increased from \$29 million to \$32.5 million equivalent because the Ministry of Finance has directed the Department to include customs duties in the capital cost of the project.

IV. POWER MARKET

30. The present per capita consumption of power in Ceylon as a whole is only about 20 kwh per annum and in the area served by DGEU it is about 36 kwh. The number of household consumers served by DGEU is only about 75,000.

31. Total sales in 1956/57 amounted to 146.7 million kwh, distributed as follows: Domestic 42%; Commercial 23%; Industrial 25%; Traction 4%; and Street Lighting 6%. (See Annex 5)

32. The industrial load is largely accounted for by tea factories and to a lesser extent by rubber and coconut plantations. In addition, a number of small industries and workshops are served.

33. During the past six years power sales have increased at an average rate of 15.5%. Restrictions on the connection of new consumers have been in force during the last two years because of a shortage of firm generating capacity. As a result, there existed a pent-up demand of at least 2,000 kw at the beginning of 1958. This position has been relieved by the addition of the new hydro capacity which came into operation in February 1958. New transmission lines have recently been completed and will serve areas not previously supplied with power.

34. Forecasts of future sales have been prepared by the Electrical Engineering Advisor. He has based his estimates on past records but he has taken into account the results of a preliminary study prepared by the National Planning Council on the prospective power demand of the main load sectors. Total sales are estimated to increase from 175.2 million kwh in 1957/8 to 512 million kwh in 1965/6, or by an average annual rate of 14% which, under the circumstances, is a reasonable assumption.

35. Based on system losses of 17% and the present system load factor of 50%, the peak load of the system is estimated to increase from 50 MW to 146 MW by 1965/6.

36. The present total demand of tea factories is about 9 MW while the potential demand is about 40 MW. The balance is now met by diesel units installed by the individual estates because DGEU has not been in a position to

provide a firm supply of power. In the forecasts, it is estimated that the tea factory load will increase annually by 1.5 MW as a result of a changeover from diesel operation to supply from the grid.

37. The Government is studying plans for the establishment of basic industries, in particular iron and steel and fertilizer. The possible power demand of these industries has, however, not been included in the estimates.

38. The estimates of future demand for power in the system are reasonable. As shown in the load graph attached as Annex 6, a shortage of generating capacity will occur by the middle of 1960 when the demand will exceed the firm capacity of the system and load restrictions will therefore be required at this time.

39. The project considered will add 25 MW of thermal capacity in December 1961. The construction of a new hydro plant with a capacity of 50 MW is also planned. This plant should come into operation during the first half of 1962. The total capacity would then be sufficient to meet the demand until the end of 1964 allowing for the retirement of 15 MW of old thermal capacity.

V. THE PROJECT

40. The project considered for Bank financing consists of a thermal power plant located on the Kelani river at Grandpass in the northern part of Colombo. It will be of conventional design and equipped with one 25,000 kw turbo generating unit and a single boiler. The unit will operate at a steam pressure of 900 p.s.i. and a temperature of 900°F. Auxiliary installations will include cooling water canals and pumps, fuel oil tanks and pumps, feed water treatment plant and an outdoor substation.

The plant will be connected to the existing Kolonnawa substation by a 1.5 mile 132 kv transmission line. Also included in this part of the project is the necessary extension to this substation and the construction of 178 miles of 33 kv transmission lines with associated substations and necessary extensions to the Colombo distribution system.

A more detailed description of the project is given in Annex 7.

Status of the Project

41. The detailed plans and specifications for the generating plant and 132 kv transmission system have been completed. They have been prepared by the consulting engineers, Preece, Cardew and Rider who also will be responsible for the supervision of construction work.

42. The plans for the 33 kv lines are being prepared by DGEU and the construction will partly be carried out departmentally. To the extent that this work exceeds the capacity of the Department it will be let out on contracts and consultants will be retained to handle the technical procedures required for obtaining tenders and to supervise construction.

Construction Schedule

43. The construction of the thermal plant is estimated to require 3 years. Invitations to tender are ready to be issued and it is expected that orders can be placed in December 1958. The plant should therefore be in operation in December 1961. This schedule is reasonable.

VI. COST ESTIMATE OF THE PROJECT

44. The estimated cost of the project can be summarized as follows:
(Details are given in Annex 8)

	<u>Total</u>		<u>Foreign Exchange</u>	
	<u>Mill.Rs.</u>	<u>Mill.\$ Equiv.</u>	<u>Mill.Rs.</u>	<u>Mill.\$ Equiv.</u>
Thermal Plant	35.86	7.47	24.67	5.14
Transmission & Distribution	14.43	2.99	8.24	1.70
Interest during Construction	<u>2.99</u>	<u>0.64</u>	<u>2.59</u>	<u>0.56</u>
Total	<u>53.28</u>	<u>11.10</u>	<u>35.50</u>	<u>7.40</u>

45. The estimates were prepared by the Consultants and are based on present price levels. An overall allowance of 15% has been made for contingencies to cover escalation in the costs of imported equipment and materials and local price increases. The estimates include engineering fees, transportation, port duties, insurance and interest during construction. The estimated cost of the thermal plant is about \$300 per kw. This is high for a thermal plant and is caused by the fact that the costs of substantial civil works necessary for a later expansion of the plant are included. Most skilled labor in connection with the erection of equipment will have to be carried out by foreign personnel. It is also likely that actual costs of equipment will be lower, when tenders have been received.

46. The project costs have been conservatively estimated and include ample allowance for contingencies and price increases during the construction period.

47. Tenders will be invited on an international basis for both the civil works and the equipment required.

48. DGEU is also planning to start the construction of the 50 MW Norton hydro plant known as Stage II B of the Aberdeen-Laksapana Scheme. The total cost of this plant with associated transmission facilities is estimated at Rs. 117.5 million (\$24.30 million) of which the equivalent of about \$16.0 million will be required in foreign exchange. Further works included in the construction program drawn up by DGEU for the period 1957/8 to 1962/3 are the completion of the project financed by the earlier Bank loan, the removal of 4,000 kw of diesel units from the station at Pettah, the installation of these units at Jaffna, outside of the grid, and the installation of low tension feeders and small town distribution systems. To meet the expected increased demand after 1964 the expansion of the Grandpass thermal plant by a second 25,000 kw unit is scheduled to be started in 1961. The total costs of these works during the period considered have been estimated at Rs. 96.62 million (US\$ 20.0 mill.). Total funds required for the six year construction program will therefore amount to Rs. 267.72 million (US\$ 55.5 million).

49. Not included in this estimate is the cost of future hydro development. Preliminary surveys have been carried out on the Seven Virgins project, located on the Maskeliya river upstream from the Laksapana powerhouse. A detailed

study of this project will be carried out under the U.S. Aid Program. The total cost is tentatively estimated at \$58 million equivalent based on 200,000 kw installed capacity. The first unit of this project would be required in 1967 in which case the construction work would have to be started in 1962.

Sources of Funds

50. The foreign exchange requirements of the project will be covered by the proposed Bank loan amounting to the equivalent of \$7.4 million. The Government has also asked the Bank to consider a further loan of about \$16 million required in the beginning of 1959, to cover the foreign exchange cost of the Norton hydro plant.

51. The Government would provide the funds to cover the local currency cost of the project as well as the cost of other construction to be undertaken by the Department. These funds would be made available in the form of long-term loans. Total loans required from the Government for the six year period 1957/8 to 1962/3 are estimated at Rs. 128.4 million (\$27 million) on the assumption (as shown later in the financial forecast) that about Rs. 26.5 million of capital expenditures during these years can be financed from revenues.

Cost of Power

52. The generation cost of the Grandpass thermal plant, at a load factor of 0.50, is estimated at 10 Ceylonese cents (21 mills) per kwh. This high cost is largely a result of the high price of diesel oil of Rs. 153 (\$32) per ton, which includes a 30% customs duty. Bunker C. grade fuel oil is at present not available in Ceylon but the Bank mission discussed this with representatives of the main oil companies in Ceylon, and it was understood that special deliveries could be arranged for the new plant resulting in a reduction of the fuel costs. The present generation cost of hydro power in the system is estimated at 4 Ceylonese cents (8 U.S. mills) per kwh.

53. The hydro plants in the DGEU system, while producing power at a substantially cheaper cost than equivalent thermal plants, are limited in their operations by existing storage reservoirs. During periods of low water, which vary from year to year and extend from one to two months, thermal capacity is required to insure that the full demand of the system can be met.

VII. ECONOMIC ASPECTS OF THE PROJECT

54. The project will provide additional supply of power for the south west area of Ceylon where about half the population of the island lives. Demand for electric power has increased very rapidly in recent years and restrictions had to be imposed to prevent an overloading of existing generating plants.

55. The tea industry, which provides about one half of Ceylon's export earnings, is only to a limited extent supplied with power from the integrated power system. The new generating capacity and transmission lines will make it possible to speed up the substitution of existing diesel unit installations with power delivered from the grid. This changeover will result in a 30% reduction

in power costs for the tea factories and a reduction in the imports of diesel fuel oil.

56. The Government has in recent years encouraged the establishment of new industries, but one of the difficulties has been the shortage of an assured supply of power. The capacity financed by the earlier Bank loan together with the expansion now planned should improve the position materially.

VIII. FINANCIAL ASPECTS

Power Rates

57. Power rates are proposed by DGEU but must be approved by the Government before they become effective. The present rates have been in force since 1953.

58. In view of DGEU's proposed heavy capital expenditure program, a consultant on rates was retained in 1957 to review the Department's existing tariff structure. In his report he recommends that the number of individual tariffs should be reduced from the existing 9 to 4 and that more realistic demand and energy charges should be adopted. The individual rates as proposed by him would produce less revenues than the rates now in force, but the difference would be minor, at least during the first four years. Thereafter the revenues might be from 5% to 7% less.

59. The consultant makes it clear that he had to base his calculations on various assumptions because basic information such as detailed cost accounts, capital assets records and consumers' load studies and load characteristics were not available. One of his main recommendations is the establishment of a commercial section which would collect, record and analyze the necessary data for the establishment of proper rates. As mentioned earlier in this report, a qualified person has been found to organize this work.

60. During the loan negotiations recently concluded the Ceylonese representatives agreed in principle that the rates should be set at a level to permit the Department to cover a fair part of the power system's capital needs from internally generated funds. The individual rates proposed by the consultant would be reviewed and increases would be considered to conform with this policy.

Financial Forecasts

61. This forecast for the 8-year period 1957/8 to 1964/5 is given in Annex 9. For a conservative estimate of future revenues, the rates proposed by the consultant have been assumed in the forecast. The financial results on this basis have been summarized in the following paragraphs.

Net Earnings

62. Annual net profits would fluctuate quite considerably during the period covered by the forecast, mainly due to sharp increases in interest payments and depreciation charges after completion of the successive stages of the expansion program. During the construction period all interest on loans raised for the program is capitalized.

63. The return on the investment^{1/} would also fluctuate, dropping in the years of initial operation of the new facilities and increasing during subsequent years when the investment is more fully utilized, as shown in the following table:

	<u>Rate of Return</u>
1958/9 - Initial operation of Stage II-A	4%
1960/1 -	6.2%
1961/2-1962/3 - Initial operation of Stage II-B	4.5%
1963/4 -	5.8%
1964/5 -	7.1%

These rates of return are moderate.

Surplus Revenues Available for Construction

64. After meeting all debt service payments varying amounts of surplus revenues would remain in each year, totalling some Rs. 26.5 million during the 6-year period 1957/8 - 1962/3. The forecast assumes that these surplus revenues are used to finance part of the construction requirements. This surplus would amount to 8.5% of total estimated capital requirements for the period in question. This should be considered a reasonable contribution from revenues in view of the proportionately large construction program. During the period indicated the total investment would increase by about 150%. As already mentioned DGEU will consider some rate increases to enable a somewhat larger portion of the expansion program to be financed from revenues.

Future Financial Position

65. A pro-forma balance sheet of DGEU^{2/} as at the end of 1962 is given in Annex 10.

66. Gross investment in plant would amount to Rs. 470 million with a net bookvalue of Rs. 417 million. This assumes accumulated depreciation of Rs. 53 million, which figure must be considered as a rough estimate only, in the absence of depreciation records for past years.

1/ Net income from operations (before deduction of interest payments) expressed as a percentage of net value of plant in operation.

2/ After the proposed autonomous entity would have been set up, this balance sheet would give the estimated financial position of the entity on the assumption that it would take over all assets and liabilities of DGEU.

67. For the purpose of the forecast of the financial position it has been assumed that the Bank in addition to the loan of \$7.4 million for the Grandpass Thermal Project now proposed, would make another loan during the first quarter of next year, in the amount of about \$16 million to provide the foreign exchange estimated to be required for the construction of the Norton Hydro Project. On this assumption total IBRD loans outstanding by the end of 1962 would represent 48% of total debt and 43% of total capitalization, as follows:

	(in millions of Rupees)	Percentage of Total <u>Capitalization</u>
<u>Equity</u>		
Reserves and Surplus	98.4	
less: allocated to depreciation reserve	<u>53.2</u> <u>45.2</u>	10.4%
<u>Long-Term Debt</u>		
IBRD Loan No. 101-CE	73.1	16.9%
Proposed IBRD Loan for Thermal Plant	35.5	8.3%
Future IBRD Loan for Hydro Plant	<u>75.5</u>	<u>17.7%</u>
Total IBRD 48%	185.1	42.9%
Government Loans 52%	<u>201.1</u>	<u>46.7%</u>
100%	<u>386.2</u>	<u>89.6%</u>
Total	<u>431.4</u>	<u>100%</u>

Debt Service Requirements

68. Debt service payments would increase very substantially over the next six years. In 1958/9 when amortization will have to start on the loans raised for the Stage II A development, total debt service will amount to Rs. 15.7 million, as compared with Rs. 4.5 million in 1957/8. In 1962/3, after completion of the Stage II B development the figure would have increased to Rs. 26 million. In subsequent years total debt service would amount to some Rs. 30 million, of which about Rs. 16 million would represent the service on the IBRD loans.

69. Annual debt service on the IBRD loan of \$7.4 million now proposed for the Grandpass Thermal Project would amount to Rs. 3.3 million equivalent on the basis of a term of 20 years, including 3-1/2 years of grace and at an interest rate of 5-1/2% per annum. The debt service on the loan of about \$16 million assumed to be made at a future date for the hydro project would be Rs. 6.3 million, if the loan would have a term of 25 years including 4 years of grace also at a rate of interest of 5-1/2%.

Debt Service Coverage

70. Net operating revenue would cover fully all debt service payments in each year but with rather narrow margins. In 1962/63 the coverage ratio would

only be 1.1 and thereafter about 1.2. These low margins result partially from the fact that almost all of DGEU's investments are being financed from loans to be repaid over periods on the average shorter than the life of the assets concerned.

At present DGEU's loan liabilities merely represent an internal relationship between Government Departments and therefore the debt service coverage ratios for DGEU do not have much significance. It is the Government's intention that the autonomous entity, the establishment of which is being considered, would take over all loan liabilities on the books of DGEU. For this entity to remain in a sound financial condition it will of course be essential that its revenues will be at least high enough to cover debt service requirements. It is also highly desirable that after meeting these obligations some surplus revenues would remain as a contribution to finance a fair part of the investments required for future expansion. As already indicated the Government has agreed to follow this policy for the operation of its electrical enterprise irrespective of whether an independent authority is established or not.

IX. CONCLUSIONS AND RECOMMENDATIONS

71. To meet the prospective demand for power in the area served by the DGEU in the near future, a substantial amount of new generating capacity and associated transmission and distribution facilities will be required. The capacity provided by the proposed thermal plant will, when completed, be sufficient to meet the demands of the market only until the middle of 1962, but a power shortage will likely occur in 1960 and 1961 before the plant can be put in operation. Although the estimated capital cost and cost of operation of the thermal plant is high, it will provide a satisfactory solution to the immediate problem of capacity shortage in the system. It will also be required after additional hydro plant comes into operation because the existing reservoirs have not sufficient storage capacity to permit a full utilization of the hydro capacity during low water periods.

72. The project is technically sound and appropriate arrangements have been made for its execution.

73. The various steps now considered by the Government should improve the management and organization of its electrical enterprise and put it in a position to carry out efficiently the expansion of its facilities and the operation of its system.

74. The project is suitable for Bank financing and a loan in the amount of \$7.4 million equivalent is justified. A term of 20 years with a period of grace of up to 3-1/2 years would be appropriate.

Department of Government Electrical
Undertakings (D.G.E.U.)

Condensed Balance Sheet as at September 30, 1957

	Thousands of Rupees
<u>Assets</u>	
Fixed Assets (Plant in operation and construction in progress)	185,553 ^{1/}
Inventories	11,473
Accounts Receivable for current supplied	6,943
Other Receivables	478
Cash in Banks	91
	<u>204,538</u>
<u>Liabilities</u>	
Reserves and Surplus	49,076 ^{2/}
Loan liabilities with Ceylon Government	151,279
Consumers Deposits	1,705
Other Deposits	206
Sundry Creditors	1,073
Due to Treasury on current account	1,092
Staff Provident Fund	105
Miscellaneous	2
	<u>204,538</u>

^{1/} at original cost; the department does not provide for depreciation

^{2/} represents sum total of various reserves and surplus, before deduction
of any provision for depreciation to date on plant in operation

Loan Liabilities with Ceylon Government
at September 30, 1957

<u>Year of Loan</u>	<u>Original Amount</u>	<u>Balance Out- standing as of 9/30/57</u>	<u>Rate of Interest</u>	<u>Period of Repayment</u>	<u>Last year of Repayment</u>
	<u>Rupees</u>	<u>Rupees</u>			
1927-28	2,090,975.42	-			
1928-29	3,566,231.20	431,360.96	5%	30 yrs.	1959
1929-30	2,145,838.03	380,137.34	5%	30 "	1960
1930-31	858,070.21	197,930.21	5%	30 "	1961
1931-32	338,707.74	95,392.88	5%	30 "	1962
1932-33	73,532.32	24,279.07	5%	30 "	1963
1933-34	128,503.06	48,369.96	5%	30 "	1964
1934-35	1,177,678.93	411,157.86	5%	25/30 "	1960/1965
1935-36	421,883.35	94,021.02	3-1/2%	25 "	1961
1936-37	428,343.42	125,588.74	4%:5%	25 "	1962
1937-38	477,655.99	164,882.56	4%:5%	25 "	1963
1938-39	922,754.10	355,899.94	4%:5%	25 "	1964
1939-40	391,688.24	174,333.13	4-1/2%:5%	25 "	1965
1940-41	165,818.33	78,921.10	4%	25 "	1966
1941-42	82,115.87	42,634.20	4%	25 "	1967
1942-43	196,340.96	110,103.18	4%	25 "	1968
1943-44	214,542.99	128,888.32	4%	25 "	1969
1944-45	102,422.40	65,468.61	4%	25 "	1970
1945-46	247,990.44	165,407.01	3-3/4%	25 "	1971
1946-47	177,967.49	125,520.74	3-3/4%	25 "	1972
1947-48	427,044.93	315,965.15	3-3/4%	25 "	1973
1948-49	1,599,637.60	1,227,892.33	3-1/2%	25 "	1974
1949-50	1,890,350.21	1,512,792.78	3-1/2%	25 "	1975
1950-51	1,753,041.77	1,458,234.69	3-1/2%	25 "	1976
1951-52	4,019,505.50	3,466,115.35	3-1/2%	25 "	1977
1952/53	6,384,976.95	5,694,029.12	3-1/2%	25 "	1978
1953-54	4,525.98	4,165.01	3-1/2%	25 "	1979
1954-55	62,133.04	58,886.80	3-1/2%	25 "	1980
1955-56	52,117.69	50,779.61	3-1/2%	25 "	1981
1956-57	12,544.36	12,544.36	3-3/4%	25 "	1982
1952-53	142,764.97	136,920.76	3-1/2%	50 "	2002
1952-53	52,660,531.70 <u>a/</u>	50,522,333.83	3-1/2%	50 "	2002/3
1952-53	11,587,772.04 <u>b/</u>	11,407,760.63	3-1/2%	50 "	2003
Advances to be converted into loans:					
<u>c/</u>	2,961,810.56	2,961,810.56	3-3/4%	<u>c/</u>	<u>c/</u>
<u>d/</u>	18,703,403.00	18,703,403.00	4-1/2%	<u>d/</u>	<u>d/</u>
<u>e/</u>	14,655,161.37	14,655,161.37	3-3/4%	<u>e/</u>	<u>e/</u>
<u>f/</u>	53,178.33	53,178.33	3-3/4%	<u>f/</u>	<u>f/</u>
IBRD Loan No. 101-CE					
<u>g/</u>	35,817,037.66	35,817,037.66	4-3/4%	21 yrs.	1979
		<u>151,279,308.17</u>			

Notes

- a) Loans for the Hydro-Electric Scheme, Stage I borrowed up to the end of 1952-53.
- b) Accumulated interest on expenditures Stage I Hydro-Electric Scheme, converted into a loan.
- c) Advances for Hydro Electric Scheme, Stage II-A made available up to end of 1953; expected to be converted shortly into a 25-year loan;
- d) Advances for Hydro-Electric Scheme Stage II-A, made available in 1954; expected to be converted shortly into a 25-year loan;
- e) Advances for Hydro-Electric Scheme Stage II-A, made available in 1956-57, expected to be converted shortly into a 25-year loan.
- f) Advances for Hydro-Electric Scheme, Stage II-B, to be converted after completion of construction into a long term loan;
- g) Equivalent to \$7,521,578 representing withdrawals excluding interest and commitment charges, up to September 30, 1957 on IBRD Loan No. 101-CE in the amount of \$17,373,250, as reduced on November 21, 1957. The interest and commitment charges, which are included in the loan will be charged by the Government to the DGEU after the entire loan has been withdrawn; up to September 30, 1957 these totalled to the equivalent of Rs 3,761,692.72. (\$789,955.47)

Department of Government Electrical UndertakingsCondensed Past Income Statements - in thousands of Rupees

	<u>1951/2</u>	<u>1952/3</u>	<u>1953/4</u>	<u>1954/5</u>	<u>1955/6</u>	<u>1956/7</u>
1. Gross Revenues from Sale of Electricity	11,581	13,532	17,550	19,246	20,987	23,242
2. Other Revenues	1,669	1,073	1,596	1,583	1,299	1,580
3. Total Revenues	<u>13,250</u>	<u>14,605</u>	<u>19,146</u>	<u>20,829</u>	<u>22,286</u>	<u>24,822</u>
4. Operating expenses, including maintenance, General and Administrative Overhead	6,629	7,333	7,522	8,713	10,021	11,781
5. Payments in lieu of Income Taxes	10	-	250	3,140	3,645	3,253
6. Total	<u>6,639</u>	<u>7,333</u>	<u>7,772</u>	<u>11,853</u>	<u>13,666</u>	<u>15,034</u>
7. Net Revenues	6,611	7,272	11,374	8,976	8,620	9,788
8. less: debt service (interest and amortization)	1,162	3,615	4,031	4,256	5,084	5,627
9. Net Revenues, after debt service	<u>5,449</u>	<u>3,657</u>	<u>7,343</u>	<u>4,720</u>	<u>3,536</u>	<u>4,161</u>

Department of Government Electrical Undertakings

Adjusted Past Income Statements - in thousands of Rupees

	1951/2	1952/3	1953/4	1954/5	1955/6	1956/7
1. Gross Revenues from Sale of power	11,581	13,532	17,550	19,246	20,987	23,242
2. Other Revenues	1,669	1,073	1,596	1,583	1,299	1,580
3.	<u>13,250</u>	<u>14,605</u>	<u>19,146</u>	<u>20,829</u>	<u>22,286</u>	<u>24,822</u>
Cost of Operations:						
4. Operating Expenses, including maintenance, general and administrative overhead, etc.	6,629	7,333	7,522	8,713	10,021	11,781
5. add: expenditures of an operating nature charged to reserve, Extensions and Renewals Fund	110	292	748	495	420	626
6.	<u>6,739</u>	<u>7,625</u>	<u>8,270</u>	<u>9,208</u>	<u>10,441</u>	<u>12,407</u>
7. add: provision for depreciation ^{a/}	<u>1,650</u>	<u>1,800</u>	<u>2,000</u>	<u>2,200</u>	<u>2,500</u>	<u>2,700</u>
8. Total Cost of Operations	<u>8,389</u>	<u>9,425</u>	<u>10,270</u>	<u>11,408</u>	<u>12,941</u>	<u>15,107</u>
9. Net Income from Operations	4,861	5,180	8,876	9,421	9,345	9,715
10. Total Debt Service:	1,162	3,615	4,031	4,256	5,084	5,627
11. less: Amortization Component	<u>634</u>	<u>1,157</u>	<u>1,384</u>	<u>1,483</u>	<u>1,586</u>	<u>1,650</u>
12. Total Interest	528	2,458	2,647	2,773	3,498	3,977
13. less: interest capitalized					802	1,093
14. Net Interest charged to Operations	<u>528</u>	<u>2,458</u>	<u>2,647</u>	<u>2,773</u>	<u>2,696</u>	<u>2,884</u>
15. Net Profit (8-14)	4,333	2,722	6,229	6,648	6,649	6,831
16. less: Provision for Payments in lieu of Income Taxes	-	250	3,140	3,645	3,253	2,700 ^b
17. Net Profit, after taxes	<u>4,333</u>	<u>2,472</u>	<u>3,089</u>	<u>3,003</u>	<u>3,396</u>	<u>4,131</u>
18. Number of times interest earned	9.2	2.1	3.3	3.4	3.4	3.4

Notes:

^{a/} assumed at an average annual rate of 2-1/2% (straight line basis)
on capital cost of plant in operation

^{b/} estimated figure

ANNEX 5

PRODUCTION AND SALES RECORDS AND FORECASTS

1. Records

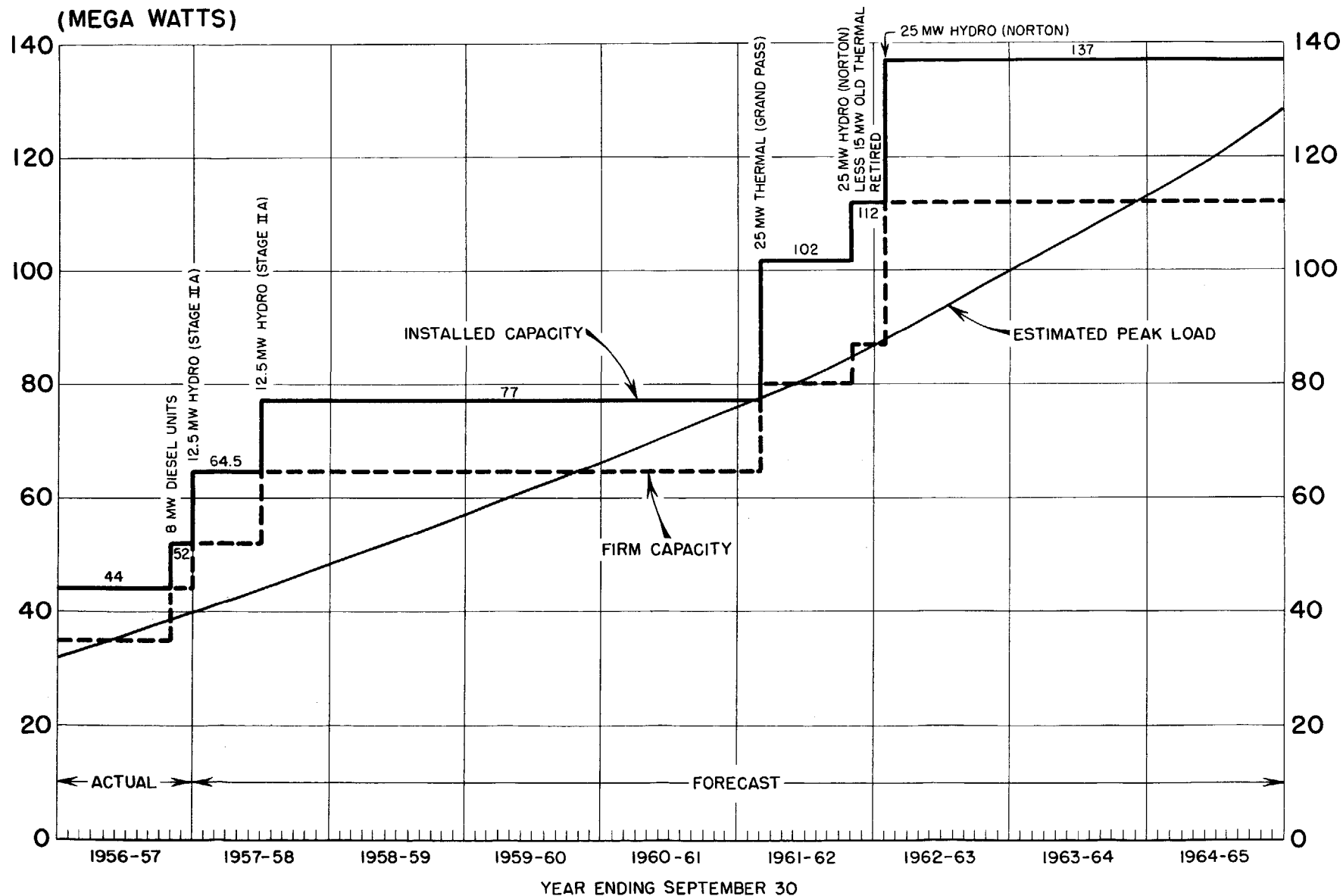
<u>Year</u>	<u>Generation</u> (in mill.kwh)	<u>Losses</u>	<u>Sales</u>	<u>Peak Load MW</u>	<u>Load Factor</u>
1950/51	79.7	5.9	65.8	17.5	0.53
1951/52	96.7	20.1	76.6	23.8	0.48
1952/53	113.5	21.0	92.5	26.2	0.50
1953/54	128.6	23.9	104.7	28.6	0.52
1954/55	144.7	27.5	117.2	31.7	0.53
1955/56	159.7	26.3	133.4	38.7	0.48
1956/57	175.4	28.7	146.7	39.8	0.51

2. Forecasts

1957/58	210.1	34.8	175.4	50.0	0.50
1958/59	245.0	42.0	203.0	58.0	0.50
1959/60	285.0	48.0	237.0	67.5	0.50
1960/61	325.0	55.0	270.0	77.0	0.50
1961/62	364.0	62.0	302.0	86.0	0.50
1962/63	422.0	71.6	350.4	100.0	0.50
1963/64	477.0	81.0	396.0	113.0	0.50
1964/65	540.0	91.0	449.0	128.0	0.50

CEYLON: ABERDEEN-LAKSAPANA STAGE IIB POWER PROJECT

(MEGA WATTS)



IBRD - Economic Staff

1379

GRANDPASS THERMAL POWER PROJECT

DETAILED PROJECT DESCRIPTION

Thermal Plant

The site of the plant is located on the left bank on the Kelani river in the northern part of Colombo. A new main highway provides easy access to the site. Suitable tests have been carried out on the site and the results show that the soils found have a sufficient load bearing capacity.

The lower part of the powerhouse will be constructed of bricks, the upper part of corrugated iron sheets. In addition to the turbogenerator room it will include a workshop, storerooms, a laboratory and office space. The single turbogenerator unit will have a capacity of 25,000 kw and will operate at a pressure of 900 p.s.i. and at a temperature of 900°F. It will be equipped with regenerative feed heating, surface condenser and necessary auxiliary equipment. The single boiler will be of the outdoor type and designed to produce 250,000 pounds of steam per hour. It will be fired by fuel oil.

Cooling water will be drawn from the Kelani river through a 1,100 feet long culvert and discharged again through a second culvert, 1,400 feet long.

Feed water will be drawn from the city mains. Suitable water treatment plant and storage tanks will be provided.

Fuel oil will be delivered to the site through branch-offs from the existing dual pipeline connecting the oil harbor with the main storage tanks at Kolonnawa. This pipeline passes directly by the site. Two storage tanks, each with a capacity of 4,000 tons and two service tanks will be provided.

One 32 MVA, 11/132kv 3 phase transformer will be installed in the outdoor substation which will be equipped with necessary switchgear, control equipment and auxiliaries.

Transmission Line and Distribution

A 1.5 mile long, 132 kv transmission line will be constructed to connect the Grandpass thermal plant with the existing substation at Kolonnawa which will be expanded by installation of a third 30 MVA, 132/33 kv, 3-phase transformer with associated switchgear.

The 33 kv network in the Colombo area will be extended by construction of 178 miles of transmission lines and installation of 200 pole type transformers. The distribution network in Colombo will be reinforced by the laying of additional 11 kv cables and installation of switchboards and distributors.

ANNEX 8GRANDPASS THERMAL POWER PROJECTCOST ESTIMATE

	<u>Foreign</u> <u>Exchange</u>	<u>Local</u> <u>Currency</u>	<u>Total</u>
	(Million Rupees)		
Grandpass Thermal Plant			
Civil Works	5.83	3.13	8.96
Steam Generating Plant	5.32	1.81	7.13
Electric Generating Plant	6.54	0.56	7.10
Switchgear, Transformers, Cabling and Control Equipment	2.72	0.49	3.21
Contingencies	3.11	0.90	4.01
Planning, Engineering and Supervision	1.15	1.05	2.20
Customs Duty	<u> </u>	<u>3.25</u>	<u>3.25</u>
Total	<u>24.67</u>	<u>11.19</u>	<u>35.86</u>
(Million U.S.\$ equivalent)	(5.14)	(2.33)	(7.47)
132 KV System			
Transmission Line	0.21	0.04	0.25
Substation	1.62	0.36	1.98
Contingencies	0.27	0.06	0.33
Planning, Engineering and Supervision	0.08	0.08	0.16
Customs Duty	<u> </u>	<u>0.45</u>	<u>0.45</u>
Total	<u>2.18</u>	<u>0.99</u>	<u>3.17</u>
(Million U.S.\$ equivalent)	(0.45)	(0.21)	(0.66)
33 KV Transmission Lines and Substations			
Distribution System	3.73	0.72	4.45
Customs Duty	<u> </u>	<u>2.46</u>	<u>2.46</u>
Total	<u>6.06</u>	<u>5.20</u>	<u>11.26</u>
(Million U.S.\$ equivalent)	(1.25)	(1.08)	(2.33)
Total	32.91	17.38	50.29
Interest during Construction	<u>2.59</u>	<u>0.40</u>	<u>2.99</u>
Grand Total	<u>35.50</u>	<u>17.78</u>	<u>53.28</u>
(Million U.S.\$ equivalent)	(7.40)	(3.70)	(11.10)

DEPARTMENT OF GOVERNMENT ELECTRICAL UNDERTAKINGS

Forecast of Income Statements, Investments Required
and Sources of Funds
(in thousands of Rupees)

	1957/8	1958/9	1959/60	1960/1	1961/2	1962/3	1963/4	1964/5
A. INCOME STATEMENTS								
1. KWH Sales (in millions)	175.2	203.2	236.6	269.8	301.4	350.4	396.-	449.-
2. Average rate per KWH in Rupees	.14	.136	.136	.126	.126	.126	.126	.126
3. Gross Revenues from Sale of Electricity	a/ 24,580	27,590	31,070	34,270	37,960	44,150	49,900	56,574
4. Other Revenues	b/ 150	207	225	273	290	298	306	310
5. <u>Total Revenues</u>	24,730	27,797	31,295	34,543	38,250	44,448	50,206	56,884
6. Operating Expenses, including maintenance, cost of fuel, general and administrative overhead	a/ b/ 10,100	10,780	11,430	12,000	14,135	14,820	15,990	18,270
7. Provision for depreciation	2,880	6,880	7,070	7,150	9,285	11,450	11,490	11,620
8. <u>Total Cost of Operations</u>	12,980	17,660	18,500	19,150	23,420	26,270	27,480	29,890
9. Net Income from Operations	11,750	10,137	12,795	15,393	14,830	18,178	22,726	26,994
10. less: Interest charged to Operations	2,801	9,741	9,649	9,518	10,283	15,238	16,781	16,885
11. <u>Net Profit</u>	8,949	396	3,146	5,875	4,447	2,940	5,945	10,109
12. less: Provision for Payments in lieu of Income Taxes	c/ 4,022	-	-	-	-	-	2,613	5,274
13. <u>Net Profit, after Payments in lieu of Income Taxes</u>	4,927	396	3,146	5,875	4,447	2,940	3,332	4,835
B. CASH FLOW								
<u>Cash from Operations</u>								
14. Net Income from Operations	d/ 11,750	10,137	12,795	15,393	14,830	18,178	22,726	26,994
15. Depreciation allowances	2,880	6,880	7,070	7,150	9,285	11,450	11,490	11,620
16. <u>Total</u>	14,630	17,017	19,865	22,543	24,115	29,628	34,216	38,614
17. Payments in lieu of Income Taxes	4,022	-	-	-	-	-	2,613	5,274
18. <u>Net Available from Operations</u>	10,608	17,017	19,865	22,543	24,115	29,628	31,603	33,340
<u>Debt Service (amortization plus interest)</u>								
19. IBRD Loan - (No. 101-CE)	-	6,310	6,310	6,310	6,310	6,310	6,310	6,310
20. Proposed IBRD loan for Thermal Plant	-	-	-	-	1,720	3,440	3,440	3,440
21. Proposed IBRD loan for Hydro Plant	-	-	-	-	-	3,100	6,200	6,200
22. <u>Total IBRD debt service</u>	-	6,310	6,310	6,310	8,030	12,850	15,950	15,950
23. Debt Service Government loans	4,517	9,421	9,424	9,513	11,340	13,197	13,160	14,169
24. <u>Total Debt Service</u>	4,517	15,731	15,734	15,823	19,370	26,047	29,110	30,119
25. <u>Net Cash from Operations available for construction</u>	6,091	1,286	4,121	6,720	4,745	3,581	2,493	3,221
<u>Investments required for Construction</u>								
i) IBRD Projects:								
26. Completion Stage II-A development	45,000	36,000 e/	-	-	-	-	-	-
27. Proposed Thermal Project-Stage II-B	1,050	12,290	18,400	11,820	10,870	-	-	-
28. Proposed Hydro Project-Stage II-B	1,000	18,280	26,150	31,400	24,610	21,230	-	-
29. <u>Total IBRD Projects</u>	47,050	66,570	54,550	43,220	35,480	21,230	-	-
ii) Other Projects								
30. <u>Total of Projects</u>	2,500	710	9,170	12,380	2,040	12,450	3,160	-
31. <u>Total of Projects</u>	49,550	67,280	63,720	55,600	37,520	33,680	3,160	-
iii) Other Capital Expenditures (Replacements and Renewals and other construction)								
32. <u>Total Capital Expenditures</u>	4,800	5,940	2,500	2,500	2,500	2,500	2,500	2,500
33. <u>Total Capital Expenditures</u>	54,350	73,220	66,220	58,100	40,020	36,180	5,660	2,500
<u>Sources of Funds</u>								
34. Net Cash from Operations	6,091	1,286	4,121	6,720	4,745	3,581	2,493	3,221
35. Net adjustment due to lag in "payments in lieu of income taxes" by one year	1,322	(-) 4,022	-	-	-	-	2,613	2,661
36. <u>Total</u>	7,413	(-) 2,736	4,121	6,720	4,745	3,581	5,106	5,882
<u>Borrowing:</u>								
i) IBRD loans:								
37. Existing Loan 101-CE (balance)	28,600	18,308 e/	-	-	-	-	-	-
38. Proposed loan for Thermal Plant	-	9,540	14,960	8,230	3,870	-	-	-
39. Proposed loan for Hydro Plant	-	14,830	15,600	20,400	16,800	8,540	-	-
40. <u>Total from IBRD loans</u>	28,600	42,678	30,560	28,630	20,670	8,540	-	-
41. ii) Government loans	18,337	33,278	15,339	22,750	14,605	24,059	554	-
42. <u>Total Borrowing</u>	46,937	75,956	45,899	51,380	35,275	32,599	554	-
43. <u>Total Sources of Funds</u>	54,350	73,220	50,220	58,100	40,020	36,180	5,660	5,882
<u>CASH ACCRUAL</u>								3,382
C. RATIOS								
<u>Debt Service Coverage - number of times:</u>								
44. a) debt service IBRD Loans only	-	2.6	3.2	3.6	3.-	2.3	2.-	2.1
45. b) total debt service (IBRD loans and Government loans)	2.3	1.1	1.3	1.4	1.2	1.1	1.2	1.2
46. Percentage of Construction requirements that can be financed from Net Revenues	(11.2%	1.8%	8.2%	11.5%	11.8%	9.9%	44%	100%
47. Percentage of Construction requirements that can be financed from Net Revenues for period 1957/8 - 1962/3	-	-	8.5%	-	-	-	-	-
48. Net Return on Investment	-	4%	5%	6.2%	4.5%	4.5%	5.8%	7.1%

Notes

- a) Excluding revenues and operating costs of the Jaffna Undertaking, net revenues of which have been included in Item A-4 (Other Income);
- b) Excluding fees and costs for supervision of Local Authorities Schemes, assumed to be self-balancing;
- c) No "payments in lieu of taxes" would be due on the net profits during the years 1958/9-1962/3 inasmuch as during these years there would be no taxable income as a result of special depreciation allowances permitted on new plant coming into operation;
- d) An average depreciation rate of 2-1/2% per annum on a straight-line basis has been assumed;
- e) Includes total interest and commitment charges on IBRD Loan 1010-CE, estimated at Rs. 7.4 million, which will be charged to DGEU by the Government at the end of the withdrawal period.
- f) Figures on line 20 represent debt service payments for a loan of \$7.6 million. During negotiations the amount of the proposed loan was reduced to \$7.4 million. This decrease will not significantly reduce the debt service requirements as shown.

Annex 10

Department of Government Electrical
Undertakings (D.G.E.U.)

Pro-forma Balance Sheet at end 1962

Millions of
Rupees

Assets

Fixed Assets	470
less: Reserve for Depreciation	<u>53.3</u>
Net Bookvalue	416.7
Net Current Assets (Cash, Accounts Receivable, inventories, less current liabilities)	14.4
Miscellaneous Accounts	<u>.5</u>
	<u>431.6</u>

Liabilities

Reserves and Surplus	98.4
less: allocated to Depreciation Reserve	<u>53.2</u>
Net Bookvalue of Equity	45.2
Long-term Debts:	
IBRD Loan - (101-CE)	73.1
Proposed IBRD Loan for thermal plant	35.6
Future IBRD Loan for hydro plant	<u>76.5</u>
Total IBRD Loans	185.2
Government Loans	<u>201.1</u>
Total Debt Outstanding	386.3
Miscellaneous Accounts	<u>.1</u>
	<u>431.6</u>

