

THE WORLD BANK GROUP ARCHIVES

PUBLIC DISCLOSURE AUTHORIZED

Folder Title: Power - Argentina - Servicios Electricos del Gran Buenos Aires [SEGBA] - Reports

Folder ID: 30248817

Subseries: Early special evaluation studies working files

Series: Special Evaluation Studies

Dates: 01/10/1968 – 09/19/1969

Fonds: Records of the Office of Operations Evaluation

ISAD Reference Code: WB IBRD/IDA OPE-09-01

Digitized: 05/09/2023

To cite materials from this archival folder, please follow the following format:
[Descriptive name of item], [Folder Title], Folder ID [Folder ID], ISAD(G) Reference Code [Reference Code], [Each Level Label as applicable], World Bank Group Archives, Washington, D.C., United States.

The records in this folder were created or received by The World Bank in the course of its business.

The records that were created by the staff of The World Bank are subject to the Bank's copyright.

Please refer to <http://www.worldbank.org/terms-of-use-earchives> for full copyright terms of use and disclaimers.



THE WORLD BANK

Washington, D.C.

© International Bank for Reconstruction and Development / International Development Association or

The World Bank

1818 H Street NW

Washington DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

PUBLIC DISCLOSURE AUTHORIZED

Power - Argentina - SEGBA

OED SPECIAL STUDIES

85035--003





30248817

A1994-141 Other #: 13 205085B

Power - Argentina - Servicios Electricos del Gran Buenos Aires [SEGBA] - Reports

DECLASSIFIED
WBG Archives

644
DECLASSIFIED

RESTRICTED

JAN 24 2023

Report No. PU-19a

WBG ARCHIVES

This report was prepared for use within the Bank and its affiliated organizations. They do not accept responsibility for its accuracy or completeness. The report may not be published nor may it be quoted as representing their views.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

ARGENTINA

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A. (SEGBA)

APPRAISAL OF

1970-1972 EXPANSION PROGRAM

September 19, 1969

Public Utilities Projects Department

Currency Equivalent

| Currency Unit | | Peso (M\$N) |
|---------------|---|------------------|
| US\$1 | " | M\$N 350.0 |
| US\$1 million | " | M\$N 350 million |
| M\$N1 | " | US\$ 0.002857 |
| M\$N1 million | " | US\$ 2,857 |

Measures and Equivalents

| | | |
|--------|---|-----------------------------|
| kw | " | Kilowatt |
| Mw | " | Megawatt |
| kwh | " | Kilowatt hour |
| Gwh | " | Gigawatt hour (million kwh) |
| kV | " | Kilovolt |
| kva | " | Kilovolt-ampere |
| Mva | " | Megavolt-ampere |
| Km | " | One kilometer (0.6214 mile) |
| 1 mile | " | 1.6093 km |

ABBREVIATIONS AND ACRONYMS

| | |
|----------|--|
| AyEE | Agua y Energia Electrica |
| CADE | Compania Argentina de Electricidad, S.A. |
| CIAE | Compania Italo Argentina de Electricidad, S.A. |
| HIDRONOR | Hidroelectrica Norpatagonica, S.A. |
| SEEM | Secretaria de Estado de Energia y Mineria |
| SEGBA | Servicios Electricos del Gran Buenos Aires, S.A. |
| SOFRELEC | Societe Francaise d'Etudes et de Realisations d'Equipements Electriques |
| YCF | Yacimientos Carboniferos Fiscales |

ARGENTINA

APPRAISAL OF THE 1970-1972 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

Table of Contents

| | <u>Page No.</u> |
|--|-----------------|
| <u>SUMMARY AND CONCLUSIONS</u> | i - ii |
| 1. <u>INTRODUCTION</u> | 1 |
| 2. <u>BACKGROUND</u> | 1 |
| Performance under Previous Loans | 2 |
| 3. <u>THE BORROWER</u> | 3 |
| Power Market | 4 |
| Organization and Management | 5 |
| The Labor Problem | 7 |
| Power Rates | 8 |
| 4. <u>FINANCIAL POSITION AND EARNINGS</u> | 10 |
| Audit | 10 |
| Balance Sheets | 10 |
| Current Position | 12 |
| Past Earnings | 12 |
| 5. <u>THE PROJECT</u> | 13 |
| Description | 13 |
| Cost Estimate | 14 |
| Procurement | 16 |
| Disbursement | 17 |
| Consulting Engineers | 18 |
| Construction Schedule | 18 |
| 6. <u>JUSTIFICATION</u> | 19 |
| Demand and Sales | 19 |
| Future Increases in System Capacity | 20 |
| Assessment of SEGBA's Program | 21 |
| Incremental Rate of Return | 21 |
| 7. <u>FUTURE FINANCES</u> | 22 |
| Financing Plan | 22 |
| Future Earnings | 24 |
| Future Financial Position | 24 |
| 8. <u>AGREEMENTS REACHED DURING NEGOTIATIONS</u> | 26 |

List of Annexes

- Annex 1 Installed Capacity, Peak load, Generation and Consumers 1965-1972
- Annex 2 Energy Sent Out, System Losses and Sales 1967-78
- Annex 3 Rate Structure
- Annex 4 Balance Sheets as of December 31, 1967-72
- Annex 5 Statement of Debt as of December 31, 1968
- Annex 6 Income Statements 1967-72
- Annex 7 Sources and Applications of Funds 1967-72
- Annex 8 Details of SEGBA's Investment Program
- Annex 9 Gran Buenos Aires System: Demand, Reserve and Firm Capacity 1966-78
- Annex 10 Gran Buenos Aires System: Installed and Effective Capacity 1968-78
- Annex 11 Incremental Rates of Return

Map

the Bank. Such procurement, however, will be limited to (i) a maximum of one-third of SEGBA's needs for each category of equipment and materials, and to (ii) a maximum price of 38% above the CIF price of the successful foreign bidder for the same category of equipment and materials. The proceeds of the Bank loan would be applied only to the foreign currency component of the project and to interest during construction on the loan.

vi. One of the purposes of the Bank loans to SEGBA has been to transform it into a modern, efficient and financially viable utility. The necessary institutional framework was provided at the time the first loan was made, and gradual improvement was expected to follow. This objective, however, suffered a severe setback in 1964-66 as already pointed out in (iii) above, and was made more difficult to achieve by the inflationary conditions which prevailed until 1968. The present management, appointed in mid-1966, has begun reducing the number of personnel and eliminating uneconomic provisions of the labor contract and has made progress towards improving the organization of the company and the quality of service to the public. Opportunity was taken of a 6% decrease in power rates at the beginning of 1969, made possible by improved economic circumstances and efficiency of operations, to continue a policy, introduced in 1968, of correcting imbalances in the rate structure.

vii. In connection with the financing plan for the project, the Government and SEGBA have agreed in principle that SEGBA would start to pay cash dividends and borrow small but increasing amounts from the market in order to prepare itself to finance its expansion after 1972 without, if possible, further assistance from the Government and the Bank.

viii. The project would form a suitable basis for a loan of US\$60 million, with a term of 20 years, including a grace period of 4 years.

ARGENTINA

APPRAISAL OF THE 1970-1972 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

SUMMARY AND CONCLUSIONS

i. This report covers the appraisal of a project for the expansion of power facilities in Buenos Aires during the three year period 1970-1972. A third Bank loan to Servicios Electricos del Gran Buenos Aires S.A. (SEGBA), of US\$60 million, is proposed to help finance this project. SEGBA is the larger of the two utilities supplying the Gran Buenos Aires area, where about one-third of the country's population and two-thirds of its industry are located. It accounts for about 50% of the electricity produced by all of the entities supplying the public in Argentina. In 1968, the maximum demand on SEGBA's system was about 1,400 MW and sales to its more than 2 million customers were about 5.4 million GWh.

ii. The Buenos Aires power system has been characterized by shortages of capacity through 1963/64 and subsequently, by a relatively slow growth through mid-1968, reflecting the performance of the economy. The recent expansion of business activity would indicate prospects for more rapid overall economic growth. As a consequence, the demand for power is expected to grow at rates of 9.7% in 1969 and 8% in 1970 and 1971, as compared with an average 6% in recent years.

iii. The first Bank loan of US\$95 million in January 1962 helped restore adequate power supply in Buenos Aires. The second loan, of US\$55 million in January 1968, enabled SEGBA, after a slow-down of several years resulting from a period of political interference and weak management in 1964-66, to resume the expansion of its generation, transmission and distribution facilities through the end of 1969. The proposed third loan would help SEGBA continue the expansion of its transmission and distribution facilities through 1972. The proposed project includes only a small amount of expenditure for generation, because the additional capacity needed in the mid-1970s would be available from two projects being constructed by government agencies, the El Chocón Hydroelectric Project, which the Bank is helping to finance (Loan No. 577-AR), and a nuclear power station.

iv. The project is estimated to cost US\$247 million equivalent. Its main purpose will be to provide facilities to distribute the energy generated by SEGBA and the two projects referred to above. It would result in an efficient and economic network structure. SEGBA's technical staff is capable of carrying out the project with minimum assistance from consultants.

v. Contracts for equipment, materials and civil works to be financed out of the Bank loan will be awarded after international competitive bidding. Argentine manufacturers will be granted a margin of preference of 15% over the CIF price of the lowest qualified foreign bidder. In addition, some of the equipment and materials needed by SEGBA may be procured locally without international competitive bidding and with financing from sources other than

ARGENTINA

APPRAISAL OF THE 1970-1972 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

I. INTRODUCTION

1.01 The Bank has made three loans in the Argentine Power Sector, two to Servicios Electricos del Gran Buenos Aires (SEGBA) and one to Hidroelectrica Norpatagonica S.A. (HIDRONOR). The first loan to SEGBA (308-AR) for US\$95 million was made in January 1962 to complete a 600 MW thermal generating station and expand the transmission and distribution systems in the Buenos Aires metropolitan area. The second loan to SEGBA (525-AR) for US\$55 million was made in January 1968 to help finance the continuing expansion of its generation, transmission and distribution facilities. The third loan (577-AR) for US\$82 million was made in December 1968 to HIDRONOR, a government-owned corporation, to help finance the first stage of the El Chocon hydroelectric project now being constructed on the Rio Limay about 1,100 km southwest of Buenos Aires. Energy from this project will be supplied to SEGBA by means of a 500 kv transmission line. The first stage, expected to be in operation in 1973, is estimated to cost US\$317 million and will have 600 MW installed; the complete El Chocon-Cerros Colorados complex will have an ultimate capacity of 1,650 MW.

1.02 A loan of US\$60 million is now proposed to help finance a program for the expansion of SEGBA's facilities in the three year period 1970-72. The project is estimated to cost US\$247 million equivalent. It includes (a) a 220 kv transmission line around the metropolitan area which will connect SEGBA's system with transmission lines from El Chocon and from Atucha, the nuclear power station being constructed by the Argentine Atomic Energy Commission; and (b) further expansion of SEGBA's generating, transmission and distribution facilities.

1.03 This report is based on the findings of the Appraisal Mission which visited SEGBA in April and May 1969, consisting of Messrs. A.D. Spottswood, Y. Rovani, T. Berrie and E.C. Wessels.

2. BACKGROUND

2.01 Argentina has an area of 2.8 million km², and a population of about 23.6 million. In the past 17 years the population has been growing at a rate of 1.7% per year. In 1968, the gross domestic product (GDP) was estimated by the Bank to be about US\$17.3 billion equivalent, or US\$732 per capita. Industry is the largest sector of the economy and accounts for 31% of the GDP. After several years of stagnation, a strong expansion of industrial production began in mid-1968. Over the past seventeen years, the GDP has been growing at a real rate of about 2.5%, but on a per capita basis the growth was only about 1% annually. The relatively slow rate of growth of electricity production during the same period, about 6% annually, is in part

a reflection of the performance of the economy. Conversely, the power shortages which existed from the early 1950s through 1964 undoubtedly had some bearing on the slow economic growth. For the next decade the annual rate of increase of electric power production is expected to average about 7% to 9% on the assumption there will be a somewhat more rapid overall economic growth than in the past.

2.02 The electric power sector in Argentina had, in mid-1969, a total installed capacity of about 4,100 MW, not including "captive" industrial plant estimated at 1,670 MW, 600 MW of which was in the Buenos Aires area. The total generation in 1968 by the entities supplying the public was 13,500 GWh of which more than 90% was by thermal plants. All of the principal entities in the electric power sector are publicly-owned except Compania Italo-Argentina de Electricidad S.A. (CIAE), a corporation controlled by Swiss interests. As a rough approximation, power assets serving the public may be considered to have a value of, say, US\$2.0 billion. Over the next five years the annual investment in the electric power sector, including El Chocón, is expected to average about US\$280 million equivalent, or about 1.5% of the GDP in 1968.

2.03 The Buenos Aires system is by far the most important in the country because of the large concentration of population and industry in and around Buenos Aires. It is supplied jointly by SEGBA and CIAE, which had in mid-1969 a total installed capacity of 2,092 MW. SEGBA is the principal supplier; CIAE serves about one-third of the Federal Capital and four of the 31 surrounding municipalities. In addition to its own generation, SEGBA purchased energy from Agua y Energia Electrica (AyEE), the federal water and power authority which had an installed capacity of 502 MW in the Litoral area centered on Rosario. Thus, the Buenos Aires-Litoral system had available an installed capacity of 2,594 MW, all of which was thermal. The combined sales of SEGBA and CIAE in 1968 were 6,403 GWh, with SEGBA supplying 5,429 GWh and CIAE 974 GWh. The total number of customers connected to the combined system exceeded 2.3 million at the end of 1968. Since January 1, 1968, all of the generating plants in this system have been controlled by a central dispatch office guided by a computer. In the Federal Capital and in the four surrounding municipalities served by CIAE, there is some duplication of distribution facilities but SEGBA and CIAE are now coordinating all phases of planning and operation. Such coordination is in accordance with covenants in the existing Loan Agreements between SEGBA and the Bank which are repeated in the Agreement for the proposed loan. Eventually, a merger of the two companies may be effected, but in the meantime, the present arrangements are acceptable.

2.04 The 313 MW heavy water moderated, natural uranium power station at Atucha is scheduled to begin supplying SEGBA in 1972 through an existing transmission line. HIDRONOR is scheduled to start selling energy to SEGBA in 1973.

Performance under Previous Loans

2.05 The program financed in part by the Bank's first loan to SEGBA in 1962 was carried out successfully. The first of the two major objectives,

the relief of the severe power shortage in the Buenos Aires area, was achieved in 1963/64. The second, longer term objective, of building SEGBA into an efficient and financially viable utility suffered a severe setback in 1964 due to Government interference, which led to the replacement of the board and management. In the ensuing two years personnel increased sharply, the financial position became critical and further expansion was delayed. Significant progress was achieved, however, before the second loan was made, under the new board and management appointed in mid-1966. For further details regarding SEGBA's performance through 1967, see Report No. TO-606a, dated January 10, 1968, on the appraisal of SEGBA's earlier expansion program.

2.06 The second loan to SEGBA in 1968 helped to finance a part of its 1967-70 expansion program which included a 250 MW base load unit for the Puerto Nuevo station, 140 MW of gas turbine peaking capacity, the expansion of the 132 kv transmission system, the construction of new substations and a general expansion of the distribution system. The gas turbines are in operation; the installation of the 250 MW unit is on schedule (completion date is June 1970). The start of construction of the transmission, substation and distribution work was delayed because orders for equipment could only be placed after the Bank loan was signed. As a result, it is expected that the work would now be completed in the first half of 1970 instead of in March 1969 as originally estimated. It is also expected that the foreign currency cost of the project will be lower than originally estimated, due to the high proportion of contracts won by Argentine manufacturers and to savings. It is estimated that up to \$9 million would remain undisbursed by the closing date of December 31, 1969. SEGBA plans to request an extension of the closing date of the loan to April 15, 1970 and cancellation of up to US\$4.5 million.

3. THE BORROWER

3.01 SEGBA, the proposed borrower, was formed in 1958 to take over most of the assets and responsibilities of the Compania Argentina de Electricidad (CADE) a subsidiary of the Belgian Sofina Group, which had been supplying electricity in the Greater Buenos Aires area since a few years after the first World War. The purchase price was paid partly in cash, and partly in Argentine Government bonds issued at the end of 1961, when SEGBA was re-organized in connection with the first Bank loan. Some of CADE's distribution properties were transferred to AyEE in 1958 and AyEE started construction of new generation and transmission facilities in Buenos Aires. Early in 1962, SEGBA took over all of AyEE's power facilities in the Buenos Aires area, including the former CADE distribution properties and the generation and transmission facilities then under construction. New by-laws were approved which established SEGBA as a stock corporation whose shares, wholly owned by the Government, were to be sold to private investors as market conditions would allow (see para. 4.08). A new concession, for an unlimited time, gave SEGBA the responsibility for electricity supply to the metropolitan Buenos Aires area.

Power Market

3.02 SEGBA's power market consists of the major part of the Federal Capital and 31 of the surrounding municipalities. It extends roughly in a semi-circle, with a radius of about 65 km and includes the port and all important suburbs. The population in this area is estimated at about 7.5 million. In 1968, SEGBA supplied about 2 million customers, 85% of which were residential. Actual and forecast data on the power market are shown in Annex 1.

3.03 SEGBA's sales for 1967 and 1968 by classes of consumers are given in the table below:

| <u>Consumer Groups</u> | <u>1967</u> | <u>Sales in</u> | <u>1968</u> | <u>% Increase</u> |
|--|-----------------|-----------------|--------------|-------------------|
| | <u>Sales in</u> | | <u>% of</u> | |
| | <u>GWh</u> | <u>GWh</u> | <u>total</u> | <u>over 1967</u> |
| Residential | 2,123 | 2,285 | 42.1 | 7.6 |
| Commercial | 535 | 597 | 11.0 | 11.6 |
| Industrial | 1,455 | 1,637 | 30.1 | 12.5 |
| Other (public lighting, traction, pumping, Government, etc.) | <u>762</u> | <u>910</u> | <u>16.8</u> | <u>19.4</u> |
| | <u>4,875</u> | <u>5,429</u> | <u>100.0</u> | <u>11.4</u> |

3.04 The increase of 11.4% in SEGBA's sales in 1968 over those in 1967 is a considerable improvement over the corresponding increase of only 7.7% from 1966 to 1967 and 5.5% from 1965 to 1966. The growth rates for commercial and industrial sales indicate an increase in economic activity in the Buenos Aires area during 1968. In addition the air conditioning sales are growing steadily. The sales to large industrial consumers (50 kw or more) increased by 15.4% in 1968 over those in 1967. The growth rate between 1965 and 1968 of large industrial sales was 13-1/2% compared with the growth of all industrial sales in the same period of 12%. This trend is expected to continue provided no significant business recession occurs. The growth in residential sales came more from the addition of new customers than from an increase in consumption per customer which has averaged about 1.7% per year, although it was 2.4% in 1968. In the past two years about 400 new customers were connected per working day.

3.05 SEGBA's transmission and distribution losses in 1966 and 1967 were about 17% of the energy supplied to the network. In 1968, the losses declined to 15.2%. This decrease reflects the strengthening of SEGBA's network and the elimination of overloading in some parts of the system. Some further decline in losses is expected as the improvement in the capacity of the network progresses with the continuing of the expansion program, and by 1973 the losses are estimated to be reduced to about 13.5%. This would be a reasonable figure for SEGBA's system (see Annex 2).

3.06 SEGBA's peak load in 1968 was 1,394 MW and it is expected to reach 1,530 MW in 1969. Since 1964 the increase in SEGBA's maximum demand has averaged about 6% per year. The system load factor in 1968 was about 55% which is on the low side. This would indicate potential for increased off peak sales for industrial and air conditioning use. If SEGBA's distribution expansion program had been more nearly complete, the increase in the demand might have been greater. There are a number of areas which still require rehabilitation or expansion before more load can be accepted. However, the progressive expansion in the transmission system at 132 kv, in the number and capacity of substations, and in the distribution network has enabled SEGBA to reduce outages drastically and greatly improve service to customers and voltage conditions.

3.07 The installed generating capacity in SEGBA's system in mid-1969 was 1,573 MW, consisting of 1,433 MW of steam capacity in three stations and 140 MW of gas turbine peaking capacity at five locations. With the completion of the 250 MW steam unit at the Puerto Nuevo station in June 1970, SEGBA's total installed capacity will be 1,823 MW.

3.08 With an assured supply of generating capacity in the future and with the expansion and improvement in its transmission and distribution systems, SEGBA should be able to attract to its system in the next decade part of the industrial and commercial load now served by "captive" plants which were installed during the power shortages in the 1950s and early 1960s. In mid-1969 there was still about 600 MW of this capacity in existence in the Buenos Aires metropolitan area. The amount of this capacity is expected to decline, but the rapidity and extent of the decline will depend on the confidence which industrialists have in SEGBA's ability to supply their energy needs with good security and on how soon their equipment wears out. Some industries using process steam may never change to SEGBA because they can produce their own electricity economically and others may be reluctant to change because of SEGBA's relatively high industrial and commercial rates and the sales tax which must be paid on electricity that they purchase (see para 3.28).

3.09 SEGBA, however, has been successful in the past two years in signing contracts with large industrial clients for substantial amounts of new load. In 1967, such contracts amounted to 140 MW and in 1968 they totalled 260 MW. The connections to the system will be made gradually over a period of years. For example, the demand for a large steel mill now under construction at La Plata will start at 25 MW in 1970 and is planned to increase to 75 MW by 1976.

Organization and Management

3.10 SEGBA has a Board of Directors of eight members, including the President and the Executive Vice President, appointed by the Government as the only shareholder. The Executive Committee, consisting of the Executive Vice President and four department heads appointed by him is responsible for the principal functions of the company. The proposed Loan Agreement provides that any substantial changes in SEGBA's by-laws or concession would be an

event of default and that the Bank will be consulted prior to the appointment of a new Executive Vice President.

3.11 The Executive Vice President, an engineer with long experience in utility and private business management, is supported by a team of able managers and assistant managers. The organization below them, however, is deficient. During the long period of stagnation and political interference under the Peron regime, there was a gradual erosion of management authority which led to the breakdown of existing controls. Also, an unfavorable labor contract resulted in excessive numbers of unqualified personnel. Modern financial and administrative techniques were not introduced and the middle management personnel which would have been necessary to develop and implement them was not recruited. As a result, SEGBA by 1961 had inherited a highly centralized, bureaucratic organization, in which standards of efficiency and quality of service had declined to very low levels.

3.12 In 1963, SEGBA engaged the International Middle West Service Company as management consultants. Progress in modernizing SEGBA, however, has been slow, due in part to the setback experienced in 1964-66, and in part to the magnitude of the problems involved. SEGBA's management was forced to concentrate on the immediate task of planning and carrying out the expansion programs, dealing with the labor situation, and resolving serious financial difficulties.

3.13 However, some modernization has recently taken place. Billings have been computerized, and about 70% of SEGBA's customers are now receiving their bills through the mails and paying through banks. This has led to substantial improvements over the previous door-to-door collection system, through better service, speedier collections, and improved control over receivables. The timeliness of financial and operating reports has also improved, and interim balance sheets are now available within 30 days from the end of each month.

3.14 Despite the progress noted above, financial controls and management information remain inadequate. SEGBA has set up four working parties to propose and implement improved systems, with the help of the consultants. Also, after some delay, SEGBA has started to decentralize its commercial and technical departments. The responsibility for customer service, meter reading, collections not handled by mail, construction of low voltage lines, installation of transformers and connection of new customers will be delegated to the managers of about 14 district offices, each serving 150,000 to 200,000 customers. This would constitute a major step towards solving the duplication, delays and lack of responsibility inherent to the present structure, in which all decisions must be referred to the higher levels of management. Two district offices have been set up to date. Progress is likely to continue to be slow until SEGBA is able to acquire sufficient additional managerial talent to carry out these programs. During the next year, SEGBA will concentrate on improving its budgetary control systems and in addition, expects to set up four more district offices. This program is realistic.

The Labor Problem

3.15 The Bank has, in the past, called the labor problem to the attention of both the Government and SEGBA, stating in July 1965 that a second loan would be conditional on the initial results of a program to reduce labor costs. By the time Loan 525-AR was made in January 1968, significant progress had been made to restore management authority in the company, the number of personnel had been slightly reduced, and initial steps had been taken by SEGBA towards revising the existing unfavorable labor contract, in accordance with a procedure established by a law of October 1967. It was then understood verbally that during 1968 personnel would be reduced by about 1,000 and that progress would be made in revising the labor contract. No specific agreements were sought on the timing and scope of these revisions, or on further reductions in personnel after 1968.

3.16 The labor contract was amended May 6, 1968 by a decision of the Secretary of Labor as arbitrator between the Light and Power Union and SEGBA/CIAE. This amendment removed most of the restrictions affecting SEGBA's and CIAE's power to adjust working hours, decide overtime, hire and promote, employ contractors and enforce retirement of personnel. In addition, it gave the companies authority to revise staffing requirements and job descriptions, the main sources of featherbedding, as necessary to improve efficiency of service and achieve full employment of personnel.

3.17 SEGBA has studied new staffing requirements and job descriptions for some sectors of its activities, and some have been implemented with union agreement, resulting in the cancellation of vacant positions and the transfer of redundant personnel to construction or other work. It is only after studies covering the entire company have been completed that a reasonably accurate estimate of the number of redundant personnel can be made. It was generally agreed in the past that the number of excess personnel amounted very roughly to about 6,000, and that a reasonable ratio of consumers per employee would be in the order of 100.

3.18 Since mid-1966, however, when a maximum personnel of 25,780 was reached, personnel was reduced by about 1,400 to 24,400 at the end of March 1969, including about 1,100 in the period since Loan 525-AR was made. Most of these reductions have been obtained by enforcing retirement as permitted by the recent revision of the labor contract. SEGBA expects to continue reducing personnel, mostly through attrition, by a net percentage of about 1.5% per year. In selected sectors SEGBA further intends, by offering a year's severance pay, to encourage excess personnel to leave. Combined with the growth of SEGBA's operations, these reductions would result in gradual but significant improvements in efficiency. As an example, the number of consumers per employee, which was 73 at the end of 1966, would increase to about 89 at the end of the current year and would exceed 100 in 1972, at the end of the project period.

3.19 In addition, SEGBA intends to transfer to construction work an average of about 300 men per year over the next three years as they are made available by the gradual reduction in staffing requirements for operations.

3.20 This program is realistic and the results already obtained constitute sufficient evidence that it will be carried out, provided that continuity in management and government support is maintained.

Power Rates

3.21 The concession of February 1, 1962, provides that SEGBA's rates should generate revenues sufficient to produce a return of 8% on the average value, expressed in dollars, of net plant in service, plus a notional value of working capital equal to 5% of the average value of net plant in service. Depreciation charges are computed on the value, also expressed in dollars, of gross plant in service at year-end, at an average rate of 3% on all assets (except furniture and fixtures, 10%; and vehicles 20%).

3.22 Power rates are revised annually, effective with the first meter reading of January, on the basis of a detailed application submitted by SEGBA to the Secretaria de Estado de Energia y Minería (SEEM), for approval. The concession provides that, if the 8% return to which SEGBA is entitled has not been achieved (or has been exceeded) in any past year, the shortfall (or surplus) must be compensated for by revenues of the year immediately succeeding. Changes arising in labor and fuel costs during the year are to be automatically compensated for by interim rate adjustments. Furthermore, if changes in economic circumstances, such as lower sales, devaluation of the currency, etc., could be expected to result in an insufficient net income for the current year, SEGBA can adjust its rates proportionally after informing the Secretaria.

3.23 The seven year period since the concession was made effective presented particularly difficult challenges. While it may be argued that the Government and SEGBA departed in the two instances described below from a strict implementation of the provisions of the concession, there is no doubt that SEGBA was able to maintain satisfactory levels of earnings and cash generation under most unfavorable inflationary conditions.

3.24 In 1964 and 1965, the Government caused SEGBA to reduce its depreciation charges from 3% to 2% and granted lower power rates than requested. However, unlike the change in management, which took place at the same time, this action did not have lasting effects. The most difficult challenge of the period, a rapid depreciation of the peso accompanied by devaluations from M\$N83 per US\$ in early 1962 to M\$N350 per US\$ in 1967, was met by frequent rate increases which brought the 1968 rates to 4.7 times the level at the end of 1961.

3.25 At the end of 1967, however, the Government granted SEGBA only part of the rate increase required under the concession. Revenues from power sales were calculated to achieve the permitted 8% return in 1968, but not to recover the shortfall at the end of 1967 (see para 3.22). This shortfall was to be recovered out of appropriations of M\$N6.3 billion from the National Energy Fund, to be transferred to SEGBA in the course of 1968 as extraordinary revenues. Prior agreement to this exceptional measure, made necessary by economic circumstances, was obtained from the Bank. The arrangements described

above were carried out satisfactorily. Actual earnings in 1968 exceeded the amount permitted in the concession, and another surplus is expected for 1969, despite a 6% average reduction in rates made effective in January.

3.26 The existing rate covenants have been repeated in the proposed agreements. They provide that SEGBA should seek, and the Government should grant, the rates to which SEGBA is entitled under the concession. In addition, they confirm that adequate depreciation charges will be maintained, of not less than an average 3% of plant in service.

3.27 Severe power shortages from the mid-50s to 1963/64, when the first Bank project was completed, virtually eliminated incentives to apply commercial criteria for rate setting purposes. Power rates were generally unbalanced in favor of residential consumers. Average industrial rates were somewhat above the residential level and commercial rates were significantly higher (see Annex 3 for details of the rate structure). The rapid depreciation of the peso between 1962 and 1967 was met by frequent rate increases, of the order of 30% to 40% per annum. Any significant attempt to rectify imbalances in the rate structure under those circumstances would have required even higher increases of residential rates and this was deemed inadvisable by the Government and SEGBA. The only adjustment in that period was a night hour reduction for industrial consumption introduced in 1965 but it was not until 1967 that the average revenue per kwh for industrial and residential consumers became equal.

3.28 SEGBA is aware of the anomalies in its rate structure. It needs time and Government support to rectify them. In 1968, the Government decided to increase only residential rates and allowed SEGBA to apply a fixed charge for residential consumers. This partially rectified the imbalance between residential and industrial rates. At the beginning of 1969, a reduction of about 6% in the rate level became necessary under the terms of the concession. This reduction was distributed between the rate classes so as to bring down the rates paid by large industrial consumers by an amount greater than average. The average revenue per kwh from residential consumers in 1969 is expected to be M\$N12.30 (US\$3.5), from commercial and small industrial consumers M\$N17.10 (US\$4.9) and from large industrial consumers M\$N8.40 (US\$2.4). The average revenues per kwh from all industrial consumers is expected to be about M\$N10.60 (US\$3.0). Industrial rates may still be too high to attract the load of many large users with their own generating plant. Commercial rates also remain high and some commercial load may similarly fail to be attracted (see paras 3.06 and 3.08). SEGBA has indicated that it will continue to study its rate structure and to adjust it as opportunities arise in connection with the annual rate reviews.

See p. 23-24
for future financing

4. FINANCIAL POSITION AND EARNINGS

Audit

4.01 The auditing arrangements with the firm of Henry Martin/Arthur Young are satisfactory. The existing covenant providing for the prompt auditing of SEGBA's accounts by qualified independent accountants has been repeated in the proposed Loan Agreement.

Balance Sheets

4.02 Condensed balance sheets as of December 31, 1967 and 1968 are shown in Annex 4. Plant is recorded in SEGBA's balance sheet at historic cost although, as provided in the concession, dollar values of gross and net plant are used for computing the amounts of depreciation to be charged and of net income to be earned. Foreign exchange debt is valued at current exchange rates. The effect of this partial revaluation is shown in the condensed balance sheets under "Exchange Difference." *(partial because only the F.X. debt is revalued, and not the local part).*

4.03 A more meaningful set of balance sheets, expressed in dollars, is presented in the last six columns of page 1 of Annex 4. The values used are: (a) for plant in service and depreciation reserve, the dollar values allowed by the concession for rate making purposes; (b) for foreign exchange debts, the actual values expressed in dollars; (c) for other assets and liabilities, the peso values converted into dollars at the exchange rate in effect at the end of the fiscal year; and (d) for equity, the resulting difference between dollar assets and dollar liabilities.

4.04 The adjusted capitalization is characterized by a high proportion of equity. A summary as of December 31, 1968 is shown in the following table:

| | <u>In Millions</u> | | <u>%</u> |
|---|--------------------|--------------------|-----------------|
| | <u>M\$N</u> | <u>US\$ Equiv.</u> | <u>of Total</u> |
| <u>Capital and Reserves</u> | | | |
| 5% cumulative preferred shares, M\$N 100 par | 11,445 | 32.7 | 5 |
| Common shares, M\$N 100 par | 25,038 | 71.5 | 12 |
| Sub-total: Share Capital | 36,483 | 104.2 | 17 |
| Reserves and Surplus | 29,134 | 83.2 | 13 |
| Revaluation Reserve | 100,905 | 288.3 | 46 |
| Total | 166,522 | 475.7 | 76 |
| <u>Long-Term Debt</u> | | | |
| IBRD Loan 308-AR | 28,316 | 80.9 | 13 |
| IBRD Loan 525-AR | 3,308 | 9.4 | 1 |
| Bonds and Notes-SODEC | 4,356 | 12.4 | 2 |
| Eximbank and Foreign Suppliers | 4,615 | 13.2 | 2 |
| Local Suppliers, Customers' | | | |
| Deposits | 1,377 | 4.0 | 1 |
| Caja Nacional de Ahorro | 10,600 | 30.3 | 5 |
| Total | 52,572 | 150.2 | 24 |
| Total Capitalization | 219,094 | 625.9 | 100 |

4.05 Most of the debt, totalling about US\$150 million and only 24% of the capitalization, is in foreign exchange. The two Bank loans, excluding about US\$45 million still undisbursed at the end of 1968, accounted for 60% of the debt outstanding (see Annex 5 for details). With final payments being made this year on the suppliers' credits which financed the Costanera Station and 132 kv ring completed in 1964, the only significant shorter term debts still outstanding are three loans from the Caja Nacional de Ahorro Postal, aggregating US\$30 million equivalent, which will be fully repaid within the next two years.

4.06 The existing and proposed Bank Loan Agreements include a negative pledge clause and a debt limitation covenant. The incurrence of long-term debt is limited by an assets test and an earnings test. Under the assets test, SEGBA is not permitted to incur new debt if after the incurrence of such debt, its net assets in operation plus work in progress would be less than 1-1/2 times total indebtedness. Under the earnings test, SEGBA could not incur new debt unless the maximum future interest payments on all indebtedness, including the proposed new debt, were covered at least 1-3/4 times by net income for the past twelve-month period or the last fiscal year. SEGBA could presently meet both tests and incur debts substantially in excess of the amounts contemplated in the financing plan for the proposed project.

negative
covenant

4.07 New shares were issued in 1962 to the Government in exchange for its shares in the original SEGBA and its investments in the assets taken over from AyEE (see notes to Annex 4 for details). The equity grew rapidly through retained earnings (as only stock dividends were paid due to lack of funds) and, to a lesser extent, through Government investments. As shown in the pro forma dollar balance sheets, the par value of share capital has become only 22% of the Government's revalued equity in SEGBA, now totalling about US\$476 million.

4.08 The Guarantee Agreements for the existing and proposed loans record the Government's policy to encourage the investment of private savings in SEGBA and to sell all of its common shares to private investors. SEGBA undertook under the previous Loan Agreements to use its best efforts to sell new shares to private investors to finance its expansion, and to follow a dividend policy consistent with the need to encourage private investment in its electricity services. No shares have been sold due to adverse market conditions, and dividends were paid exclusively in stock due to shortage of cash. In view of SEGBA's improved financial condition, the company and the Government expect that an initial cash dividend will be paid in 1970 (para. 7.03).

4.09 Under the proposed Loan Agreement, SEGBA undertakes to use its best efforts to borrow from private sources and to sell new shares to private investors, in order to prepare itself to finance the expansion of its services without, if possible, further assistance from the Government and the Bank.

4.10 During negotiations, SEGBA indicated that it would, within the limits prescribed by Argentine law, revalue its balance sheet on a basis consistent with the concession, in order to allow a meaningful presentation of its financial condition. (see paras. 4.02 and 4.03).

Current Position

4.11 Working capital is ample. Current assets at the end of 1968 were M\$N38 billion, as compared with current liabilities of M\$N22 billion. This is due partly to excess earnings and partly to the delayed expansion in 1968 (see paras 4.13 and 2.06). Cash was about M\$N6.0 billion, well in excess of SEGBA's working needs. The surplus cash would be used in financing the proposed program (see para 7.05).

4.12 Accounts receivable from Government authorities and agencies amounted to about M\$N4.5 billion at the end of 1968, equivalent to about 12 months of billings to these customers. These accounts have been reduced during 1969 and the Government has undertaken to ensure prompt payment in the future of amounts due to SEGBA by its agencies.

Past Earnings

4.13 Income statements for the two years ended December 31, 1968 are given in Annex 6. Net income for 1967 was about M\$N13 billion, equivalent to a return of 6.8% on the dollar rate base. Due to devaluation of the peso during the year, from M\$N247 to M\$N350 per dollar, the earnings shortfall of

M\$N3.2 billion at the end of 1966, which was to be recovered out of 1967 revenues, increased instead to about M\$N5.5 billion at the end of 1967. Based on an earlier, higher estimate, the Government provided M\$N6.3 billion to SEGBA in 1968 as extraordinary revenues to offset this deficiency (see para 3.18). In 1968 sales increased more than forecast while, for the first time on record, operating expenses were within estimates, resulting in a net income of M\$N25 billion, equivalent to a return of 12.5%, and excess earnings of M\$N3.5 billion. Interest coverages continued to be ample reflecting the satisfactory earnings and the relatively low debt. See Annex 7 for details of actual sources and application of funds in 1967 and 1968.

5. THE PROJECT

Description

5.01 The proposed project is the continuing expansion of SEGBA's generation, transmission and distribution facilities during the period 1970 through 1972. The expenditures on the project are estimated to total M\$N87 billion (US\$247 million) of which M\$N10 billion (US\$28 million) would be for the completion of SEGBA's 1967-70 program; the remainder, M\$N77 billion (US\$219 million) would be for SEGBA's new 1970-72 program.

5.02 The balance of expenditures on the 1967-70 program which will be made in 1970, will cover: (a) the completion of the 250 MW steam turbine base load unit in the Puerto Nuevo station which is scheduled for commercial operation in June 1970; (b) the continuation of the expansion of the 132 kv substations, transmission lines and of the low and medium voltage distribution network; and, (c) the completion of the modification of two boilers in the Puerto Nuevo station to enable them to burn coal. In 1968, as a result of the government policy for increasing the consumption of Argentine coal, and after consultation with the Bank, SEGBA agreed to increase its usage of coal from 151,000 tons in 1967 to 745,000 tons in 1972. The coal will be supplied by Yacimientos Carboniferos Fiscales (YCF) the state coal agency. YCF will reimburse SEGBA for the cost of the boiler modifications and associated coal handling equipment; payment for the coal will be based on the cost of fuel oil having an equivalent heat content.

5.03 The expenditures on SEGBA's new 1970-72 program will cover primarily extensions of its transmission and distribution systems. A relatively small increase in generating capacity is contemplated, namely: (a) the installation of 90 MW of gas turbines (see para 6.06); and, (b) minor improvements of existing capacity.

5.04 The transmission program includes: (a) a 220 kv overhead double circuit transmission line, in an arc about 119 km long around the metropolitan area, with appropriate step-down connections to the 132 kv network; and, (b) underground and aerial transmission lines from SEGBA's generating plants to the load centers. Power from Atucha will be fed into the system at the Moron substation. The 500 kv line from El Chocon will interconnect at HIDRONOR's

El Pino substation which steps the voltage down to 220 kv. At El Pino, SEGBA will be responsible only for the 220 kv equipment beyond the 220 kv terminals of the step-down transformer. The rest of SEGBA's transmission program includes: (a) 10 new 132 kv substations; (b) a 220 kv switching station; (c) a second 220 kv substation; (d) extension of 10 existing 132 kv substations; and, (e) about 136 route km of 132 kv lines.

5.05 The program for distribution includes: (a) rehabilitation of the existing network; (b) reinforcement of the distribution system in general; and, (c) the extension of the network to connect additional consumers. The latter involves: (a) laying about 850 km of underground cables; (b) 1,200 km of overhead 13.2 kv lines; (c) over 6,200 km of low voltage lines and cables; (d) the installation of over 2,500 transformers; (e) 351,000 meters; (f) about 100,000 new connections per year; and, (g) public lighting. SEGBA has decided to phase out gradually the old 27.5 kv transmission voltage and the 6.5 kv distribution network both of which have become inadequate for the present loading conditions. Fortunately it is technically possible to uprate the existing 6.5 kv circuits to 13.2 kv at relatively little cost. For further details of the program see Annex 8.

Cost Estimate

5.06 The table below gives the estimated cost excluding interest during construction of the proposed project by major items:

| | -----In M\$N----- | | | -----In US\$----- | | |
|----------------------------------|--------------------|-----------------|-----------------|-------------------|----------------|--------------|
| | <u>Local</u> | <u>Foreign</u> | <u>Total</u> | <u>Local</u> | <u>Foreign</u> | <u>Total</u> |
| | -----Millions----- | | | | | |
| <u>Equipment & Materials</u> | | | | | | |
| Puerto Nuevo No. 9 | 190.0 | 433.5 | 623.5 | 0.6 | 1.2 | 1.8 |
| Gas Turbines | 156.0 | 2,275.0 | 2,431.0 | 0.4 | 6.5 | 6.9 NEW |
| Other Generation | 952.3 | 723.2 | 1,675.5 | 2.7 | 2.1 | 4.8 NEW |
| Transmission & Distribution | <u>12,129.7</u> | <u>14,133.0</u> | <u>26,262.7</u> | <u>34.7</u> | <u>40.3</u> | <u>75.0</u> |
| Sub-Total | 13,428.0 | 17,564.7 | 30,992.7 | 38.4 | 50.1 | 88.5 |
| <u>Civil Works</u> | | | | | | |
| Puerto Nuevo No. 9 | 475.6 | 149.9 | 625.5 | 1.3 | 0.4 | 1.7 |
| Gas Turbines | 344.0 | 60.0 | 404.0 | 1.0 | 0.2 | 1.2 NEW |
| Other Generation | 670.5 | 67.0 | 737.5 | 1.9 | 0.2 | 2.1 NEW |
| Transmission & Distribution | <u>34,753.1</u> | <u>6,883.7</u> | <u>41,636.8</u> | <u>99.3</u> | <u>19.6</u> | <u>118.9</u> |
| Buildings | <u>3,944.0</u> | <u>706.0</u> | <u>4,650.0</u> | <u>11.4</u> | <u>2.0</u> | <u>13.4</u> |
| Sub-Total | 40,187.2 | 7,866.6 | 48,053.8 | 114.9 | 22.4 | 137.3 |
| <u>Other</u> | | | | | | |
| Vehicles, etc. | 1,450.0 | - | 1,450.0 | 4.2 | - | 4.2 |
| Consultants | - | 710.0 | 710.0 | - | 2.0 | 2.0 |
| Contingencies | <u>3,484.6</u> | <u>1,915.4</u> | <u>5,400.0</u> | <u>9.9</u> | <u>5.5</u> | <u>15.4</u> |
| ESTIMATED COST OF PROJECT | 58,549.8 | 28,056.7 | 86,606.5 | 167.4 | 80.0 | 247.4 |

5.07 These cost estimates are based on the most recent actual cost of installing similar facilities and include about 7% for contingencies. The total cost and the foreign exchange component of the equipment and materials for transmission and distribution will depend in part on how much is procured locally and at what level of effective protection. Under the procurement arrangements described in paras 5.09 and 5.10, however, the effects of these two factors on the program's cost and financing plan would be insignificant. The foreign exchange content of equipment and materials would in any case be more than the loan amount to be allocated for its financing, ensuring that the use of the loan will not be affected by the origin, local or foreign, of such procurement.

5.08 The proposed Bank Loan would finance the foreign exchange cost of the items shown below:

| | <u>US\$ million</u> |
|--|---------------------|
| <u>Equipment & Materials</u> | |
| Transmission and Distribution | 34.0 |
| <u>Civil Works</u> | |
| Puerto Nuevo No. 9 | 0.3 |
| Gas Turbines | 0.2 |
| Transmission and Distribution | 14.9 |
| Buildings | <u>1.0</u> |
| <u>Other</u> | |
| Consultants | 1.7 |
| Contingencies | <u>2.9</u> |
| Construction Costs | 55.0 |
| Interest during construction on the Bank Loan | <u>5.0</u> |
| Total | <u>60.0</u> |

Procurement

5.09 The arrangements under the proposed loan for the procurement of equipment and materials may be summarized as follows:

- SEGBA will invite bids internationally for quantities equivalent to two-thirds of its needs of each category of equipment or materials and will request simultaneously separate bids, from Argentine manufacturers only, for an additional one-third. In awarding contracts for the main quantities bid internationally, a 15% margin of preference will be granted to Argentine bidders over the CIF price of the lowest qualified foreign bidder. Under Argentine law, local manufacturers will also be exempt from sales tax and import duties on raw materials and component parts.
- If an Argentine manufacturer bids successfully under the 15% preference, SEGBA may also invite him to supply the additional one-third at the same unit price bid for the main quantity.
- If a foreign bidder is awarded the contract for the main quantity, the separate Argentine bids for the additional one-third will then be opened. The corresponding second contract will be awarded to the lowest of the Argentine bidders provided that (i) his quoted price is less than 38% above the CIF price of the successful foreign bidder

above or, if not, that (ii) he is willing to reduce his price to such level. Equipment and materials procured locally under these conditions will not be eligible for Bank financing.

- If no Argentine bidder is willing to reduce his price, the successful foreign bidder for the main quantity may be invited to supply also the additional one-third, at the same unit price.

5.10 The procurement arrangements described above would thus ensure that:

- (a) the Bank will finance only equipment and materials procured through international competitive bidding, including a maximum domestic preference of 15%;
- (b) local procurement without international competitive bidding, to be financed from sources other than the Bank, would be limited to (i) a maximum quantity of one-third of SEGBA's needs for each category of equipment and materials, and to (ii) a maximum price of 38% above the CIF price of the successful foreign bidder for the same category of equipment and materials. In this case the other two-thirds would be awarded to the successful foreign bidder. The cost of SEGBA of the combined foreign and local contracts would average a maximum of about 12.7% above the cost of the foreign bid.

5.11 Civil works contracts would also be awarded after international competitive bidding but it is doubtful whether foreign contractors would compete because of the relatively small size of the individual contracts. SEGBA uses a system of prequalification whereby civil contractors are divided into categories according to size and ability to carry out jobs of different magnitudes. The arrangements for procurement are satisfactory.

Disbursement

5.12 The proceeds of the proposed loan would be disbursed to finance: (a) the CIF cost of imported equipment; (b) the foreign exchange component of the cost of equipment procured locally as explained in para 5.09 and the foreign exchange component of civil works, on a percentage basis, (c) consultant's services; and (d) up to US\$5 million to cover interest and other charges during construction; all of which is reflected in the allocation of proceeds schedule. To permit SEGBA to make retention payments after the scheduled completion of the project at the end of 1972 (see para 5.18), the closing date would be June 30, 1973.

Consulting Engineers

5.13 SOFRELEC has been retained as engineering consultant to SEGBA since October 1965 and has assisted SEGBA in a variety of ways, including design, project preparation, supervision of construction and improvement of operations and maintenance. SEGBA now has the necessary skills to plan and operate its system without full time consultants. Accordingly, it has entered into a new contract with SOFRELEC under which, supported by Electricite de France, it will assist SEGBA on request in each particular case with: (a) studies of the stability of the transmission system; (b) lay-out of projects and preparation of specifications; (c) comparison and evaluation of tenders; and, (d) operational problems of power stations and of the transmission and distribution system.

5.14 SOFRELEC may carry out the work, according to its importance and its character, either in Paris or through long- or short-term missions to Buenos Aires or, if so requested by SEGBA, by establishing a permanent mission in Buenos Aires; the type and size of such a mission would be in agreement with SEGBA. These arrangements for consulting engineering services are satisfactory. Any changes will be subject to the approval of the Bank.

Construction Schedule

5.15 The construction of the 250 MW unit in the Puerto Nuevo station is on schedule and no difficulty is expected in having it in operation before the winter peak of 1970. SEGBA has accelerated the pace of construction for both transmission and distribution now that the equipment procured under loan 525-AR is being delivered in increasing volume. All orders placed with local manufacturers under this loan are scheduled to be delivered by the end of 1969. These cover a very substantial part of the equipment required for the distribution network, since under the last Bank loan local manufacturers were successful in winning 87% of the contracts for the supply of such equipment for which they competed.

5.16 In order to keep up the momentum on the construction of its transmission and distribution systems, SEGBA planned to call for bids in August and September 1969 on about US\$8.5 million worth of oil filled cables, breakers, insulators, transformers, switchgear and related equipment scheduled for installation during the period of the project. Orders for this equipment are expected to be placed late in 1969, after the loan is made, but no payments would be made on the equipment until deliveries start in 1970.

5.17 The 220 kv transmission line and practically all of the 132 kv lines will be erected by contractors with SEGBA supplying the conductors, insulators and hardware. There will be numerous contracts for laying underground cables, construction of substations and erection of various types of equipment for the transmission systems. These contracts are generally for periods of ten to fourteen months. About half of the construction on the distribution network will be carried out by contract and the remainder by SEGBA's own forces.

5.18 The project is scheduled to be completed by the end of 1972. To accomplish this SEGBA will have to sustain a high level of activity both in procurement and construction. The pace reached by mid-1969 indicates that SEGBA could carry out the project as scheduled.

6. JUSTIFICATION

Demand and Sales

6.01 The number of customers awaiting connection at the end of 1968 totalled 60,000, a rather large waiting list which has not declined since 1967. It amounts to a backlog of about seven months' work to make the required connections. Not included in this figure are customers in the "barrios" ^{1/} or groups of poorer class housing where it is estimated that a further 100,000 customers are awaiting connections.

6.02 SEGBA follows careful procedures for estimating the future demands on its system, on the basis of nine year projections of load growth in each of the 21 zones in its service area. In the past, SEGBA's estimates of load growth have been rather accurate. In 1966 it estimated peak loads of 1,319 MW for 1967 and 1,412 MW for 1968. The actual loads were 1,316 MW in 1967 and 1,394 in 1968. SEGBA's maximum demand is expected to increase from 1,394 MW in 1968 to 1,909 in 1972. The growth rates would be 9.7% in 1969, 8.0% in 1970 and 1971 and about 7% thereafter.

6.03 SEGBA estimates its growth in sales by analyzing the probable growth in each class of consumer to reach an estimate for over-all sales growth and adjusts its estimates every year. Estimates have been reasonably accurate except for a large overestimation for the early 1960s (when a recession occurred) and an underestimation for 1968. The large growth in sales of 11.4% in 1968 over the preceding year and the forecast growth of 12.4% in 1969 are the result of an expansion in economic activity which affected industrial and commercial sales more than expected. A comparison of the sales estimates made in 1966 with actual results for 1967 and 1968 and present estimates for 1969 and 1970 is shown below:

| | <u>1967</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
|------------------------------|-------------|----------------|-------------|-------------|
| | | (Sales in GWh) | | |
| 1966 Estimate | 4,860 | 5,230 | 5,620 | 6,040 |
| Actual* and Present Estimate | 4,875* | 5,429* | 6,100 | 6,620 |

^{1/} According to regulations, a barrio is a compact group of at least 20 houses that jointly request to be connected to the system, and in which the consumers must contribute to the cost of the distribution network as explained in Annex 4, Note 2.

6.04 SEGBA estimates its sales will grow at a rate of 8.5% in 1970, 9.4% in 1971 and then at a declining rate varying from 7.3% in 1972 to 7.0% in 1978. The estimate of about 7.0% increase per year after 1971 may be on the conservative side. Under the above assumptions SEGBA estimates that its sales will increase from 5,429 GWh in 1968 to 7,240 GWh in 1971 and 7,770 GWh in 1972. For the growth in energy sent out and sales to 1978 see Annex 2.

Future Increases in System Capacity

6.05 As shown in the table below, SEGBA did not have in 1968 nor will it have in the future sufficient capacity, with the largest unit out of service, to meet the maximum demands of its own consumers and must depend on capacity from CIAE, AyEE and others for this purpose:

| | <u>SEGBA Only (MW)</u> | | | | |
|--|------------------------|-----------------|-------------|-------------|-------------|
| | <u>Actual</u> | <u>Forecast</u> | | | |
| | <u>1968</u> | <u>1969</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> |
| Plant Capability | 1,550 | 1,550 | 1,800 | 1,890 | 1,890 |
| Maximum Demand | 1,394 | 1,530 | 1,652 | 1,784 | 1,909 |
| Difference Without Minimum Reserve Allowance | 156 | 20 | 148 | 106 | (19) |
| Deduct largest unit | (185) | (185) | (237) | (237) | (237) |
| Shortage with largest unit out of service | (29) | (165) | (89) | (131) | (256) |

6.06 The following additions to the capacity of the Buenos Aires-Litoral system are envisaged through 1973:

- (a) CIAE's 250 MW unit in May 1969;
- (b) SEGBA's 250 MW unit in 1970;
- (c) CIAE's 35 MW of gas turbines in 1971;
- (d) SEGBA's 90MW of gas turbines in 1971;
- (e) 313 MW nuclear power station at Atucha in 1972; and,
- (f) 400 MW from El Chocon in 1973

The table below shows the expected capability to supply the maximum demand on the combined Buenos Aires-Litoral system for the period 1969 through 1972 (see Annex 9 for extensions up to 1978, and Annex 10 for the list of existing and future generating stations).

Buenos Aires-Litoral System (MW)

| | <u>Actual</u> | <u>Forecast</u> | | | |
|-------------------------|---------------|-----------------|-------------|-------------|---------------------|
| | <u>1968</u> | <u>1969</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> |
| Plant capability, gross | 2,330 | 2,530 | 2,780 | 2,905 | 3,105 ^{/a} |
| Reserve ^{/b} | 312 | 377 | 389 | 396 | 406 |
| Firm capacity | 2,018 | 2,153 | 2,391 | 2,509 | 2,699 |
| Maximum demand | 1,883 | 2,053 | 2,221 | 2,405 | 2,574 |
| Surplus | 135 | 100 | 170 | 104 | 125 |

/a Although the nuclear power station will have an installed capacity of 313 MW, only 200 MW is expected to be available in 1972.

/b The reserve includes the largest unit (less auxiliaries) plus 5% of the effective thermal capacity. It is intended to meet unanticipated out-ages and allow for possible errors in estimates of future demand.

Assessment of SEGBA's Program

6.07 SEGBA's expansion program has been closely coordinated with that of CIAE. It is based on the estimates of load growth discussed in paragraph 6.02. The sizes for equipment have been well chosen and the program has been reviewed and approved by SEGBA's consultants, SOFRELEC.

6.08 The facilities in SEGBA's program are urgently needed to enable SEGBA to keep pace with the increase in demand in its service area as required under its concession. Without these facilities, and especially without the 220 kv transmission line, SEGBA could not efficiently utilize the energy from El Chocón and Atucha. A continuing expansion of the facilities necessary to send electricity to the ultimate consumer is needed to prevent overloading of the existing system. The project would result in an efficient and economic network structure.

Incremental Rate of Return

6.09 The incremental rates of return quoted in this report are calculated on the basis of the cash flow with respect to the economy as a whole. Taxes are therefore excluded from costs but are included in revenues, since they form part of the gross revenues from which the cash flow is derived. The resultant returns are therefore greater than the corresponding financial returns earned by SEGBA but less than the full economic returns, which include benefits normally recognized as being unquantifiable. The incremental rate of return of the project is the discount rate at which the present worth of the capital costs of the project equals the present worth of the gross revenues

derived from it, less operating expenses, over its life. The project is made up of a very large number of different types of equipment; because the utilization of these within the existing and likely future system is extremely complex, it has not been possible to separate the revenues attributable to the project and calculate the return for the project as a whole. It has, however, been possible to estimate returns for parts of the project where attributable costs and revenues can be determined i.e. for extensions of electricity supplies to the "barrios" or settlements housing lower-income families. Annex 11 gives details of the calculations. The present value of gross revenues less operating expenses attributable to the extension of supplies to the barrios, equals the present value of the attributable capital costs at a discount rate of 11% for the smaller (50 house) barrios and 18% for the larger (500 house) barrios, on the basis of the present levels of costs, electricity rates and taxes.

6.10 The average consumption of electricity in well-established barrios is currently only about 70% of the average for all residential consumers. When first connected the barrio revenues to SEGBA are as low as about US\$1.86 per customer per month and are likely only to double over the project's life. Due to the comparatively high cost of extending supplies and the low level of expected revenues, barrio electrification is judged likely to be one of the marginal parts of the project (i.e. likely to earn one of the lowest incremental rates of return among the various parts of the project). On these grounds the incremental rate of return on the project as a whole is probably higher than 18%.

7. FUTURE FINANCES

Financing Plan

7.01 A forecast of sources and applications of funds for the four years 1969-1972 is attached as Annex 7 along with comparable actual data for 1967 and 1968. SEGBA's construction expenditures for the four year period are estimated at M\$N115.7 billion (US\$330.7 million equivalent), consisting of (a) the three-year 1970-1972 project totalling M\$N86.6 billion (US\$247.4 million equivalent), as described in Chapter 5 and (b) estimated expenditures of M\$N29.1 billion (US\$83.3 million equivalent) in 1969.

7.02 The financing plan for the four years through 1972 is summarized below (in billions of pesos and millions of US\$ equivalent):

| | 1969 | 1970 | 1971 | 1972 | Total | | |
|----------------------------|--------|--------|--------|--------|-----------|--------|-------|
| | (M\$N) | (M\$N) | (M\$N) | (M\$N) | 1969-1972 | (US\$) | % |
| Internal Cash Generation | 26.0 | 27.6 | 32.5 | 34.7 | 120.8 | 345.2 | 104.3 |
| Less: Debt Service | 12.7 | 11.9 | 14.8 | 13.2 | 52.6 | 150.3 | 45.4 |
| Dividends | - | 3.3 | 3.6 | 3.9 | 10.8 | 30.8 | 9.3 |
| Bonus, etc. | 1.4 | 1.7 | 1.8 | 1.8 | 6.7 | 19.1 | 5.8 |
| Net Internal Cash Gen. | 11.9 | 10.7 | 12.3 | 15.8 | 50.7 | 145.0 | 43.8 |
| Variations in Working Cap. | 0.4 | 10.1 | 0.0 | (4.2) | 6.3 | 18.0 | 5.4 |
| YCF Contributions | 0.1 | 0.2 | 0.2 | 0.2 | 0.7 | 2.0 | 0.6 |
| Sub-total: Own Resources | 12.4 | 21.0 | 12.5 | 11.8 | 57.7 | 165.0 | 49.9 |
| IBRD Loan 525-AR | 12.8 | 1.5 | - | - | 14.3 | 41.0 | 12.4 |
| Proposed IBRD Loan | - | 6.7 | 6.8 | 7.5 | 21.0 | 60.0 | 18.1 |
| Suppliers' Credits | 3.9 | 1.1 | 1.9 | - | 6.9 | 19.7 | 6.0 |
| Proposed Market Issues | - | 3.5 | 5.3 | 7.0 | 15.8 | 45.0 | 13.6 |
| Sub-total: Borrowings | 16.7 | 12.8 | 14.0 | 14.5 | 58.0 | 165.7 | 50.1 |
| Total | 29.1 | 33.8 | 26.5 | 26.3 | 115.7 | 330.7 | 100.0 |

7.03 The Government and SEGBA have agreed in principle that SEGBA would start borrowing on the capital market in 1970 and would continue borrowing through the construction period of the project, in order to prepare itself to finance its expansion beyond 1972 with a minimum of further help from the Bank and the Government. For the same reason, SEGBA expects, also with the agreement of the Government, to start paying cash dividends in 1970, out of 1969 profits, on preferred and common shares (see para 4.08). These policies are reflected in the financing plan above and were taken into account in determining the amount of the proposed loan. Though no sales of new shares are contemplated in this financing plan, any cash raised from sale of shares to the public could replace some of the assumed borrowings, since such sales would further the same desirable objectives. Ample working capital provided throughout the period would allow (particularly for the first issue) timing of the issues according to market conditions and avoid conflict with the Government's own borrowing plans. It is expected that the first issue will be placed prior to July 31, 1970, market conditions permitting.

7.04 Cash dividends were assumed at 5% of par on preferred and 8% on common shares. In addition, a 10% stock dividend would be paid on common shares. The cash dividends payments would average US\$10 million per year in 1970 through 1972 which is quite small; annual dividends would be less than one-third of net profits and 2% of the dollar value of Government equity. Such dividend payments should therefore be increased as availability of cash allows (see also para 7.09 below).

7.05 Internal cash generation, net of debt service and dividends, would amount to US\$145 million equivalent, or about 44% of total requirements. About US\$18 million equivalent would be contributed from excess

VVIP

working capital at the beginning of the period (see para 4.11), and about US\$2.0 million would be paid by YCF as explained in para 5.02 and Annex 4.

7.06 The proposed borrowings would total US\$166 million equivalent, consisting of (a) estimated disbursements of US\$36.5 million in 1969 and US\$4.5 million in 1970 under Loan 525-AR, bringing total disbursements to US\$50.5 million; (b) the proposed loan of US\$60 million, assumed to carry interest at 7% and a term of 20 years, including a 4 year grace period; (c) suppliers' credits aggregating about US\$19.7 million; and (d) borrowings from the market of about US\$45 million.

7.07 Most of the suppliers' credits have already been obtained from Eximbank, foreign suppliers and, for a smaller proportion, local suppliers in connection with the 250 MW unit being installed in the Puerto Nuevo station and the coal firing and coal handling equipment referred to in para 5.02. These credits, which are for reasonably long terms, would be used in 1969 and 1970. It was assumed that the gas turbines referred to in para 5.03 would be financed by 8 year foreign suppliers' credits to the extent of 85% of their foreign exchange cost, or about US\$5.4 million, (M\$N1.9 billion).

7.08 Annual borrowings from the market of US\$10 million in 1970, US\$15 million in 1971 and US\$20 million in 1972 have been assumed. Based generally on an actual offer received by SEGBA, they were assumed to be in the form of 8% SEGBA foreign currency bonds issued at a 6% discount, including costs, and repayable in ten equal annual installments starting after one year. Local borrowings would be equally satisfactory, provided a minimum term of, say, 10 years can be obtained, but this is not likely at present.

7.09 SEGBA's ability to borrow publicly has not been tested previously. Consequently, despite the large borrowing potential that SEGBA's sound financial condition and earnings indicate, only relatively small amounts of borrowings could be expected at this time. It would be desirable to increase them later in the period in the light of actual favorable experience, and any cash surplus so generated could be used to increase the cash dividend now contemplated. On the other hand, should market conditions prove unfavorable, the risk for the program would be minimal: the net cash to be contributed in the four year period from the US\$45 million gross issue amount would only be about US\$39 million, after discount and amortization in the period are deducted, as compared with cash dividend payments of about US\$31 million in the last three years of the period; SEGBA would pay dividends in stock rather than cash and the net gap of US\$8 million could be offset easily, given the conservative working capital position and the availability of short-term local credits.

Future Earnings

7.10 Forecast income statements for the four years 1969-1972 are shown in Annex 6. Sales are forecast as indicated in paras 6.03 and 6.04. Operating expenses are estimated to be at current price levels, except for fuel costs which would increase by 10% on January 1, 1970. Labor expenses would remain at their 1969 level since expected increases in individual wages for

seniority and promotions of about 3%, would be offset by savings in labor expenses due to labor reductions and transfers to construction. The level of power rates was calculated to produce a net income equivalent to the 8% return provided in the concession, less, in 1969 and 1970, the amounts compensating excess earnings at the end of the previous year (see paras 3.22, 3.25 and 7.11).

7.11 Net income for 1969 would be about M\$N16 billion, equivalent to a return of about 7.7% on the rate base, exceeding the permitted net income in the concession by some M\$N2.8 billion. Sales and revenues in subsequent years might increase faster than now estimated. Should higher revenues materialize, they would help postpone or limit the tariff increases that might otherwise be needed on account of rising price levels.

7.12 The forecast coverages of interest by net income would be ample. Net profits would increase from M\$N11.8 billion (US\$33.6 million) in 1969 to M\$N15.2 billion (US\$43.4 million) in 1972.

Future Financial Position

7.13 Annex 4 shows forecast balance sheets as at the end of each of the years 1969 to 1972. While the financing plan provides for new borrowings of about US\$166 million, the total debt, including current portion and short-term bank credits, would only increase by US\$81 million to US\$261 million in the four years through 1972. The composition of the debt, however, would be sounder than at any time in the past. 96% of the debt would be long-term, with outstanding Bank loans of US\$174.1 million representing about 67% of the total. The current portion would be 7% of the debt, as compared with 13% at the end of 1968.

7.14 Debt would be 28% of total capitalization (expressed in dollars - see para 4.03) at the end of 1972, as compared with 24% at the end of 1968, which is low for a utility with a reasonably assured steady flow of earnings. The increase in the debt component of the capitalization in the period is small due to the factors pointed out above, and also to the rapid growth of equity reflecting the small proportion of earnings paid out.

7.15 The forecasts provide for ample working capital. This would allow the assumed market issues to be delayed by a few months, if necessary, to suit market conditions or the timing of the Government's own issues. All existing financial covenants would be met with ample margins throughout the period. By the end of 1972, and to the extent now foreseeable, SEGBA should be in an optimum position to continue expanding without major assistance from the Government and the Bank.

8. AGREEMENTS REACHED DURING NEGOTIATIONS

8.01 The following are the principal agreements reached during negotiations:

- (a) the following existing agreements will be extended for the life of the proposed loan:
 - (i) planning, expansion and operation of the power facilities of all utilities operating in Buenos Aires will be coordinated (para 2.03); ✓
 - (ii) changes in the by-laws and concession will be events of default, and there would be prior consultation on the appointment of a new Executive Vice President (para 3.10); ✓
 - (iii) power rates will be maintained at the level permitted by SEGBA's concession (para 3.26); ✓
 - (iv) the accounts will continue to be audited annually by independent auditors (para 4.01); ✓
 - (v) the creation of liens and the incurrence of new debt will continue to be restricted (para 4.06); and ✓
 - (vi) SEGBA will continue to employ competent consultants (para 5.14); ✓
- (b) the government has confirmed its policy regarding the sale of ordinary shares of SEGBA to private investors (para 4.08);
- (c) SEGBA would pay cash dividends as available cash permits (paras 4.08, 7.03 and 7.04);
- (d) SEGBA would borrow on reasonable terms from private sources, or sell new shares to private investors, (paras 4.09, 7.03 and 7.08);
- (e) SEGBA would continue to study its rate structure and to adjust it as opportunities arise in connection with the annual rate reviews (para 3.28); ✓
- (f) The government will ensure prompt payment of amounts due to SEGBA by its agencies (para 4.12); and ✓
- (g) satisfactory arrangements will be made for procurement, (paras 5.09 and 5.10). ✓

September 19, 1969

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Installed Capacity, Peak Loads, Generation and Consumers

1965 - 1972

| | Actual | | | | Projected | | | |
|-----------------------------------|--------|-------|-------|-------|-----------|-------|-------|-------|
| | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 |
| Installed Capacity (MW) year end | 1,399 | 1,433 | 1,433 | 1,573 | 1,573 | 1,823 | 1,913 | 1,913 |
| Effective Capacity (MW) | 1,376 | 1,410 | 1,410 | 1,550 | 1,550 | 1,800 | 1,890 | 1,890 |
| Peak Loads (MW) | 1,169 | 1,235 | 1,316 | 1,394 | 1,530 | 1,652 | 1,784 | 1,909 |
| Gross Generation (GWh) <u>1/</u> | 5,579 | 5,870 | 6,253 | 6,792 | 7,370 | 7,955 | 8,670 | 9,280 |
| Sales (GWh) | 4,308 | 4,564 | 4,875 | 5,429 | 6,100 | 6,620 | 7,240 | 7,770 |
| Consumers (1,000s) | 2,779 | 1,875 | 1,970 | 2,068 | 2,160 | 2,340 | 2,394 | 2,420 |
| Percentage increase in peak loads | - | 5.6 | 6.6 | 5.9 | 9.7 | 8.0 | 8.0 | 7.0 |
| Percentage increase in sales | - | 5.9 | 6.8 | 11.4 | 12.4 | 8.5 | 9.4 | 7.3 |

1/ Includes energy purchased from CIAE and AyEE

ANNEX 2

Page 4, para 3.02

Servicios Electricos del Gran Buenos Aires (SEGBA)Energy Sent Out, System Losses and Sales Through 1978

| Year | Energy Sent Out | Losses | % of Energy Sent Out | Sales | Increase over previous year |
|------|--------------------|--------|----------------------------|--------|--------------------------------------|
| | GWh | GWh | | GWh | |
| 1968 | 6,404 | 975 | 15.2% | 5,429 | |
| 1969 | 7,176 | 1,076 | 15.0% | 6,100 | 12.4% |
| 1970 | 7,751 | 1,131 | 14.6% | 6,620 | 8.5% |
| 1971 | 8,438 | 1,198 | 14.2% | 7,240 | 9.4% |
| 1972 | 9,013 | 1,243 | 13.8% | 7,770 | 7.3% |
| 1973 | 9,612 | 1,298 | 13.5% | 8,314 | 7.0% |
| 1974 | 10,260 | 1,364 | 13.3% | 8,896 | 7.0% |
| 1975 | 10,966 | 1,447 | 13.2% | 9,519 | 7.0% |
| 1976 | 11,721 | 1,535 | 13.1% | 10,186 | 7.0% |
| 1977 | 12,528 | 1,629 | 13.0% | 10,899 | 7.0% |
| 1978 | 13,405 | 1,743 | 13.0% | 11,662 | 7.0% |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A. (SEGBA)RATE STRUCTUREA. AVERAGE REVENUE PER KWH

The following tables show the average revenues per kwh (excluding sales taxes) for the different sectors and rate classes for the years 1967 and 1968. A forecast for the rate classes for 1969 is also included in Table 2.

TABLE 1 - AVERAGE REVENUE BY SECTOR
(Excluding Sales Taxes)

| Sector | 1967 | | 1968 | |
|-----------------|-----------------|---------------|-----------------|---------------|
| | M\$N per kwh | % Increase | M\$N per kwh | % Increase |
| Residential | 11.60 | 27.1 | 13.17 | 13.5 |
| Commercial | 17.65 | 25.6 | 17.51 | (0.8) |
| Industrial | 11.50 | 25.7 | 11.20 | (2.6) |
| Public Lighting | 16.18 | 28.9 | 15.50 | (4.2) |
| Authorities | 12.40 | 24.0 | 11.90 | (4.0) |
| Public Pumping | 5.05 | 24.4 | 5.08 | 0.6 |
| Traction | 6.08 | (11.9) | 5.64 | (7.2) |
| Others | 4.56 | 52.0 | 4.30 | (5.7) |
| TOTAL | 11.62 | 26.0 | 12.29 | 4.0 |
| TOTAL (in US\$) | 3.4 | | 3.5 | |

TABLE 2 - AVERAGE REVENUE BY RATE CLASS
(Excluding Sales Taxes)

| Rate Number | Rate Class (Main Sector Use) | ACTUAL | | | | FORECAST | |
|----------------|---------------------------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
| | | 1967 | | 1968 | | 1969 | |
| | | M\$N per kwh | % Increase | M\$N per kwh | % Increase | M\$N per kwh | % Increase |
| 1 | Residential | 11.36 | 27.1 | 13.04 | 14.8 | 12.31 | (5.6) |
| 2 | Commercial and Small Industrial | 18.00 | 26.3 | 17.90 | (0.5) | 17.08 | (4.5) |
| 3 | Public Lighting | 16.18 | 28.9 | 15.50 | (4.2) | 15.19 | (2.0) |
| 4 | Authorities and Municipalities | 13.05 | 26.4 | 12.91 | (1.1) | 12.33 | (4.5) |
| 5 | Large Industrial | 9.30 | 34.7 | 9.12 | (1.9) | 8.44 | (7.5) |
| 6 | Public Traction | 6.36 | 21.1 | 6.11 | (3.9) | 5.77 | (5.6) |
| 7 | Public Pumping | 5.05 | 24.4 | 5.08 | 0.6 | 4.68 | (7.9) |
| - | Special | 5.05 | 28.5 | 4.55 | (9.9) | 4.46 | (2.0) |
| TOTAL | | 11.82 | 26.0 | 12.29 | 4.0 | 11.42 | (7.1) |
| TOTAL (in US¢) | | 3.4 | | 3.5 | | 3.3 | |

Up to 1967 the rapid depreciation of the peso was met by frequent rate increases of the order of 30% to 40% per annum, which were applied equally to all classes of consumers. The only change in the rate structure in the period was the introduction of a reduced rate for night hour sales in 1965. As a result of the change the average revenue per kwh for industrial consumers (excluding sales taxes) became slightly lower than the average revenue per kwh for residential consumers (Table 1 above).

In 1968, the Government allowed SEGBA to increase only the residential rates by way of a new fixed charge (at present M\$N95 per month for consumption up to 50 kwh a month and M\$N190 per month for the rest). This produced an increase in the average revenue per kwh from residential consumers of about 14% to M\$N13.17 (Table 1). At the same time the average revenue per kwh from industrial consumers fell by about 3% to M\$N11.20. Commercial rates have remained high. Rate number 5 caters for large industrial loads and, to a smaller extent,

large commercial loads. These loads are frequently of the type for which private generation was installed in the years of SEGBA's plant shortage and for which private generation might well be installed today. The average revenue per kwh from rate 5 has always been lower than that from residential and commercial rates. Table 2, however, shows that in 1967 rate 5 was increased by an amount greater than the average. Table 2 shows no large change can be expected in 1969 in the differential between the residential rate and the rate for commercial and small industrial loads insofar as the average revenue per kwh is concerned. Some increase in the differential, however, can be expected between the residential/commercial rates and the large industrial rate. The latter are very much influenced by the incentives given for taking supplies off peak and at high voltage. SEGBA should consider greater incentives in these directions. Furthermore, as shown in the next two sections, considerations of marginal cost pricing and income/cost ratios by rate classes indicate that there might be scope for further increasing the differential between residential and industrial rates and for examining commercial rates.

B. MARGINAL COST PRICING

A study of marginal cost pricing for the Greater Buenos Aires system was made in 1967 by Alieto Guadagni of the "Instituto Torcuato Di Tella", Buenos Aires. The material in this section has been put together from Mr. Guadagni's report.

Load Patterns

Electric utilities have daily, weekly and annual peaks in their sales of electrical energy. Due to the random manner in which the consumers load can be switched on, it is not possible to predict exactly when these peaks will occur, particularly the annual peak..

Daily load curves kept by SEGBA show the hourly rates of energy consumptions for each 24 hour period in the year. From these curves, load patterns for the future can be predicted. Analysis shows that, for SEGBA, the peak hour of loading might occur at any time between 5.30 pm and 9.30 pm and that the winter week-day load curve can be conveniently broken into three semi-discrete periods:

peak 5.30 pm to 9.30 pm
night 9.30 to 7.00 am
day 7.00 am to 5.30 pm

The summer week-day is undergoing a transition due to the increase in air conditioning load but the summer peak is still lower than the winter peak. Summer weekdays can thus be conveniently divided into two periods:

night 11.00 pm to 7.00 am
day 7.00 am to 11.00 pm

The system peak load may occur any week-day from about May 20 to October 8. This can be called the Winter season and the rest of the year the Summer season. Corresponding to the levels of demand there are levels in costs of electricity production.

Short Run Marginal Costs of Energy Production

These are basically the incremental energy costs i.e. the costs of generating an additional increment of electrical energy at each level of demand for electrical energy. They are made up of incremental fuel and operating costs. Incremental fuel costs are continuously calculated in the SEGBA central dispatching center because generating stations are called on to give supplies in the order of increasing incremental energy costs.

Using a simple model developed for calculating the short run marginal costs of production, the study arrives at the following figures at 1965 price levels:

TABLE 3 - SHORT RUN MARGINAL COSTS OF PRODUCTION

| Period | Winter MSN per kwh generated | Summer MSN per kwh generated |
|--------|---------------------------------|---------------------------------|
| Peak | 1.20 | - |
| Day | 0.90 | 1.08 |
| Night | 0.81 | 0.90 |

The incremental energy costs to be charged for each discrete period were determined by taking a weighted average of the incremental costs corresponding to each different hour in that period.

Long Run Marginal Costs of Production Capacity

At the time of the annual system peak, the marginal cost (i.e. the cost of producing another kwh) is not limited to the cost of production of the generating plant with the highest incremental energy cost which is brought into operation last. Additional capacity (kw) to produce this energy is also required, the fixed charges of which must be added to the incremental energy cost at time of system peak. Should the additional capacity be other than peaking type in nature then an allowance must be made for the savings possible to be made off peak, in that the older plant on the system will operate less. Spreading the net fixed charges over the hours of the year within which the system peak might occur gives the following table:

**TABLE 4 - LONG AND SHORT RUN MARGINAL COSTS
OF PRODUCTION**

| Period | Winter M\$N per kwh generated | Summer M\$N per kwh generated |
|--------|----------------------------------|----------------------------------|
| Peak | 11.70 | - |
| Day | 0.90 | 1.08 |
| Night | 0.81 | 0.90 |

Network Costs

Incremental load requires incremental network costs as well as incremental production costs. Like the incremental production costs these have a short-run (operating cost) and a long-run (capacity cost) aspect. That part of the network which links together the generating stations by collective transmission is best viewed as extending the facilities provided by the generating stations. Its short-run marginal costs include incremental operating costs and the costs of incremental transmission losses at various levels of system demand. Its long-run marginal costs are the fixed charges of extending transmission capacity per kw of incremental demand spread over the peak hours in a manner similar to those for generating capacity.

The determination of short-run and long-run marginal costs for the distribution system is not easy in that it depends so much upon the uncertainties of consumption of each customer. The capacity costs to be covered can without much distortion be divided in proportion to the customers' maximum demand at time of system peak. In most cases in Argentina this can be taken as equal to the contracted demand. The capacity costs of extra distribution capacity is estimated at M\$N4.04 per month per kw of contracted demand. Adding this, the corresponding short-run (operating and losses) costs and the incremental transmission costs to Table 4 gives Table 5.

TABLE 5
LONG AND SHORT RUN MARGINAL COSTS OF
PRODUCTION AND NETWORK

| <u>Period</u> | <u>Winter Charges</u> <u>M\$N</u> <u>per kwh</u> | <u>Summer Charges</u> <u>M\$N</u> <u>per kwh</u> |
|---------------------------------|--|--|
| (a) <u>Energy charges</u> | | |
| Peak | 30.00 | - |
| Day | 1.08 | 1.27 |
| Night | 0.95 | 1.07 |
| (b) <u>Monthly Fixed Charge</u> | M\$N404 per kw | |

Practical Range

To recast Table 5 into a more practical range requires consideration of the adverse effects to SEGBA of charging very high peak rates whereby the proportion of private generation would once more increase. Also some drastic shift in the load curve would result due to peak lopping which would in itself alter the costs and rates. Moreover, time of day or seasonal rates require special technical and administrative costs.

In the absence of knowledge about elasticities of demand at the peak and off-peak periods but based on experience elsewhere; the study spreads the capacity charges over part of the day period as well as the peak in such a way that the prices of day hours to peak hours are in the ratio of about 1:0.23 in winter and 1:0.17 in summer. Without differentiating between summer and winter rates an appropriately weighted all-year round proportionality between the energy charges of Table 5 would then seem to be:

TABLE 6 PROPORTIONALITY BETWEEN

ENERGY CHARGES

| | |
|-------|----------|
| Peak | 13 |
| Day | 3 |
| Night | Base = 1 |

The likely effect of this proportionality on the different sectors of consumption is shown in Table 7.

TABLE 7 - PROPORTIONALITY OF ENERGY

CHARGES BY SECTOR

| <u>Sector</u> | <u>Daily Load Factor</u> % | <u>Ratio</u> | <u>Estimated 1969 Ratio of Average Revenue per kwh</u> |
|------------------------------------|-----------------------------------|--------------|--|
| Residential | 30 | Base | Base |
| Commercial and Small Industrial | 40 | 0.85 | 1.40 |
| Large Industries | 60 | 0.70 | 0.70 |

Besides indicating the proportionally high commercial rates, Table 7 indicates that more incentive should probably be given to off-peak sales for commerce and small industry.

C. INCOME COST RATIOS

SEGBA has carried out an analysis of its incomes and costs for the year 1967 in order to attempt an allocation among rate classes of the total revenue requirement under the concession.

Costs

The maximum demand on the SEGBA system was 1316 MW in 1967. About 84 MW was consumed in the generating stations. From its records of system operation SEGBA was able to calculate (a) the participation of each rate class in the system peak demand and (b) the proportional use each rate class made of the different parts of the network.

Technical costs of operation were apportioned to each rate class according to the participation of the rate class in the peak. Depreciation and the 8% financial return on net assets in operation were apportioned according to the usage of assets by the rate class. Commercial costs and overheads were apportioned according to the use of personnel.

Income

The total revenues for 1967 in M\$N for each rate class were used in the calculation as income. Table 8 shows the income to cost ratio for each rate class as calculated by the above method.

TABLE 8 - INCOME TO COST RATIOS PER RATE CLASS

| Rate Number | Rate Class (Main Sector Use) | 1967 | | Income to Cost Ratio |
|----------------|------------------------------------|---------------------------------|----------------------------|-------------------------|
| | | Cost Income M\$N Millions | Income M\$N Millions | |
| 1 | Residential | 31,930 | 26,887 | 0.84 |
| 2 | Commercial and Small Industrial | 12,721 | 17,764 | 1.40 |
| 3 | Public Lighting | 2,321 | 1,911 | 0.82 |
| 4 | Authorities and Municipalities | 2,268 | 2,159 | 0.95 |
| 5 | Large Industrial | 9,548 | 10,716 | 1.12 |
| 6 | Public Traction | 416 | 475 | 1.14 |
| 7 | Public Pumping | 1,010 | 1,041 | 1.03 |
| - | Special | 726 | 892 | 1.23 |

The imbalances shown in Table 8 have been rectified to some considerable extent since 1967. For example, the average revenue per kwh from residential sales increased by 14.8% in 1968 compared with an average increase of only 4.0% for all classes of sales. Also in 1968 the average revenue per kwh from both commercial and industrial sales decreased. There may, however, be room for further adjustment of imbalances.

D. GENERAL COMMENTS

SEGBA should periodically carry out studies of the type shown in this Annex and also on the detailed structure of its rate classes. It should consider restructuring rate number 5 to include loads of below 50 kw. Besides a cost and revenue analysis the likely effect of rate changes on consumers behavior should be studied e.g. lowering commercial rates might lead to little redistribution of load.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (GEGBA)

Actual and Forecast Balance Sheets as of December 31, 1967 through 1972

1. Historic peso values (M\$N millions)

2. Dollar values in the Concession (\$ millions)
At 1967 \$50 = \$1

| | ACTUAL | | FORECAST | | | | ACTUAL | | FORECAST | | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 |
| ASSETS | | | | | | | | | | | | |
| Fixed Assets ^{2/} | | | | | | | | | | | | |
| Plant in service | 84,472 | 101,720 | 118,739 | 158,618 | 185,996 | 217,188 | 740.1 | 787.6 | 835.2 | 946.6 | 1,021.4 | 1,102.3 |
| Exchange difference | 32,482 | 32,017 | 31,207 | 30,308 | 29,316 | 28,237 | | | | | | |
| Less: Depreciation | (28,830) | (37,384) | (46,672) | (57,134) | (68,452) | (80,793) | (201.6) | (220.9) | (215.2) | (272.2) | (301.7) | (334.7) |
| Customers' contributions ^{2/} | (1,282) | (1,285) | (2,223) | (2,108) | (4,572) | (5,220) | (7.9) | (8.0) | (10.1) | (14.8) | (17.3) | (19.6) |
| Net plant in service | 86,224 | 94,733 | 103,353 | 129,684 | 142,288 | 159,233 | 530.6 | 557.9 | 579.8 | 659.6 | 702.4 | 754.0 |
| Work in progress | 5,611 | 7,582 | 19,128 | 24,060 | 11,895 | 7,663 | 20.3 | 23.8 | 59.7 | 34.5 | 34.3 | 23.9 |
| Total | 91,835 | 102,315 | 122,481 | 149,344 | 154,283 | 166,896 | 551.1 | 580.7 | 639.5 | 694.1 | 736.7 | 777.9 |
| Coal handling plant (net) ^{2/} | - | - | 1,082 | 2,969 | 2,882 | 2,682 | - | - | 2.0 | 8.5 | 8.3 | 7.7 |
| Current Assets | | | | | | | | | | | | |
| Stores ^{4/} | 6,977 | 7,461 | 9,861 | 7,461 | 7,461 | 7,461 | | | | | | |
| Fuel and other materials | 713 | 590 | 700 | 800 | 800 | 800 | | | | | | |
| Accounts receivable ^{2/} | 19,734 | 23,207 | 23,000 | 22,000 | 23,000 | 25,000 | | | | | | |
| Cash | 8,245 | 6,000 | 2,617 | 1,000 | 1,000 | 1,000 | | | | | | |
| Prepaid expenses | 875 | 710 | 800 | 800 | 800 | 800 | | | | | | |
| Total | 26,745 | 28,877 | 26,278 | 32,061 | 23,161 | 35,161 | 145.8 | 168.8 | 105.7 | 91.6 | 94.7 | 103.5 |
| Deferred Charges | 106 | 112 | 112 | 212 | 558 | 235 | 0.3 | 0.2 | 0.2 | 0.2 | 1.7 | 2.7 |
| TOTAL ASSETS | 128,580 | 131,204 | 148,759 | 181,605 | 177,444 | 202,057 | 696.4 | 749.6 | 745.5 | 795.1 | 831.1 | 884.1 |
| LIABILITIES | | | | | | | | | | | | |
| Capital and Reserves ^{2/} | | | | | | | | | | | | |
| 5% cumulative preferred shares M\$N 100 par | 10,900 | 11,145 | 12,017 | 12,217 | 12,017 | 12,017 | | | | | | |
| Common shares M\$N 100 par | 20,865 | 25,028 | 23,301 | 37,181 | 40,899 | 44,969 | | | | | | |
| Reserve and surplus | 15,119 | 25,134 | 30,153 | 32,187 | 38,086 | 45,820 | | | | | | |
| Total | 46,884 | 61,307 | 65,471 | 81,585 | 90,902 | 102,806 | 400.1 | 475.7 | 507.4 | 526.5 | 525.9 | 537.1 |
| Long-Term Debt ^{2/} | | | | | | | | | | | | |
| Proposed IFRD loan | - | - | - | 6,651 | 13,161 | 20,650 | - | - | - | 19.0 | 30.5 | 38.9 |
| IFRD loan 508-18 | 29,282 | 28,316 | 27,296 | 26,215 | 25,075 | 23,654 | 83.7 | 80.9 | 78.0 | 74.9 | 71.3 | 68.2 |
| IFRD loan 525-18 | - | 3,305 | 15,100 | 17,015 | 16,273 | 15,639 | - | 9.8 | 43.0 | 48.7 | 48.8 | 48.7 |
| Proposed public issues | - | - | - | 3,150 | 1,522 | 12,450 | - | - | - | 9.6 | 21.5 | 37.0 |
| Bonds and notes, Geoba | 5,264 | 4,356 | 3,430 | 2,626 | 2,007 | 1,600 | 15.0 | 12.4 | 9.8 | 7.5 | 5.7 | 4.0 |
| Edmundo and foreign suppliers' credits | 6,261 | 4,612 | 2,712 | 8,891 | 7,441 | 5,941 | 17.0 | 13.2 | 20.0 | 19.7 | 21.2 | 17.0 |
| Local suppliers' credits | 1,294 | 861 | 770 | 650 | 401 | 211 | 3.7 | 2.5 | 2.2 | 1.9 | 1.2 | 0.9 |
| Caja Nacional de Ahorro Postal and Bco. Nacion | 13,005 | 10,600 | 7,200 | 2,500 | - | - | 37.1 | 30.3 | 20.5 | 7.1 | - | - |
| Customers' contributions | 442 | 515 | 516 | 516 | 516 | 516 | 1.3 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Total | 52,548 | 52,572 | 46,282 | 66,247 | 72,808 | 81,272 | 158.7 | 150.2 | 178.8 | 189.3 | 203.0 | 212.2 |
| Current Liabilities | | | | | | | | | | | | |
| Accounts and notes payable ^{2/} | 14,188 | 11,607 | 13,100 | 13,300 | 12,900 | 13,300 | 40.3 | 33.3 | 37.4 | 36.0 | 35.9 | 38.0 |
| Banks | 2,872 | 2,133 | - | 5,034 | 6,518 | 3,920 | 11.1 | 6.1 | - | 14.4 | 18.6 | 11.2 |
| Current portion of long-term debt | 9,725 | 8,243 | 6,680 | 2,220 | 7,435 | 6,076 | 25.0 | 23.6 | 19.0 | 25.0 | 21.2 | 17.4 |
| Total | 26,785 | 21,983 | 19,780 | 20,554 | 26,853 | 23,296 | 76.4 | 63.0 | 56.4 | 75.4 | 76.7 | 66.6 |
| Deferred Income and Provisions | 106 | 326 | 200 | 300 | 300 | 300 | 1.2 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| TOTAL LIABILITIES | 129,396 | 130,754 | 135,633 | 175,666 | 190,524 | 205,598 | 686.4 | 689.8 | 743.5 | 795.1 | 831.1 | 884.8 |
| Debt as % of total capitalization ^{2/} | 54 | 44 | 45 | 45 | 44 | 45 | 27 | 24 | 26 | 26 | 27 | 28 |
| Current assets to current liabilities | 1.37 | 1.73 | 1.87 | 1.17 | 1.24 | 1.51 | 1.37 | 1.73 | 1.37 | 1.17 | 1.24 | 1.51 |

52,277

117,894

ANNEX B
PART 1 of 2 Pages

Page 10, Page 4.02

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Notes on Balance Sheets

1. SEGBA's accounts reflect historic costs. Foreign exchange liabilities, however, are shown at current exchange rates. The resulting, partial, revaluation of assets is shown under "Exchange difference" in Part 1, Historic peso values, of the tabulation. Part 2 of this tabulation shows SEGBA's balance sheets expressed in dollars, on the basis of the dollar values actually used to determine the level of power rates in accordance with the Concession. The effect of this valuation of assets is reflected in a revaluation of equity which is included in the corresponding values shown in Part 2 under "Capital and Reserves, Total".
2. SEGBA collects capital contributions from new customers (except for residential service with an installed power of less than 2 kw requiring extensions of up to 20 meters for underground cables and 100 meters for overhead lines). The amount of these contributions is calculated as the difference between the estimated total capital cost of the necessary works and twice the estimated annual revenue to be derived from the customer. Such contributions are not repayable and are not included in the rate base.

A different type of capital contribution is collected for the connection of barrios (agglomerations of 20 dwellings or more). Customers in barrios are required to install the low voltage network; SEGBA, however, provides the conductors, house connections, and meters for the low voltage network. The estimated cost of installations put in by customers in the barrios is recorded by SEGBA as a capital contribution. It is nonrefundable and is excluded from the rate base.

The capital contributions for normal and barrios extensions have been estimated as follows for the period 1969-1972:

| | <u>1969</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> |
|--------------------|------------------------|-------------|-------------|-------------|
| | (in millions of pesos) | | | |
| Barrios extensions | 137 | 1,185 | 464 | 427 |
| Normal extensions | <u>400</u> | <u>400</u> | <u>400</u> | <u>400</u> |
| | 537 | 1,585 | 864 | 827 |

When the estimated annual revenue is over 25% of the total cost of the necessary works, SEGBA must return the part of the contribution which exceeds 50% of such cost over a period of up to 4 years without interest. Such amounts are shown in the balance sheet under

"customers' contributions" in long-term debt. No attempt was made at forecasting a variation in these deposits since in practice new deposits are about equal to repayments under existing deposits.

3. In line with the Government's policy of increasing the production of coal by Yacimientos Carboníferos Fiscales (YCF), and after consultation with the Bank, SEGBA has agreed to increase its usage of coal from 151,000 tons in 1967 to about 745,000 tons in 1972. Payment for coal will be on the basis of the cost of fuel oil having an equivalent heat content. SEGBA will purchase the equipment which is necessary to convert two boilers in its Puerto Nuevo plant to coal firing and associated coal handling equipment, with an estimated total cost of M\$N3,382 million. This amount will be excluded from the tariff base, and will be partially financed as follows:

- i. A ten year credit from Eximbank for US\$3.1 million, at 5-1/2% and foreign suppliers' credits totalling M\$N345 million equivalent, at interest rates between 6 and 8%, with maturities between five and six years.
- ii. Ten year local suppliers' credits totalling M\$N540 million with 8% interest.

The proposed arrangements for reimbursement of SEGBA by YCF are as follows:

- i. YCF will make payments to SEGBA of M\$N150 million in 1969 and 1970, and M\$N200 in 1971 and 1972.
- ii. The balance of the cost of the equipment will be reimbursed by making sinking fund payments over a 30-year period. YCF will pay interest at the rate of 8% on the balance outstanding.

4. Includes parts and materials inventories for maintenance of existing plant as well as construction inventories.

5. (a) The item "Accounts Receivable" as of December 31, 1968 is detailed below (in M\$N millions):

| | |
|------------------------------------|---------------|
| Private Consumers | 7,680 |
| Government Entities and Agencies: | |
| Current | 1,452 |
| More than Four Months | <u>3,041</u> |
| Municipalities and Province | 2,131 |
| Notes Receivable | 313 |
| Accounts in arrears | 353 |
| Power supplied but not invoiced | 5,068 |
| Other Accounts Receivable | <u>3,969</u> |
| | 24,007 |
| Less: Provision for doubtful debts | <u>800</u> |
| | <u>23,207</u> |

- (b) Government debt has been reduced during 1969, and the Government has agreed to take all necessary action to ensure prompt payment of amounts due to SEGBA;
- (c) The item "Power supplied but not invoiced", M\$N5 billion represents the estimated value of the electricity consumed between the last meter reading and December 31 (see Note 3 to Income Statements). The amounts will be billed after the next reading in January or February at the rates effective the following year; because of SEGBA's bi-monthly meter reading cycle they represent on the average one month's billings; and,
- (d) The item "Other Accounts Receivable", includes an interest bearing short-term advance to Gas del Estado of about M\$N1.4 billion which has been repaid in the first half of 1969.

6. SEGBA's share capital history up to December 31, 1966 was detailed in Report No. TO-606a. The original share capital represented the value of the investment purchased in 1958/61 by the Government, M\$N8,347 million, which was paid partly in cash and partly with 12 year dollar bonds. To this was added the estimated value (recently confirmed by Decree No. 8516 of December 30, 1968) of properties transferred by AyEE in 1961/62, M\$N7,035 million. This share capital (of M\$N15,382 million as of December 31, 1962) was divided into preferred and common shares in a 40:60 ratio. As of December 31, 1968, the share capital has been increased by stock dividends on preferred, at 5%, totalling M\$N2,292 million, and on common, at rates of up to 20%, totalling M\$N11,309 million; and by Government cash contributions, of M\$N7,500 million.

7. See Annex 5 for debt outstanding on December 31, 1968. In connection with the purchase of base load unit No. 9 for the Puerto Nuevo station, SEGBA has obtained financing from Eximbank (an 11-1/2 year credit of US\$4.9 million with interest at 6%) and suppliers (US\$3.5 million equivalent, for 11-1/2 years, with interest at 7.5%). See Note 4 for a description of the financing of equipment for conversion of boilers in the Puerto Nuevo station to coal firing, and Chapter 7 for a description of SEGBA's planned future long-term borrowings.

8. The item "Accounts and Notes Payable" as of December 1968, is detailed below (in M\$N millions):

| | |
|---------------------------------|---------------|
| Fuel suppliers | 2,646 |
| Power suppliers | 252 |
| Other suppliers and contractors | 4,019 |
| Wages and social charges | 956 |
| Taxes withheld | 2,792 |
| Accrued interest, etc. | 998 |
| | <u>11,663</u> |

9. Excluding current portion of long-term debt.

SERVICIOS ELECTRICOS DEL GRAN NOROCCO AEROS (SEORA)

STATEMENT OF DEBT AS OF DECEMBER 31, 1968

(In millions of pesos unless otherwise indicated)

Page 11, p. 4.05

| Date Contracted | Source | Interest % | Amortization Period | Amount (millions of original currency) | Purpose | Gross long-term Debt Outstanding as of December 31, 1968 |
|---|---|------------|------------------------|--|---|--|
| ✓ 1/19/1962 | IBRD Loan 308-AR | 5.75 | 1965/1986 | US\$ 91.35 | Costanera Station & 1962-61 Distribution | 29,279 |
| ✓ 1/25/1968 | IBRD Loan 525-AR | 6.25 | 1971/1988 | US\$ 55 | 1965-69 Program | 3,308 |
| ✓ 1/4/1962 | Reimb. (I) Loan 1056-Y (II) 5.75 | 6 5.75 | 1965/1973 1965/1975 | US\$ 3.115) US\$ 9.878) | Puerto Nuevo Unit No. 8 | 606 2,998 |
| 1/23/58 | ETH-FCI ^{2/} | | 1962/1969 | L 16.689 | Costanera Station Equipment | 8,928 |
| 4/2/1958 | Metropolitan Vickers ^{2/} | | 1962/1969 | L 3.953 | 132 Kv c/s equipment | 307 |
| 11/30/1962 | Sodea, Dollar Notes | 6 | 1966/1974 | US\$ 4.5 | Rescheduling of Debt | 1,191 |
| 11/30/1962 | Colipa Notes | 6 | 1967/1974 | MMN 450 | Purchase of Building | 830 |
| 1/19/1960 7/1/1960 | Sagba/Sodea Bonds | 6 | 1961/1970 | MMN 550 | P.N. Unit No. 7 and Distribution | 282 |
| 4/24/1961 6/1/1961 | Sagba/Sodea Bonds | 8 | 1962/1971 | MMN 500 | P.N. Unit No. 7 and Distribution | 333 |
| 1/2/1962 | Sagba/Sodea Bonds | 8 | 1962/1971 | MMN 500 | P.N. Unit No. 8 | 283 |
| 1/10/1962 | Sagba/Sodea Bonds | 8 | 1963/1972 | MMN 500 | P.N. Unit No. 8 | 135 |
| 11/27/1962 | Sagba/Sodea Bonds | 6 | 1966/1974 | MMN 400 | Postponed Payments December 1962 through December 1965 of Bonds 1960/1962 | 658 |
| 11/19/1965 | Sagba Rosario Bonds | 5.75 | 1968/1980 | MMN 525 | 1965/1966 Program | 1,552 |
| 6/13/1966 | A.S.O. | 6 | 1968/1970 | DM 0.283 | Peaking Unit Equipment | 16 |
| 2/15/1967 | G. Hering | 7.5 | 1968/1969 | DM 0.059 | Peaking Unit Equipment | 3 |
| 1/27/1967 | SAGE | 6 | 1968/1972 | US\$ 0.105 | Peaking Unit Equipment | 32 |
| 1/27/1967 | SAGE | 6 | 1968/1972 | US\$ 0.032 | Peaking Unit Equipment | 7 |
| 3/13/1967 | MAELINI | 7 | 1968/1971 | US\$ 0.125 | Peaking Unit Equipment | 33 |
| 6/27/1967 | FIAT | 7.5 | 1969/1975 | US\$ 3.536 | Peaking Units | 1,238 |
| 6/27/1967 | Brown Boveri | 7.5 | 1969/1975 | DM 13.373 | Peaking Units | 1,170 |
| (A) Subtotal Foreign Currency | | | | | | 16,189 |
| 1963/1968 | Firaj ^{2/} | 7.5 | 1964/1973 | MMN 173 | Cables | 558 |
| 1963/1966 | CMISA ^{2/} | 7.5 | 1964/1969 | MMN 8 | Cables | 1 |
| 1963/1967 | G.E. Argentina ^{2/} | 7.5 | 1964/1972 | MMN 160 | Meters | 81 |
| 1963/1967 | Galileo ^{2/} | 7.5 | 1964/1972 | MMN 416 | Meters | 166 |
| 1963/1968 | INELQUI ^{2/} | 7.5 | 1964/1972 | MMN 285 | Cables | 118 |
| 1963/1966 | Standard Electric ^{2/} | 7.5 | 1964/1970 | MMN 7 | Cables | 3 |
| 1963/1967 | CECELE ^{2/} | 7.5 | 1964/1973 | MMN 133 | Transformers | 83 |
| 1963/1968 | SIAM ^{2/} | 7.5 | 1964/1973 | MMN 135 | Transformers | 77 |
| 1966/1967 | Electromecanica Argentina ^{2/} | 7.5 | 1967/1972 | MMN 99 | Panels | 60 |
| 1967 | Cinet ^{2/} | 7.5 | 1968/1973 | MMN 20 | Cables | 18 |
| 1967 | Faraday ^{2/} | 7.5 | 1968/1972 | MMN 54 | Transformers | 43 |
| 1968 | Kurt Krohn ^{2/} | 7.5 | 1968/1972 | MMN 4 | Tools | 4 |
| 1967 | Metallia ^{2/} | 7.5 | 1968/1973 | MMN 8 | Cables | 8 |
| 1967 | Morsala ^{2/} | 7.5 | 1968/1973 | MMN 85 | Tools | 3 |
| 1968 | Miron ^{2/} | 7.5 | 1968/1972 | MMN 3 | Transformers | 22 |
| 1967 | Siemens ^{2/} | 7.5 | 1968/1971 | MMN 4 | Panels | 3 |
| 1967 | Tubos Transselectric ^{2/} | 7.5 | 1968/1973 | MMN 166 | Transformers | 137 |
| 10/20/1962 | D.N.E. | 3 | 1962/1971 | MMN 43 | Distribution San Francisco Solano | 11 |
| 12/30/1966 | Caja Nacional (I) | 8 | 1968/1971 | MMN 6,000 | | 6,000 |
| 10/13/1967 | de Aduana (II) | 15 | 1970/1972 | MMN 5,000 | | 5,000 |
| 10/13/1967 | Postal (III) | 15 | 1968/1971 | MMN 2,000 | | 1,400 |
| Customers' contribution subject to repayment Retentions | | | | | | 516 |
| (B) Subtotal Local Currency | | | | | | 2 |
| TOTAL (A) and (B) | | | | | | 16,191 |
| Less Current Portion | | | | | | 8,243 |
| TOTAL Outstanding in more than one year | | | | | | 7,948 |

1/ Interest is paid at the rate of 7.5% on 5% of the amount outstanding, and at a rate equal to the Bank of England discount rate plus 1% on the balance.

2/ Includes several credits.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

ANNEX 6
Page 1 of 5 PagesActual and Forecast Income Statements 1967-72
(in M\$N millions unless otherwise indicated)

| Fiscal Year Ending December 31, | ACTUAL | | | FORECAST | | |
|--|--------|---------|---------|----------|--------|--------|
| | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 |
| Sales billed, in millions of kwh | 4,875 | 5,429 | 6,100 | 6,820 | 7,240 | 7,770 |
| Average revenue per kwh, including taxes (in M\$N) ^{1/} | 12.79 | 12.11 | 12.79 | 12.15 | 12.15 | 11.96 |
| Average revenue per kwh, excluding taxes (in M\$N) ^{1/} | 11.82 | 12.29 | 11.42 | 10.81 | 10.84 | 10.67 |
| Total Revenues | 61,125 | 71,195 | 78,034 | 80,407 | 87,949 | 92,559 |
| Less: Sales taxes ^{2/} | 3,517 | 4,461 | 8,354 | 8,634 | 9,466 | 10,638 |
| Operating Revenues | 57,608 | 66,735 | 69,741 | 71,753 | 78,483 | 82,921 |
| Adjustment for unbilled sales ^{3/} | 572 | 1,441 | 880 | - | - | - |
| Contribution from F.N.E. ^{4/} | - | 6,252 | - | - | - | - |
| Total Operating Revenues | 58,480 | 73,428 | 70,621 | 71,753 | 78,483 | 82,921 |
| Operating Expenses | | | | | | |
| Salaries, wages and social benefits ^{5/} | 18,275 | 19,350 | 19,619 | 19,649 | 19,649 | 19,619 |
| Fuel ^{6/} | 7,383 | 8,407 | 9,245 | 11,843 | 12,913 | 13,822 |
| Purchased power ^{7/} | 1,793 | 1,992 | 2,998 | 2,220 | 1,979 | 2,874 |
| Taxes ^{8/} | 3,504 | 4,100 | 4,475 | 4,218 | 4,928 | 5,199 |
| Other expenses | 6,140 | 6,688 | 7,862 | 7,462 | 7,462 | 7,462 |
| Depreciation ^{9/} | 8,213 | 8,841 | 9,453 | 10,678 | 11,529 | 12,525 |
| Total Operating Expenses | 45,408 | 48,278 | 53,693 | 56,350 | 58,460 | 61,511 |
| Net Income before interest | 13,072 | 25,150 | 16,728 | 15,373 | 20,023 | 21,410 |
| Interest | 4,835 | 5,066 | 4,281 | 4,438 | 5,642 | 5,799 |
| Less: Capitalized interest ^{10/} | (245) | (113) | (978) | (1,277) | (944) | (716) |
| Other income deductions | 206 | 574 | 608 | 911 | 1,021 | 1,142 |
| | 4,895 | 5,227 | 4,268 | 4,904 | 5,735 | 6,225 |
| Net Profit | 8,177 | 19,830 | 11,781 | 10,169 | 14,304 | 15,185 |
| Disposition of profit ^{11/} | | | | | | |
| Reserves and surplus | 2,362 | 9,066 | 3,646 | 1,725 | 4,891 | 5,035 |
| Directors' and Executive Committees' fees | 85 | 97 | 120 | 120 | 120 | 120 |
| Bonus to personnel ^{12/} | 1,012 | 1,330 | 1,350 | 1,330 | 1,330 | 1,330 |
| Stock dividends - preferred ^{13/} | 545 | 572 | - | - | - | - |
| - common | 4,173 | 8,763 | 3,380 | 3,718 | 4,090 | 4,499 |
| Cash dividends - preferred | - | - | 601 | 601 | 601 | 601 |
| - common | - | - | 2,704 | 2,974 | 3,272 | 3,600 |
| Net income necessary under concession ^{14/} | 15,386 | 16,002 | 16,725 | 18,220 | 20,023 | 21,110 |
| Deficiency or (surplus) for previous year | 3,216 | 5,532 | (2,523) | (2,847) | - | - |
| | 18,604 | 21,534 | 13,202 | 15,373 | 20,023 | 21,110 |
| Less: Net income earned | 13,072 | 25,150 | 16,049 | 15,373 | 20,023 | 21,110 |
| Earnings (surplus) or deficiency carried over | 5,532 | (3,523) | (2,847) | - | - | - |
| Exchange rate at year end M\$N per dollar | 350 | 350 | 350 | 350 | 350 | 350 |
| No. of employees | 25,515 | 25,220 | 24,200 | 24,000 | 23,800 | 23,500 |
| Increase in wage level % | 31 | - | 8 | 3 | 3 | 3 |
| No. of consumers: In '000 | 1,970 | 2,068 | 2,160 | 2,260 | 2,340 | 2,420 |
| Ratios | | | | | | |
| Return on average net plant in service ^{15/} | 6.8 | 12.5 | 7.7 | 6.7 | 8.0 | 8.0 |
| Times interest covered by net income | 2.7 | 4.9 | 3.6 | 2.9 | 3.5 | 3.7 |
| Consumers per employee | 77 | 82 | 89 | 94 | 98 | 103 |

39,537

1.14296

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Notes on Income Statements

1. Between the time of the first Bank loan in 1962 and 1967 substantial rate increases took place, primarily to compensate for devaluations of the peso and cost increases (see Report No. TO-606a, Annex 3). The average revenue per kwh, excluding taxes, at the end of 1966 was M\$N 11.01 as compared with M\$N 2.70 at the end of 1961. Increases of 7.3% in 1967 and 4.0% in 1968 and a decrease of 6.1% in 1969 have taken place as a result of the normal year end review of tariffs. The average revenues per kwh in 1970, 1971 and 1972 were calculated so as to generate revenues which would satisfy the requirements of the concession.

2. These taxes, which are collected by SEGBA for the account of the Federal, Provincial and Municipal authorities, consist of the following:

- (a) A federal tax of 30 centavos (ctvs) per kwh, is used to finance the National Fund for Electrical Energy (Law 15336 of September 15, 1960). An additional federal tax of 5% on all sales to ultimate consumers, to finance the Chocon hydroelectric project, was introduced by Law 16882 of May 19, 1966. It became effective on January 1, 1969, (Law 17574 and Decree 8054 of December 17, 1968).
- (b) Until August 31, 1967, two taxes on sales in the Province of Buenos Aires were used to finance DEBA, the Province's utility:
 - (i) Provincial Law 5880: 5 ctvs/kwh on residential and 20 ctvs/kwh on commercial, industrial and federal authorities consumption.
 - (ii) Provincial Law 5544: 10% on all commercial and industrial consumption (thus excluding residential).

Effective September 1, 1967 these two laws have been replaced by Provincial Law 7290, of July 27, 1967, which introduced a unified tax on energy consumption of 15% on commercial and industrial consumption, and 2% on residential and other. All national, provincial and municipal authorities are now exempted.

- (c) A tax on sales in the city of Buenos Aires is collected for the Municipal budget. It was raised in 1966 to 1% for residential, and 1 $\frac{1}{2}$ % for commercial and industrial consumption.

3. This adjustment is intended to report the revenues of the fiscal year on the basis of consumption rather than billings. It represents the difference between the estimated value of energy billed

during the last part of the year, and the corresponding estimate at the end of the previous year. The adjustment has not been projected in the forecast for 1969 through 1972, since it would not materially affect the forecasts.

4. To compensate for the shortfall in revenues at the end of 1967 without a large tariff increase, the Government provided SEGBA with a contribution of M\$N 6,259 million. This was paid through the National Energy Fund during 1968 out of the proceeds of an increased tax on gasoline. The Bank agreed to this exceptional arrangement, which was consistent with the stabilization program of the Government.

5. In 1968, the total wage bill was M\$N 26,282 million, of which M\$N 20,731 (79%) was charged to operations. M\$N 18,350, which represent the labor expenses of generation, distribution, maintenance and administration, are shown under "Salaries, wages and social benefits". The M\$N 2,381 balance of wages charged to operations (labor expenses for transportation, stores, etc.) is included in "Other expenses". A wage increase of 8% for SEGBA's personnel was authorized at the end of 1968. For the projections, it was assumed that there would be a transfer of personnel from operations to construction, leading to a reduction in wages charged to operation of 1.5% per annum. A further net annual reduction of 1.5% was assumed to be the result of SEGBA's rationalization program. These reductions would offset the increase in the level of wages due to seniority and promotion, estimated to be 3% per annum. No increase in wage levels due to the cost of living was assumed, and any increase would require a compensating rate adjustment.

6. Fuel costs for 1969 are based upon the present average price of M\$N 493 per million kilocalories, with an average heat rate of 2,800 Kcalories per kwh sent out. An expected 10% increase in fuel prices was assumed, effective January 1, 1970.

7. Includes the cost of power and energy bought from AyEE, CIAE and others. In 1968, SEGBA and CIAE operated under a central dispatching arrangement which resulted in credit of M\$N 121 million to SEGBA, which supplied 88 Gwh more than it received from CIAE. In 1969, SEGBA expects to purchase 430 Gwh from AyEE at a cost of M\$N 2 per kwh and M\$N 729 per kw per month; it will pay a charge of M\$N 8,000 per kw per year to CIAE on 126 kw. In the years 1970 through 1972, it has been assumed that SEGBA, AyEE and CIAE would operate under a central dispatching arrangement under which reserves would be pooled. SEGBA would pay charges at a rate of M\$N 8,750 per kw per year. The nuclear power station at Atucha is expected to start supplying power in 1972. The projections assume that SEGBA will pay a charge of M\$N 8,750 per kw per year and that it will purchase 600 Gwh at M\$N 1.48 per kwh.

8. The concession provides that, in lieu of income and all other taxes, SEGBA shall pay two taxes on sales, one to the municipalities and the other to the Province of Buenos Aires. The Municipal tax, of

6% on all sales except to railways and for public lighting, is set off quarterly against the power bills of municipalities. The Provincial tax of 6% on sales in the Province to the same categories of consumers as the Municipal tax, is set off from time to time, by ad hoc arrangements, against the Province's power bills.

9. Depreciation of utility plant in service is charged at one single rate of 3%, applied to the dollar value of the aggregate plant, rather than at different rates applying to the different classes of assets. Depreciation of assets other than utility plant, which are also valued in dollars, and represent together a relatively insignificant proportion of the fixed assets, is charged at 10% for furniture and fixtures and 20% for automobiles, trucks, etc.

10. Until 1968, SEGBA capitalized interest at the rate of 1% over the work in progress outstanding at year end. Starting 1968, this practice was changed and interest is being capitalized at 8% of the average work in progress during the year.

11. The statutes of December 29, 1961, call for the following appropriations of profits:

- a. 2% to the Legal Reserve, until it reaches 10% of the share capital; the corresponding appropriations are included in the item "Reserves and surplus" in the attached statements;
- b. 0.60% to the directors and the "syndic", but not exceeding 0.30% of the total wage bill for the year;
- c. cumulative dividend of 5% on the par value of preferred shares;
- d. 0.60% to the members of the executive committee (in addition to their respective salaries), but not exceeding 0.25% of the total wage bill for the year; and,
- e. a bonus to personnel, if any, and dividends on common shares as may be proposed by the Board of Directors.

These appropriations and the declaration of dividends are made at the Annual Meeting (generally in April of the following year) and for this reason are not reflected in the Balance Sheet for the year to which they apply.

12. The Government, as shareholder, granted personnel a share in the profits of fiscal year 1967, which ranged from 17% to 119% of one month's wages (plus 0.2% to 1.4% for each year of seniority) according to the employee's position on a five point rating scale. The Board has not yet decided how the M\$N 1,330 million bonus for fiscal year 1968 will be distributed.

13. Dividends have been paid in stock: on preferred shares, at 5% every year, and on common shares, at 20% for 1967 and 35% for 1968.

It has been assumed that stock dividends at 10% on common shares would be paid in the future, together with cash dividends on preferred shares, at 5%, and on common shares at 8%.

14. This net income represents the sum of:

- (a) the amount of net income necessary to achieve in the current fiscal year the required return of 8% on the net dollar value of utility plant in service, plus notional working capital of 5% of such value; and
- (b) the amount by which the actual net income of the previous year exceeded or fell short of the required net income, which amount should be compensated fully out of the current year's revenues.

15. The return is calculated in accordance with the concession.

SERVICES ELECTRONIC RM. GRAN PUNTO ALBA (PUNTA)

ANNEX 7

Actual and Forecast Sources and Applications of Funds 1967-1972
(in IRN millions)

| Fiscal Year Ending December 31 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | Sub-Total 1970-1972 | Total 1969-1972 |
|--|--------|---------|---------|----------|---------|--------|------------------------|--------------------|
| INTERNAL CASH GENERATION | | | | | | | | |
| Net income before interest | 13,072 | 25,047 | 16,048 | 15,373 | 20,023 | 21,410 | 56,806 | 72,855 |
| Depreciation | 8,733 | 8,841 | 9,433 | 10,448 | 11,529 | 12,505 | 34,717 | 44,145 |
| Customers' Contribution | 177 | 371 | 537 | 1,582 | 864 | 827 | 3,276 | 3,841 |
| Total | 15,714 | 34,266 | 26,039 | 27,636 | 32,416 | 34,742 | 94,794 | 120,833 |
| Borrowings | | | | | | | | |
| Proposed IIRD loan | - | - | - | 6,651 | 6,810 | 7,539 | 21,000 | 21,000 |
| Proposed public issues | - | - | - | 3,500 | 5,250 | 7,000 | 15,750 | 15,750 |
| IIRD loan 505-AR | - | 3,308 | 12,792 | 1,575 | - | - | 1,575 | 14,367 |
| Foreign suppliers' packing units | - | 2,408 | - | - | 1,935 | - | 1,935 | 1,935 |
| Foreign suppliers' base load unit | - | - | 2,932 | - | - | - | - | 2,932 |
| Subsidiary and suppliers' coal conversion | - | - | 504 | 836 | - | - | 836 | 1,340 |
| Other foreign suppliers | 119 | - | - | - | - | - | - | - |
| Local suppliers | 634 | 115 | 373 | 222 | - | - | 222 | 525 |
| Caja Nacional de Ahorro Postal | 6,006 | 394 | - | - | - | - | - | - |
| Banco de la Nación | 2,000 | - | - | - | - | - | - | - |
| Total | 9,372 | 6,225 | 16,691 | 12,704 | 13,995 | 14,539 | 43,319 | 59,009 |
| NOT Contribution | - | - | 150 | 150 | 200 | 200 | 500 | 700 |
| TOTAL SOURCES | 21,082 | 40,491 | 42,883 | 40,570 | 46,611 | 49,481 | 138,663 | 179,842 |
| APPLICATIONS OF FUNDS | | | | | | | | |
| Additions to Plant | 12,007 | 18,979 | 29,119 | 33,808 | 26,153 | 26,308 | 86,407 | 115,776 |
| Debt Service | | | | | | | | |
| Interest | - | - | - | 376 | 826 | 1,170 | 2,374 | 2,374 |
| Proposed IIRD loan | - | - | - | 596 | 1,555 | 1,871 | 4,022 | 5,425 |
| IIRD loan 505-AR | 2,692 | 1,706 | 1,593 | 1,596 | 1,073 | 1,031 | 2,297 | 3,050 |
| Proposed public issues | - | 62 | 693 | 1,093 | 1,073 | 1,031 | 2,297 | 3,050 |
| Bonds and notes, Sodec & Ser | 432 | 555 | 302 | 243 | 138 | 142 | 872 | 872 |
| Subsidiary and foreign suppliers' credits | 931 | 698 | 531 | 521 | 476 | 599 | 1,806 | 2,110 |
| Local suppliers' credits | 96 | 132 | 100 | 72 | 41 | 20 | 133 | 233 |
| Caja Nacional de Ahorro Postal | 816 | 1,561 | 1,377 | 1,134 | 723 | 266 | 2,123 | 2,500 |
| Banco de la Nación | 10 | 187 | - | - | - | - | - | - |
| Miscellaneous and contract (net) | 868 | 385 | (181) | 93 | 392 | 305 | 750 | 609 |
| Total | 4,635 | 5,066 | 4,636 | 5,270 | 5,612 | 5,799 | 16,712 | 21,219 |
| Amortization | - | - | - | - | - | - | - | - |
| Proposed IIRD loan | - | - | - | 1,020 | 1,078 | 1,245 | 3,343 | 4,208 |
| IIRD loan 505-AR | 746 | 911 | 963 | - | - | - | 1,660 | 2,620 |
| Proposed public issues | - | - | - | 630 | 350 | 675 | 1,655 | 2,620 |
| Bonds and notes, Sodec & Ser | 696 | 827 | 506 | 926 | 804 | 619 | 2,349 | 3,227 |
| Subsidiary and foreign suppliers' credits | 3,713 | 4,751 | 4,523 | 470 | 1,226 | 1,385 | 3,471 | 7,454 |
| Local suppliers' credits | 360 | 637 | 549 | 434 | 342 | 229 | 1,915 | 2,594 |
| Caja Nacional de Ahorro Postal | - | 600 | 1,400 | 3,100 | 4,700 | 2,500 | 10,600 | 12,100 |
| Banco de la Nación | - | 2,000 | - | - | - | - | - | - |
| Total | 5,515 | 9,729 | 8,243 | 6,060 | 9,120 | 7,433 | 23,233 | 31,478 |
| Total Debt Service | 10,350 | 14,795 | 12,879 | 11,950 | 14,762 | 13,232 | 39,945 | 52,697 |
| Discount and issue expenses | - | - | - | 210 | 315 | 420 | 945 | 945 |
| Directors' and Executive Committee's Fees and Bonus to Personnel | 995 | 1,097 | 1,427 | 1,450 | 1,450 | 1,450 | 4,350 | 5,777 |
| Cash Dividends | - | - | - | 3,305 | 3,575 | 3,873 | 10,753 | 10,753 |
| Variations in Working Capital | | | | | | | | |
| Short-term bank loans (received) repaid | (715) | 1,710 | 2,133 | (5,034) | (1,121) | 2,598 | (3,920) | (1,737) |
| Net accounts receivable/payable, etc | 5,097 | 6,119 | 882 | (3,500) | 1,500 | 1,600 | (100) | (182) |
| Cash increased (decreased) | 2,707 | (2,236) | (3,392) | (1,617) | - | - | (1,617) | (5,002) |
| Net increase in working capital | 6,089 | 5,623 | (377) | (10,151) | 16 | 4,198 | (5,337) | (6,311) |
| TOTAL APPLICATIONS | 21,101 | 40,104 | 42,886 | 40,570 | 46,611 | 49,481 | 138,663 | 179,842 |
| Times Annual Debt Service covered by Internal Cash Generation (excluding Customers' Contributions) | 2.1 | 2.3 | 2.0 | 2.2 | 2.1 | 2.6 | 2.3 | 2.2 |

Servicios Electricos del Gran Buenos Aires (SEGBA) 67-70Details of SEGBA's Investment Program

| <u>Generation</u> | <u>Transformer Capacity (MVA)</u> | <u>Estimated Cost (M\$N Millions)</u> |
|--|---------------------------------------|---|
| Gas Turbines | | 2,835.0 |
| Completion of Unit 9 -- Puerto Nuevo Station | | 1,249.0 — |
| Modification of two Boilers | | 2,003.0 — |
| Minor work at existing stations | | <u>410.0</u> |
| Total | | 6,497.0 |
| <u>New 220 kv Substations</u> | | |
| El Pino (220 kv equipment only) | | 336.0 |
| Moron | 600 | 592.7 |
| Burzaco II | 600 | 971.3 |
| Mariano Moreno (Switching Station) | | <u>460.9</u> |
| Total | 1,200 | 2,360.9 |
| <u>New 132 kv Substations</u> | | |
| Vicente Lopez | 80 | 230.3 |
| Casanova | 80 | 217.3 |
| Victoria | 80 | 216.7 |
| Ciudad Universitaria | 80 | 252.7 |
| Independencia | 80 | 351.2 |
| Azcuenaga | 80 | 384.8 |
| Miguelote | 80 | 252.7 |
| Barracas | 80 | 328.8 |
| Lugano II | 80 | 216.7 |
| Escobar | <u>80</u> | <u>200.0</u> |
| | 800 | 2,651.2 |
| Work in Progress from 1967-70 Program | | <u>1,724.0</u> — |
| Total | | <u>4,375.2</u> |

Investment Program (Cont'd)

Extensions to Existing Substations

| <u>132 kv</u> | <u>132 kv Units</u> | <u>Estimated Cost (M\$N Millions)</u> |
|---|---------------------|---|
| Malaver | 2 | 40.0 |
| Edison | 5 | 103.7 |
| Puerto Nuevo | 1 | 24.3 |
| Tolosa | 1 | 20.5 |
| Matanza | 2 | 59.2 |
| Caseros | - | 21.2 |
| Costanera | 2 | 48.4 |
| Moron (third bar) | 2 | 100.5 |
| Colegiales | 1 | 20.4 |
| Remote control and measurement equipment | - | 192.6 |
| | | 630.8 |
| Work in Progress from 1967-70 Program | | 184.5 |
| Total | | 815.3 |
| Other | | |
| Minor work on 6.5 kv, 13.2 kv & 27.5 kv substations | | 750.0 |

| | <u>Circuits</u> | <u>Distance km</u> | <u>Estimated Cost (M\$N Millions)</u> |
|---------------------------------------|-----------------|------------------------|---|
| <u>220 kv Transmission Line</u> | | | |
| El Pino-Immed. Moron | 2 | 45 | 1,350.0 |
| El Pino-Burzaco II | 2 | 24 | 720.0 |
| Burzaco II-Tolosa | 2 | 50 | 1,005.0 |
| | - | 119 | 3,075.0 |
| <u>132 kv Transmission Lines</u> | | | |
| Nuevo Puerto-Edison | 1 | 19.0 | 818.4 |
| Nuevo Puerto-V. Lopez-Edison | 1 | 19.0 | 833.6 |
| Edison-Malaver | 1 | 11.0 | 532.8 |
| La Plata-Tolosa | 1 | 5.0 | 250.0 |
| Edison-Victoria | 2 | 7.0 | 537.8 |
| Matanza-Casanova | 2 | 7.5 | 646.1 |
| Pozos-Independencia | 2 | 2.5 | 192.2 |
| Costanera-Barracas | 2 | 7.0 | 537.8 |
| P. Moreno-Lugano II | 2 | 4.0 | 307.3 |
| Deriv.-Miguelote | 2 | 0.2 | 17.4 |
| P. Nuevo-Colegiales | 1 | 7.0 | 371.7 |
| Burzaco I-Burzaco II | 4 | 4.0 | 689.0 |
| Moron-Caseros (3 de Febero) | 1 | 12.0 | 581.3 |
| Moron-Malaver | 1 | 15.5 | 751.0 |
| Benavidez-Escobar | 2 | 15.0 | 300.0 |
| | | 135.7 | 7,366.4 |
| Work in Progress from 1967-70 Program | | | 1,305.1 |
| Total | | | 8,671.5 |

Investment Program (Cont'd)

Distribution System

| | <u>Quantity</u> | <u>Estimated Cost (M\$N Millions)</u> |
|--|-----------------|---|
| 6.5/13.2 kv cables - Capital (km) | 400 | 4,356.4 |
| 13.2 kv cables - Province (km) | 450 | 3,579.3 |
| 13.2 kv lines - Province (km) | 1,195 | 5,675.4 |
| Transformer vaults - Capital | 405 | 2,039.1 |
| Transformer vaults - Province | 295 | 1,020.6 |
| Transformer platforms - Province | 1,840 | 1,613.2 |
| Transformers - Capital (mva) | 390 | 733.7 |
| Transformers - Province (mva) | 885 | 1,664.5 |
| Low Voltage cables - Capital (km) | 410 | 3,498.2 |
| Low Voltage cables - Province (km) | 190 | 1,189.0 |
| Low Voltage lines - Province (km) | 5,655 | 12,899.2 |
| New connections - Capital | 9,800 | 1,544.6 |
| New connections - Province | 285,000 | 2,151.4 |
| Meters - Capital | 71,000 | 321.3 |
| Meters - Province | 280,000 | 1,570.7 |
| Street light fixtures | 24,900 | 2,304.2 |
| Conversion of 6.5 kv system to 13.2 kv | - | 750.0 |
| | | <u>46,910.8</u> |
| Work in Progress from 1967-70 Program | | <u>940.8</u> |
| Total | | <u>47,851.6</u> |

Miscellaneous

Various Buildings

| | |
|--|------------|
| Administration Building | 1,230 |
| District Offices - Commercial Department | 790 |
| Expansion of Existing Buildings | <u>130</u> |

| | |
|---------------------------------------|--------------|
| | 2,150 |
| Work in Progress from 1967-70 Program | <u>2,500</u> |
| | 4,650 |

Other Items

| | |
|--|--------------|
| Furnitures, Fixtures, Tools, Vehicles <i>Miscellaneous</i> | 1,450 |
| Consultants Costs | 710 |
| Contingencies | <u>5,400</u> |
| | <u>7,560</u> |

INTERCONNECTED GRAN BUENOS AIRES LITORAL SYSTEM

S.UTMA - AySE - CIAE - HIDRONOR - ATUCHA

Actual and Projected Demand, Reserve and Firm Capacity

| <u>Years</u> | <u>↓</u> <u>1966</u> | <u>↓</u> <u>1967</u> | <u>↓</u> <u>1968</u> | <u>1969</u> | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> | <u>1976</u> | <u>1977</u> | <u>1978</u> |
|-----------------------|-------------------------|-------------------------|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| New Capacity | | | | | | | | | | | | | |
| Gas Turbines | - | - | 140 | - | - | 125 | - | - | - | - | - | - | - |
| Conventional Steam | - | - | - | 250 | 250 | - | - | - | - | - | - | - | - |
| Nuclear | - | - | - | - | - | - | 313 1/ | - | - | - | - | - | - |
| El Chocón, Hydro | - | - | - | - | - | - | - | 400 | 200 | 200 | 400 | - | - |
| Cerro Colorado, Hydro | - | - | - | - | - | - | - | - | - | - | - | 300 | 150 |
| Retirement | - | - | - | 98 | - | - | - | 50 | - | - | - | - | - |
| Installed Capacity | 2,302 | 2,302 | 2,442 | 2,594 | 2,844 | 2,969 | 3,282 | 3,632 | 3,832 | 4,032 | 4,432 | 4,732 | 4,882 |
| Effective Capacity | 2,190 | 2,190 | 2,330 | 2,530 | 2,780 | 2,905 | 3,105 1/ | 3,530 | 3,721 | 3,907 | 4,268 | 4,531 | 4,658 |
| Reserve 2/ | 304 | 304 | 312 | 377 | 369 | 396 | 406 | 472 | 472 | 472 | 472 | 472 | 472 |
| Firm Capacity | 1,886 | 1,886 | 2,018 | 2,153 | 2,391 | 2,509 | 2,699 | 3,058 | 3,249 | 3,435 | 3,796 | 4,059 | 4,186 |
| Maximum Demand | 1,719 | 1,811 | 1,883 | 2,053 | 2,221 | 2,405 | 2,574 | 2,729 | 2,946 | 3,153 | 3,374 | 3,611 | 3,664 |
| Surplus | 167 | 75 | 135 | 100 | 170 | 104 | 125 | 329 | 303 | 282 | 422 | 448 | 322 |

1/ Only 200 MW of the nuclear capacity is expected to be effective in 1972

2/ Targets unit plus 5% of effective thermal capacity

ANNEX 2

Page 20, para 6.06

GRAN BUENOS AIRES LITORAL SYSTEMInstalled and Effective Capacity

| | <u>Installed Capacity MW</u> | | <u>Effective Capacity MW</u> | |
|-------------------------------------|----------------------------------|------------|----------------------------------|------------|
| <u>Existing Thermal Plants 1968</u> | | | | |
| <u>SEGBA</u> | | | | |
| Puerto Nuevo | 654 | | 640 | |
| Costanera | 600 | | 600 | |
| Dock Sud | 179 | | 170 | |
| Gas Turbines | <u>140</u> | 1,573 | <u>140</u> | 1,550 |
| <u>CIAE</u> | | | | |
| Nuevo Puerto | 269 | | 269 | |
| Pedro de Mendoza | <u>98</u> | 367 | <u>50</u> | 319 |
| <u>AyEE</u> | | | | |
| San Nicolas | 320 | | 320 | |
| Sorrento | 112 | | 91 | |
| Calchines | <u>70</u> | <u>502</u> | <u>50</u> | <u>161</u> |
| TOTAL EXISTING PLANTS | | 2,442 | | 2,330 |
| <u>FUTURE INSTALLATIONS</u> | | | | |
| <u>SEGBA</u> | | | | |
| Puerto Nuevo No. 9 (1970) | 250 | | 250 | |
| Gas Turbines (1971) | 90 | | 90 | |
| <u>CIAE</u> | | | | |
| Nuevo Puerto No. 6 (1969) | 250 | | 250 | |
| Gas Turbines (1971) | 35 | | 35 | |
| <u>ATOMIC ENERGY COMMISSION</u> | | | | |
| Nuclear (1972) | 313 | | 200 | |
| Nuclear (1973) | | | 313 | |
| <u>HIDRONOR</u> | | | | |
| Hydro El Chocon (1973) | 400 | | 362 | |
| " " " (1974) | 200 | | 197 | |
| " " " (1975) | 200 | | 186 | |
| " " " (1976) | 400 | | 361 | |
| " Plan. Banderita (1977) | 300 | | 263 | |
| " " " (1978) | 150 | | 127 | |
| <u>RETIREMENT</u> | | | | |
| SEGBA (1973) | Dock Sud | | 50 MW | |
| CIAE (1969) | Pedro de Mendoza | | 50 MW | |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Incremental Rate of Return Earned by a Barrio

1. The incremental rate of return from extending supplies to a barrio is the discount rate at which the present worth of the capital costs of providing service to the barrio equals the present worth of the gross revenues obtained from the barrio, less operating expenses, over the economic life of the assets employed (taken as 25 years).
2. The following information and assumptions were used in calculating the rate of return from the annual cash flows (see chart, page 6 of the Annex):

(i) Barrios

These are defined in the Argentine Electricity Supply Regulations as concentrated groups of residential quarters of not less than 20 houses in number who ask for electricity supply collectively. These barrios are scattered throughout the territory of SEGBA's concession and, in general, house families of low income groups. Between 1962 and 1968, SEGBA connected to electricity supply about 1,000 barrios. About 600 more are planned for connection by 1972 after which date few should remain unelectrified. The barrios vary in size ranging from 20 houses to over 500. All barrios must be reasonably compact in area to qualify for connection. The small barrios (50 houses and under) tend to be within a defined compact area normally with little room for expansion. All households tend to become customers immediately in that the unit is compact enough for all to want the same level of facilities. They do not contain apartment houses and little sub-letting takes place; thus each house has one connection and one meter. The larger barrios of 250 houses and over show varying degrees of dispersion. All households do not become customers immediately. Some sub-letting takes place giving rise to multiple-service connections.

(ii) Sales

The average sales per month per residential consumer including those in barrios is just over 100 kwh. Since 1964, the average growth per residential consumer has been under 2% per annum. In 1968 the average consumer within established barrios used about 70 kwh per month. However, when a barrio is first connected average consumption is normally lower, say 50 kwh per month and this may double in about 25 years.

(iii) Maximum Demand - Capacity Requirements

Residential sales are about 50% of SEGBA's total sales. Also the time of the residential peak is not greatly different from the time of the system peak. The maximum demands, for which system capacity has to be provided from generation to the feed point on the distribution system, can thus be estimated by using a typical load factor (say 25%) for barrio loads. This gives maximum demand figures of about 0.20 kw per consumer at time of first connection to double this in about 25 years.

(iv) Direct Costs of System Extension

The direct capital costs of extending service to a barrio consist of extending a medium voltage (13.2 kv) distribution line to a step down transformer and erecting low voltage overhead distribution lines within the barrio from which individual house-connections are made. In order to qualify for service from SEGBA a barrio must collectively agree to finance directly about half of the capital costs of the distribution assets just described. In practice, SEGBA provides at its expense the 13.2 kv line extension, the step down transformer, the low voltage distribution conductors and the house connections. Barrio residents are required to pay directly for the low voltage poles and insulators and the erection of the low voltage lines. SEGBA has established this requirement primarily to minimize its own capital investment. One result is that SEGBA's rate base includes only that part of the capital cost which is financed by SEGBA itself. This obviously results in savings to barrio customers on their electricity rates (cross subsidization would only transfer the burden to other consumers). These savings may be thought of as a "cash flow" which justifies their own private investment in the project. The US\$ 100 (approx.) per barrio customer of consumer-provided capital costs is financed in a variety of ways, often by borrowing all or part of the sum. Barrio residents would not be willing to incur such costs if they did not value electricity service sufficiently to make their private investment "pay". The minimum benefit that justifies the US\$ 100 of private investment is the saving (i.e. cash flow) in electricity rates between what SEGBA would have to charge had SEGBA provided the full investment and the (actual) lower rates that reflect SEGBA's lower capital rate base. To barrio consumers, the present value of such savings over whatever time-period and discount rate they find relevant, must be at least US\$ 100. Therefore this private investment part of the total capital cost justifies itself and need not be taken into account in determining the incremental rate of return.

(v) Generation, Transmission and Primary Distribution
Incremental Investment Costs

The cost of extending supplies to a barrio must include an appropriate portion of the cost of generation, transmission and distribution facilities required to supply, transmit and distribute the power to be utilized during the economic life of the works covered by the direct extension costs i.e., 25 years. Each incremental kw of demand by the barrios at time of system peak requires an increment of capacity in generation, transmission and primary distribution. The appropriate generation capacity cost is that of the marginal plant in any year (i.e. the generating plant which would not be installed if the maximum demand were 1 kw less). This capacity cost is the construction cost less the total present value over the economic life of the plant of the fuel cost savings (if any) made by running the marginal plant instead of any remaining generating plants in the system which have a higher cost of production. An examination of forward plans indicates that no great distortion will be introduced by taking the marginal plant as gas turbines. Transmission is installed in "lumpy" projects. The appropriate charge is thus best taken as the estimated average trend over a number of future years of expenditure per kw of demand.

With respect to the primary distribution charge, although the residential load is a large proportion of the total load, the total barrio load is only a small percentage of this. Furthermore, although the residential load has been growing at about 7% per annum, the basic reason is because of new connections. These facts plus the nature of the network structure (a radial network) for future years, indicates that only about 10% of the estimated average trend of expenditure over future years per kw of demand should be attributed to the barrio load.

(vi) Revenues

Barrios are charged by SEGBA according to Rate No. 1. The level of this tariff and its components (fixed and kwh charge) have been taken to be constant throughout the period considered up to 1995 because inflation has been ignored in these calculations (they are done at constant value) and the rectification of any imbalances in the rate structure over future years will have the tendency (if anything) to increase residential rates. The latter are therefore unlikely to be lower than at present. From the point of view of cash flow to the economy as a whole, the annual gross revenue from a barrio is equal to (a) the annual kwh sales multiplied by the rate plus (b) the sales taxes (see Annex 6, page 2, note 2). Annual net

revenue (i.e. cash flow) is equal to the annual gross revenue less operating expenses. For the purpose of calculating the rate of return, operating expenses exclude any income tax (or similar items in lieu) which the Government levies on SEGBA profits i.e. the only items deducted from revenue are the operating expenses directly associated with providing the exploitation of the resources in question.

(vii) Operating Expenses

Operating expenses include the incremental costs of operation applicable to supplying the barrios in three broad categories (a) incremental fuel cost for the additional kwh (b) incremental operation and maintenance costs (c) incremental overheads:

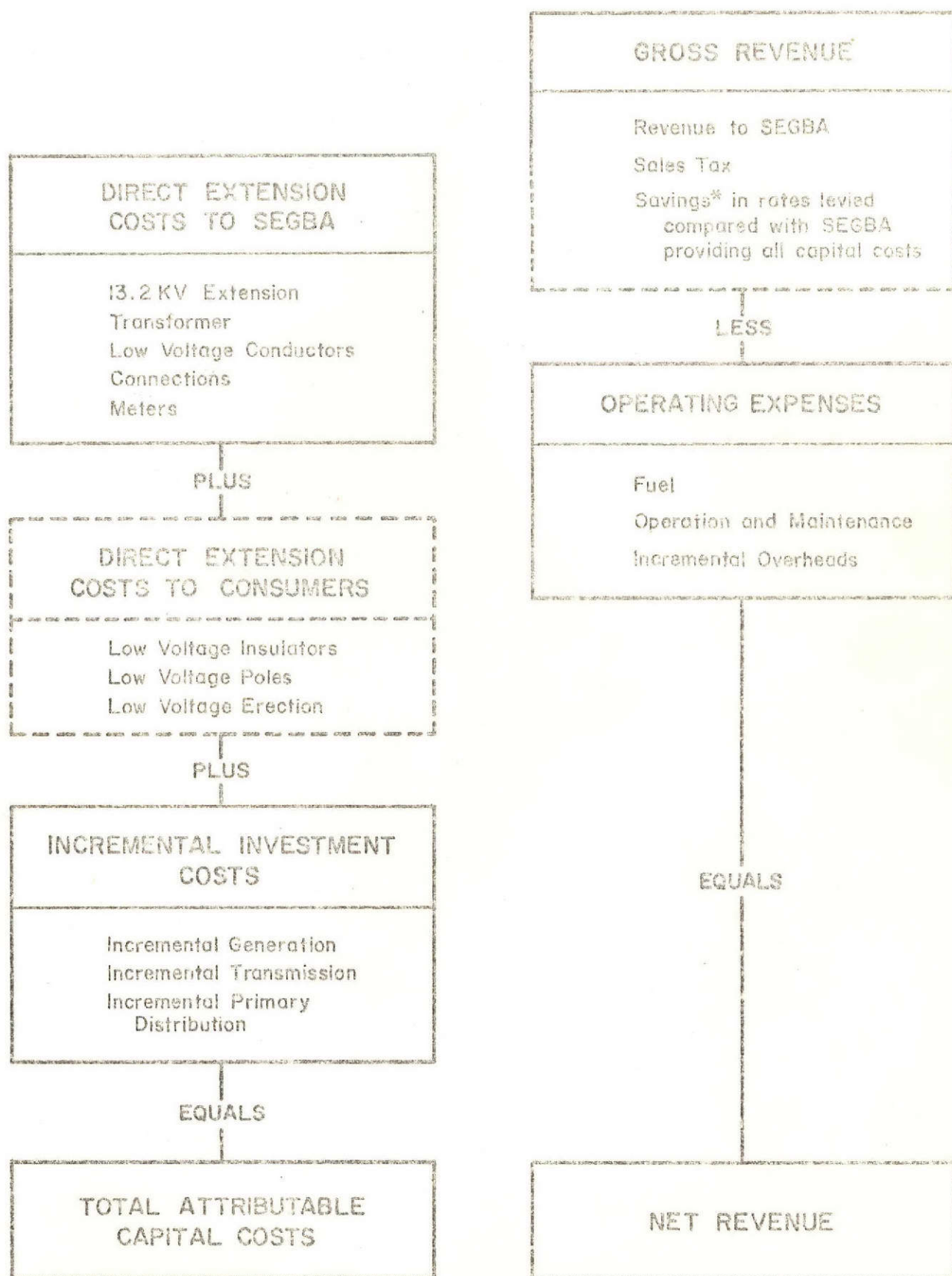
- (a) The average cost of fuel per kwh delivered to the consumer's premises in 1968 was about M\$N 1.56. The average marginal cost of production over that part of the load curve occupied by the barrio load, i.e. next to the system peak, is about 20% to 30% higher. Allowing for this gives a figure of about M\$N 1.90 per kwh for the incremental fuel cost to be charged to the barrio consumption. The effect of hydro energy during the peak period in the late 1970's can be expected to lower this figure to (say) M\$N 1.80 by about 1985.
- (b) An examination has been made in some detail of the 1967 operating and maintenance costs. Treating them all as kwh related costs gives a figure of M\$N 2.90 per kwh delivered to the consumer excluding depreciation. It seems likely that, at worst, a slow rise will take place, indicating a figure of about M\$N 3.30 per kwh delivered for operating costs in 1980 and about M\$N 3.60 in 1990. It could be argued that this over states the magnitude of the operating costs in that it makes no division between fixed operating costs (independent of kwh delivered) and variable operating costs (proportional to kwh delivered.) The SEGBA accounts make an accurate division of operating costs into components difficult. Also a quick check indicates that no great distortion seems likely to be introduced by taking all operating costs as kwh related.
- (c) A detailed analysis of overheads for 1967, together with an allocation per class of overheads to residential supplies, gives a figure of about M\$N 3 per kwh delivered at residential consumers' premises. However, at least half of this must be regarded as "fixed" in the sense that it is independent of sales. A figure of M\$N 1.5 per kwh delivered to the barrios has thus been assumed.

3. The incremental rate of return of a representative small type of barrio (50 houses) is calculated to be 11%. The return for a representative large type of barrio (500 houses) is calculated to be 18%. These figures apply to barrios under average conditions e.g. with respect to distance from the nearest 13.2 kv distribution line, compactness of barrio, complexity of transformer mounting, etc.

4. Because barrio electrification is judged likely to be one of the marginal parts of the project, i.e. likely to earn one of the lowest incremental rates of return among the various parts of the project, then the rate of return on the whole project is likely to be higher than 18%.

July 1969

ANNUAL CASH FLOW DIAGRAM FOR EXTENSION OF SUPPLIES TO BARRIO



*The present value of these is taken as equal to the direct extension costs to consumers.

308-AR

BUENOS AIRES POWER PROJECT

TABLE OF CONTENTS

| | <u>Page No.</u> |
|--|-----------------|
| Summary | |
| I. INTRODUCTION | 1 |
| II. BACKGROUND | 2 |
| III. THE PINEDO PLAN | 4 |
| IV. THE BORROWER | 5 |
| The By-Laws | 5 |
| The Concession | 6 |
| Organization and Management | 7 |
| V. POWER MARKET | 8 |
| VI. THE PROJECT | 10 |
| GBA Station | 10 |
| 132 kv Interconnection | 13 |
| Distribution System Expansion | 15 |
| VII. FINANCIAL ASPECTS | 18 |
| Present Financial Position | 18 |
| SEGBA | 19 |
| Fourteen Partidos | 20 |
| GBA Station and 132 kv Interconnection | 20 |
| Consolidated Capitalization of SEGBA | 21 |
| Consolidated Assets | 22 |
| Tariffs | 22 |
| Financing Plan | 24 |
| Estimated Future Earnings | 27 |
| Debt Limitation Covenant | 27 |
| Auditing Procedures | 28 |
| VIII. CONCLUSIONS AND RECOMMENDATIONS | 28 |

LIST OF ANNEXES

- ANNEX 1 - Long Term Load Development Chart
- ANNEX 2 - Plant Capabilities and Peak Loads, MW
- ANNEX 3 - Cost Estimates 1962-1964, 132 kv Interconnection
- ANNEX 4 - Total SEGBA Program 1962-1964, Summary of Estimated Costs
- ANNEX 5 - SEGBA - Balance Sheets 1961-1967
- ANNEX 6 - SEGBA - Estimated Income Statements 1961-1967
- ANNEX 7 - Sources and Applications of Funds 1962-1967
- ANNEX 8 - Compania Italo-Argentina de Electricidad - CIAE
Map

BUENOS AIRES POWER PROJECT

SEGBA

S u m m a r y

(9) The Government of Argentina has proposed that the Bank make a loan to assist in the execution of a program intended to eliminate the power shortage in the Buenos Aires Metropolitan area and to reorganize the electric power supply industry in the area as a necessary condition to efficient expansion of service in the future. *long standing*

(10) ii. The reorganized SEGBA, which would be the Borrower, is to be given ownership and responsibility for AyEE's generation, interconnection and distribution facilities in Buenos Aires. This will result in a consolidated program for SEGBA which, for the period of 1962-1964, includes the completion or addition of about 800 MW of generating facilities, a 132 kv system in the metropolitan area and a substantial expansion of distribution facilities. The program, which is estimated to cost a total of US\$292 million equivalent, represents the minimum necessary to eliminate, by 1965, the bulk of the power shortage.

(11) iii. After the reorganization SEGBA will be a stock corporation: initially, all shares will be owned by the Government but would be sold gradually to the public as conditions of the Argentine financial market permit. A satisfactory plan has been worked out to ensure that SEGBA will have a competent management group operating with the necessary autonomy.

(12) iv. The plan for financing the 1962-1964 program, after taking into account US\$76 million equivalent (26%) representing the total of new borrowings already contracted and US\$109 million equivalent (37%) representing net internally generated funds, leaves a gap of US\$107 million equivalent. This is to be met by the sale of US\$12 million equivalent (4%) of new common shares of SEGBA in 1963-1964, and by a proposed loan of US\$95 million equivalent (33%) from the Bank. The financial position of SEGBA, which is analyzed in detail in the report for the six years 1962 to 1967, should be sound throughout the period.

v. The project is considered suitable for the proposed US\$95 million loan, with a term of 25 years and with amortization starting in March 1965.

BUENOS AIRES POWER PROJECT

SEGBA

I. INTRODUCTION

1. The Government of Argentina has proposed that the Bank make a substantial loan to assist in implementing a program to consolidate electric utility services in the Buenos Aires Metropolitan area (Greater Buenos Aires) and to eliminate a long standing shortage of power in the area.

2. The elimination of the shortage depends largely on completing as quickly as possible a 600 MW installation, the "Gran Buenos Aires" (GBA) Station, which has been under construction since 1958 by the Government's Water and Power Agency, Agua y Energia Electrica (AyEE). Due to physical, organizational and financial difficulties, the construction of the station is now two years behind schedule and AyEE is unable to obtain the funds in local currency needed to complete the installation.

3. The proposed consolidation of services would be achieved by transferring to a reorganized SEGBA (Servicios Electricos Gran Buenos Aires, at present the largest among the electricity supply organizations in Buenos Aires) the responsibility for completing the construction and undertaking the combined operation of the GBA Station, of the 132 kv interconnection in the metropolitan area as well as of the necessary expansion of the consolidated distribution system. These measures should bring to an end as quickly as possible the power shortage in the area and provide a sound basis for the efficient provision of electric utility service in the future.

4. The organizational and financial features of the consolidation plan have been the object of long consultations between the Government and the Bank. A firm plan of action has now been formulated and is appraised in this report. After considering all reasonable contributions which could be obtained in Argentina to meet the financial requirements of the plan, there remains a gap of \$95 million which the Government requests be the amount considered by the Bank for a loan. The Government proposes that the loan be made to the new SEGBA and that the utilization of its proceeds be authorized in the following manner:

- (i) The equivalent of US\$60 million to obtain local currency exclusively for the completion of the GBA Station and of the 132 kv ring, and
- (ii) US\$35 million against imported equipment and services mainly for the expansion of the distribution system and interest during construction.

II. BACKGROUND

5. Electricity supply by privately-owned utility companies in Buenos Aires was established at the beginning of the century. These companies were owned and controlled by foreign interest and operated under long term concessions granted by the city of Buenos Aires and later by the city and/or the province of Buenos Aires when service was extended beyond the borders of the Federal District.

6. In the period between the two world wars, and after some transfers of ownership following the first world war, electric utility service in the Greater Buenos Aires area was shared by two companies: CADE (Compania Argentina de Electricidad) a fully-owned subsidiary of SOFINA, and CIAE (Compania Italo Argentina de Electricidad) which was and is controlled by Swiss financial interests but whose shares have also been quoted on the Zurich and Buenos Aires stock exchanges. These two companies, like their predecessors, ran an efficient and profitable operation and established and maintained a tradition of reliable service. Ample capacity reserves were maintained at all times and generally the management and operation of the companies reflected the conservative electric utility approach of western European companies before the second world war. Under these conditions the development of the Buenos Aires power system during the 30 year period to 1940 progressed steadily with an average annual rate of increase in demand between 7 and 8%.

7. With the advent of the Peron regime and the emergence of nationalistic trends in Government policies the foreign-owned power companies began having difficulties. In the early 1950's they were refused permission further to expand their facilities. Shortly thereafter they were prevented from applying the rate adjustment clauses which were included in their concessions. This was accompanied by increasingly frequent expropriations of foreign-owned power facilities, mostly in the interior of Argentina, and by the mid-1950's a strong movement was apparent to nationalize the power industry by expropriating the foreign-owned companies and/or revoking their long term concessions. This situation continued after the fall of the Peron Government and by 1958, foreign owned power undertakings in the interior had been formally taken over, mostly by AyEE, but in some instances (notably Cordoba) by the Provincial Governments. Most of these had been owned by American and Foreign Power Company and negotiations for compensation were successfully completed in 1960. The remainder had been owned by CADE or CIAE and settlements therefor were included in agreements reached between the Government and the owners in 1958 and 1961, respectively.

8. In Buenos Aires, CADE's and CIAE's concessions were cancelled in mid-1957. The brunt of political attacks was borne by CADE. By late 1958 a settlement was reached between the Government and SOFINA under which AyEE took over CADE's distribution system in fourteen municipalities to the north-west of the Federal District (Fourteen Partidos). The revalued assets remaining in CADE, whose name was changed to SEGBA, consisting of the generating facilities and of the distribution system in the Federal District and in the fourteen municipalities to the southeast, were to be bought by the Government in equal installments during the ensuing ten years.

The contract provided, inter alia, that equity capital would earn 8%. Management was vested in a Board with representation both of the Government and of SOFINA, with executive management remaining SOFINA's responsibility at least until the Government achieved majority ownership.

9. The settlement with CIAE was concluded by mid-1961 and the contract then signed provides for an indefinite concession period, but with an option for the Government to buy the Company's facilities after 1966 with three years notice.

10. As for the power supply situation in Buenos Aires, the power shortage which had begun in the early 1950's, partly alleviated by the installation of captive plant by consumers, grew more serious and by 1956 the companies had difficulty meeting demand of connected consumers. Connections to new consumers were practically discontinued and restrictions on the use of power were imposed which are still in effect. The controversies about CADE and CIAE and the cancellation of their concessions prevented the adoption of the logical solution to the power shortage - the installation of new units at their respective plants in Puerto Nuevo and Nuevo Puerto (both in Buenos Aires port) - which would have made available suitable new capacity in the shortest time and at the smallest cost. Instead, AyEE initiated plans for building a new 600 MW steam power station on a site to be reclaimed from the Rio de la Plata in the port area. Contracts were awarded in April 1958 to a partnership of British companies which undertook to build the 600 MW Dock Sud plant (the name was later changed to Gran Buenos Aires Station) as a turn key job with the foreign currency cost financed by Baring Brothers on the basis of short term manufacturers' credits, with final payment to be made in 1967. The five 120 MW units were scheduled for commissioning at three month intervals, beginning in January 1961. Additional contracts provided for the construction of extensive cable connections and substations at 132 kv which would complete an interconnecting 132 kv ring around the metropolitan area and superimpose a new 132 kv-13.2 kv distribution system on those already existing.

11. Simultaneously, AyEE was building a transmission line to Buenos Aires from San Nicolas, a locality some 200 km to the northwest where a 300 MW steam power station had been completed by AyEE in 1955. The connection was completed in 1959 and brought partial relief (about 180 MW), to the shortage in Buenos Aires at the expense, however, of the Rosario-Santa Fe area. With the CADE settlement of 1958, the possibility of unit additions to existing plants in Buenos Aires was belatedly reopened. The first such unit, with a capacity of 140 MW, was commissioned in mid-1961 in SEGBA's Puerto Nuevo Station. A second unit, with a capacity of 194 MW, is now on order for the same station and is scheduled for commissioning in late 1963. Capacity additions to CIAE's Nuevo Puerto station are planned as a result of CIAE's 1961 settlement.

12. In view of the critical need for sound power policies as a factor in Argentine economic recovery, a study of the major power problems in the country (the Argentine Power Study) was undertaken in late 1959 at the request of the Government and under the direction of the Bank. The study,

which was sponsored by the U.N. Special Fund, was concluded in mid-1960 with the publication of a report containing a recommended power program for the period 1960-1969. In regard to the Greater Buenos Aires area, the salient recommendations were:

- a. complete the construction of the GBA Station without delay;
- b. supplement its contribution by scheduling the fullest utilization of existing power stations through the addition of large (180 to 200 MW) units, during the second half of the decade;
- c. review and amend conflicting plans for distribution system expansion by the various power entities in the area; and
- d. eliminate conflicts among these entities and achieve the necessary coordination of planning and operation among them.

The report showed that the ten-year investment requirements for electric power expansion in the Buenos Aires - Litoral System, of which the Greater Buenos Aires area represents more than 80%, would exceed the equivalent of \$500 million.

13. The magnitude of this task and the serious financial burden it would impose upon the Government were emphasized by the continuing inability of AyEE to provide enough funds even to keep the construction of the GBA Station progressing at normal speed. After exploring with the Bank in the latter part of 1960 the possibility of a loan to assist in achieving the urgent completion of the GBA Station, the Government decided early in 1961 to seek a wider and more permanent solution of the power supply problem in the Buenos Aires area, one which would relieve the budget of the sizeable drain involved in financing rehabilitation and expansion of facilities. For this purpose it appointed an elder statesman of Argentina, Dr. Pinedo, to work out a solution. This was developed during 1961 and is known as the "Pinedo Plan". The Pinedo Plan received formal Government approval in September 1961 and is the basis for the proposed consolidation.

III. THE PINEDO PLAN

14. The plan for the consolidation of power utility services in the Buenos Aires metropolitan area hinges on the reorganization of SEGBA. This is being achieved through the following three principal steps:

- a. Purchase by Government of all SEGBA shares still held by private investors (a contract to this effect was signed on October 20, 1961 by the Government and SODEC, an affiliate of SOFINA).
- b. Recapitalization and reorganization of SEGBA to transform it into a stock corporation whose by-laws and concession would permit indefinite operation as a privately-owned public utility corporation. Though initially all shares would be beneficially

owned by the Government, they would be placed in trust with the Industrial Bank to be sold to private investors as rapidly as the Argentine financial market would allow.

- c. Transfer to the reorganized SEGBA of AyEE's assets and concessions in the Gran Buenos Aires area. These consist of the GBA Station, the 132 kv system interconnection facilities and the distribution system in the Fourteen Partidos.

The detail of the financial transactions is given under "Financial Aspects". The executive action needed to put the plan into effect has already been initiated and is to be completed prior to the signing of the loan. The transfer to SEGBA of AyEE's properties would become effective on the date of the loan's signature.

15. Under the Plan, all generating, interconnection and distribution facilities in the metropolitan area would be owned and operated by SEGBA, with the exception of CIAE's system (Annex 8). The best utilization of all facilities and the compatibility of distribution expansion, as well as the avoidance of duplication, will require close cooperation between the two companies. They have coexisted and cooperated for many years and it is reasonable to assume that they will do so in the future. A first step towards assuring the needed economic coordination is to be taken shortly when SEGBA engages qualified consultants acceptable to both companies to review distribution systems' conditions and plans and to recommend standards for rehabilitation and expansion.

IV. THE BORROWER

16. The reorganized and consolidated SEGBA would be the borrower. Before consolidation SEGBA has 740 MW of installed capacity serving the Federal Capital District and fourteen partidos in the Province of Buenos Aires. The corresponding area is about 9000 sq.km. with a population of five million. The number of SEGBA customers is slightly over one million. SEGBA's 1961 peak load was 628 MW and its sales for the year 2600 million kwh. The other Fourteen Partidos in the Province of Buenos Aires, which are being supplied by AyEE until the consolidation, have an area of about 4000 sq.km., with a population of 1.5 million and over 400,000 customers. The 1961 peak load there was 242 MW with sales of 960 million kwh. Bulk supplies to the area, in addition to SEGBA's contribution, came from San Nicolas with a peak of 180 MW. Thus, after consolidation, the new SEGBA will serve an area of 13,000 sq.km. with 6.5 million inhabitants and about 1.5 million customers. Its peak load will initially be about 900 MW and until sufficient new capacity is commissioned it will continue to receive bulk supplies from San Nicolas, in amounts up to 180 MW.

The By-laws

17. SEGBA's new by-laws, approved at a special shareholders meeting on December 15, 1961, establishes the Company as a stock corporation with

a life of 100 years for the purpose of "generation, transformation, transmission, distribution, purchase and sale of electricity as well as giving public service electricity supply in any part of the Republic of Argentina where authorities may license it to do so".

18. Under the new by-laws, SEGBA will have a Board of Directors of no less than five and not more than eight members, appointed by shareholders' vote for terms of three years, re-appointable indefinitely and with staggered terms. Of these, one will be the President and another the Executive Vice President.

19. All shares will initially be owned by Government and held by the Industrial Bank. The Government intends to sell shares to the public as soon and as rapidly as possible. Present prospects for important sales of shares are not good, however, and it must be expected that the Government will hold a majority of shares for a number of years. In order to ensure the needed independence and autonomy of management, the by-laws restrict the powers of the Board and concentrates the executive functions of management in an Executive Committee chaired by the Executive Vice President and composed of the General Manager, if one is appointed, and four of the corporation's department managers. Specifically, the Executive Vice President has power to hire and fire the General Manager and Department Managers, to establish their salaries and bonuses, as well as to appoint the members of the Executive Committee. The Executive Committee, in turn, controls, inter alia, the corporation's planning and annual budgeting; the determination of power rates under the provisions in the concession; the exchanges of power in bulk; the award of contracts; all staff and labor responsibilities, including hiring and firing, wages and salaries and labor relations. The by-laws contain provisions on compensation to the members of the Executive Committee which should ensure that executives of the necessary high standing and caliber will be attracted to the principal positions in the Corporation.

The Concession

20. The Government has prepared a new concession for SEGBA, which would come into force before the proposed loan is made effective. Executive decrees have been signed by the President of the Republic transferring to SEGBA the ownership of the GBA Station and of the facilities now operated by AyEE. The Government would receive SEGBA shares in exchange for these assets. Concurrently, the new concession would license SEGBA to operate indefinitely in the Federal Capital and in the surrounding twenty-eight partidos of the Province of Buenos Aires.

21. The concession specifies in detail the rules which will govern the establishment of rates. The salient features of these rules are detailed in para. 70. The Corporation will be entitled to earn 8% after taxes on the net fixed assets valuation expressed in US dollar equivalent. Rates will be revised each year and changes in labor and fuel costs will be compensated for automatically by rate adjustments.

22. The concession contains specific provisions for the event that in the future the Government may develop large power installations elsewhere in Argentina which would require the SEGBA system as part of their market. These provisions adequately protect SEGBA's corporate interest in that they establish that SEGBA will not have to pay any more than it would cost to generate the energy or power in question from its own facilities or from their expansion.

Organization and Management

23. CADE, and later SEGBA, were managed by their owner, SOFINA, through the intermediary of a non-Argentine chief executive. In recent years the department managers have been Argentines or foreigners of long residence in Argentina. They and their assistants are a group of generally well qualified and able professionals, though the impression remains that they were never really blended into a unified management group. The financial management of the company was controlled by the owners and important engineering tasks were performed by SOFINA as consultants. The events of the last decade and the gradual sale of the Company's ownership to the Government did not provide an incentive to build up a strong and numerous management staff.

24. The consolidation and reorganization of SEGBA should revitalize the Company giving it an assured future with a much larger scope of operations and with a very large program of works to be completed on an emergency basis. The general manager has resigned, but will remain on a two-year contract as advisor to the new chief executive. Under the new charter, the chief executive will be the Executive Vice President and the position has already been filled with a person who inspires great confidence in his ability to discharge the responsibility of the post competently and imaginatively.

25. All other executives and higher staff members of SEGBA will continue in the new corporation. They form a generally competent and reliable group, although small and with insufficient senior professional staff in the light of the large program of the new SEGBA. This difficulty will be alleviated, during the initial period, by the use of qualified consultants to develop and supervise the execution of the major phases of the physical work in progress. It will be necessary for the chief executive urgently to concentrate on a review of the company's organization and on the recruitment of new staff to adapt the organization to its new size and scope. He is aware of the problem and is already considering suitable steps. The transition to a more complete management structure may be expected to take place reasonably quickly and without hindrance to the carrying out of the program.

26. Because of the importance of these positions, the Bank has obtained the right of approval to the appointment of future Executive Vice Presidents and General Managers.

V. POWER MARKET

27. Capacity and energy statistics for the Buenos Aires metropolitan area are available since the beginning of the century and are shown graphically in Annex 1. The graph shows that demand developed fairly evenly during the period 1910-1940, the long term compound rate of annual increase during that period being about 7.5%, equivalent to doubling every ten years. Peak loads at significant intervals were as follows:

| | | | |
|------|--------|------|--------|
| 1910 | 52 MW | 1945 | 450 MW |
| 1920 | 104 MW | 1950 | 660 MW |
| 1930 | 260 MW | 1955 | 850 MW |
| 1940 | 440 MW | 1957 | 910 MW |
| 1945 | 450 MW | 1960 | 895 MW |

During the second world war, inability to obtain the needed fuel supplies (at times during the war wheat and other food grains were burned in the boilers) as well as serious limitations on equipment supplies resulted in a limitation of demand. The peak load in 1945 was practically the same as it had been in 1940.

28. As the war ended, the two power companies in Buenos Aires undertook to expand their facilities and new units were commissioned between 1948 and 1952. This made it possible for load to resume its growth, and, between 1945 and 1955, the trend was much like the prewar period. However, no further capacity additions were authorized after those commissioned in 1952. The peak load of about 900 MW reached in 1957 corresponded to the maximum capability of the system (distribution as well as generation) and in the four years since then demand has been limited by the availability of generating capacity, which includes some units more than forty years old.

29. The resulting power shortage is not easily estimated. Considerable work was done in this respect when carrying out the Argentine Power Study, the year of reference then being 1958. With some updating, the situation in the Buenos Aires area by the end of 1960 could be summarized as follows:

- a. 150 MW were estimated to be needed for the voltage and frequency of service to return to normal.
- b. 55 MW was the peak load reduction corresponding to restrictions in force.
- c. The accumulation of unsatisfied applications for connection amounted to between 50 and 100 MW.
- d. There was an accumulation of customer owned captive plant. Though it was difficult to estimate its total capacity, and even more the degree of its utilization, its order of magnitude is probably close to 500 MW. Most of the demand met by this plant would and should return to public utility supply when normal service is restored.

In summary, the shortage at the end of 1960 amounted to a net deficit of 250 to 300 MW, in addition to the captive plant problem. As the peak load in 1960 was just under 900 MW, the point of departure in forecasting load growth thereafter becomes about 1200 MW.

30. In the last decade there has been a considerable change in the relative importance of the different categories of consumers. As shown in the table, there has been a large increase in the importance of domestic consumption balanced by the decreasing trend in the industrial supplies taken from public utility services:

| | Energy Consumption by Classes of Consumers | | |
|--|--|------|------|
| | % of total sales | | |
| | 1950 | 1957 | 1960 |
| Domestic | 26.5 | 34.8 | 37.7 |
| Commercial | 11.0 | 10.4 | 10.7 |
| Industrial | 37.8 | 34.8 | 27.5 |
| Governmental (lighting, traction water supply, etc.) | 24.7 | 20.0 | 24.1 |

The emphasis on domestic supplies has also influenced the form of the load diagram and consequently the load factor, as well as the time of the peak. The annual load factor during the last few years has been averaging about 51%. A return to normal service, with an increasingly important industrial load, should gradually correct these deformations and improve the system load factor.

31. The generating capacity available to supply the Greater Buenos Aires area during the last three or four years is detailed in Annex 2 and amounted globally to about 900 MW. All facilities have been overloaded at the time of the peak during that period, and voltage on distribution cables and lines has been well below nominal. In some sections the voltage drop has been as high as 40%.

32. The additions of generating capacity which are taking place or have been scheduled are:

- a. Unit No. 7 in SEGBA's Puerto Nuevo station, was commissioned in June 1961. Its capacity is 140 MW. Its commissioning enabled the system to record a peak load of 1061 MW in recent months.
- b. Unit No. 8 in SEGBA's Puerto Nuevo station, with a capacity of 194 MW, scheduled for commissioning at the end of 1963 and unit No. 9, also 194 MW, scheduled for 1967.
- c. The five 120 MW units in the GBA Station, which will probably be commissioned at three-monthly intervals between mid-1963 and mid-1964.
- d. One 110 MW and one 180-200 MW units in CIAE's Nuevo Puerto Station, respectively scheduled for commissioning by mid-1964 and mid-1966.

33. Annex 2 shows detailed statistics for 1958, 1959 and 1960, as well as SEGBA's forecast for the period up to 1967, which shows a combined peak demand on the SEGBA and CIAE systems for that year of 1613 MW. The forecast does not allow for retiring any old plant or for any of the auto-generative load to revert to public utility supply. It is based on a slow load growth on SEGBA's system and an even slower growth on CIAE's system. By contrast, if a growth rate of 7.5% per year is applied to the 1960 base of 1200 MW (see para. 29), the peak load in 1967 would reach 1970 MW, with energy sales of 8770 million kwh if the annual sales load factor remained unchanged at 51%.

34. If SEGBA's forecasts were essentially correct, by 1964 the system could operate with reasonably comfortable capacity reserves and satisfy any new demand for power. As the Greater Buenos Aires system is part of a larger system (the Litoral) spanning from Santa Fe to the southern part of the Province of Buenos Aires, capacity surpluses, if any, would be absorbed in the form of exports of power from the GBA area. More probably, the current expansion program, if carried out in time, would make it possible to meet GBA area demand while leaving very little capacity, if any, to meet reserve requirements. As the current program taxes both financial and physical capabilities to the limit, the possibility of further capacity additions cannot reasonably be considered until the present program will have been carried out.

35. SEGBA's forecast of its own system peak load and sales (excluding CIAE) is shown in the following table and has been used in preparing financial forecasts for this report. The extent to which the sales figures are probably understated introduces an element of conservatism in the forecast financial results.

| | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> | <u>1967</u> |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Peak load MW | 870 | 1076 | 1178 | 1242 | 1303 | 1361 |
| Annual sales mill.kwh | 3750 | 4100 | 4500 | 4780 | 5060 | 5340 |

VI. THE PROJECT

36. The Project for which a Bank loan is proposed consists of the GBA Station, the 132 kv ring and substations, and the expansion of the distribution system to be carried out during the years 1962, 1963 and 1964.

GBA Station

37. The GBA Station, located on reclaimed land on the shore of the Rio de la Plata close to the main Buenos Aires port area (see Map), will have an installed capacity of 600 MW. It is designed as a unit system plant with five reheat units rated at 120 MW each. The plant was originally designed to burn coal, fuel oil and gas but the design has since been

modified to oil and gas burning only. Steam conditions are 1800 psig - 1050°F - 1000°F. Station output, generated at 13.8 kv, will be stepped up to 132 kv in a substation adjacent to the plant.

38. Preliminary planning of the GBA Station was done by AyEE and bids for the station and for the 132 kv interconnection ring were invited in 1957. Offers were to include financing. The only offer which met the various conditions set by AyEE was submitted by a consortium of British firms and contracts were let in April 1958. The contracts were on a turn key basis and involved a partnership of British Thompson & Houston - International Combustion Limited for the GBA Station, Metropolitan Vickers for the 132 kv substation with Pirelli and Siemens to supply the 132 kv cable. The credits extended by the various manufacturers were coordinated and supplemented by Baring Brothers who are acting as financing agents. Sir William Halcrow and Partners and Merz & McLellan were retained by the Partnership as consulting engineers.

39. The original contract price for the GBA Station (after making allowance for later specification changes involved in the elimination of the coal burning equipment) was £24,587,100 plus M\$N1,382 million. At the rate of exchange then prevailing of M\$N40 to US\$1, the total contract price (net of financing costs) was equivalent to approximately \$103 million. The contract provided for commissioning of the five units to begin in January 1961 and be completed in January 1962.

40. The poor choice of site and the insufficient consideration given to foundation conditions soon resulted in a considerable increase in the amount of work and resulting cost of the civil works. Progress was also delayed by AyEE's difficulty in obtaining funds and by poor job administration with the result that the station is now two to two and one half years behind schedule. The status of the work at the present time can be summarized as follows:

- Civil Works: general power plant foundations completed; unit block foundations in place for two units; pump house and cooling water culverts about 50% progress; power station building about 20% progress; sea wall and reclamation area for fuel tanks just recently started after long delay in awarding contracts. The last item is still critical for initial commissioning in 1963.
- Mechanical and electrical erection: boiler erection for two units well under way, main boiler support steel for two more in place with drums hoisted; low pressure end of one turbine in place; erection of outdoor substation steel structures almost completed.

One major obstacle to rapid progress in erection will be the fact that about half the equipment for the plant has arrived at the site during the last two years and has been stored outdoors at random without inspecting, classifying or protecting it. There are at present about 35,000 crates in the storage area. This situation results from a peculiar arrangement in the contract whereby AyEE took delivery of the equipment on board ship

in Great Britain, shipped it and received it at its own responsibility, later re-delivered it to the contractors at the site for erection. Sorting and reclaiming stored equipment may involve substantial costs as well as protracted legal arguments among AyEE, the Partnership and the insurance companies about responsibility.

41. The takeover by SEGBA of the GBA Station is proposed to be effective as of the date of the proposed Bank loan. Negotiations are in progress to amend the consulting engineers contracts so as to make them responsible directly to SEGBA. The Partnership has until recently prevented the consultants from working informally with SEGBA in considering the rescheduling of work. Pending a detailed study of all problems which will be initiated as soon as SEGBA is formally in control, the present tentative schedule is for the first unit to be commissioned in June 1963 and for the others to follow at three month intervals.

42. The following table summarizes the present cost estimates of the GBA Station:

GBA Station Cost Estimates
(All figures Mill.US\$ equiv.)

| | <u>Cost to Date</u> | | | <u>Cost to Complete</u> | | | <u>Total</u> | | |
|---------------------------------|------------------------------|--------------|--------------|----------------------------|--------------|--------------|----------------|--------------|--------------|
| | <u>Work done to 12/31/61</u> | | | <u>Starting Jan.1,1962</u> | | | | | |
| | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> |
| Site preparation | 0.03 | 2.30 | 2.33 | 1.65 | 4.45 | 6.10 | 1.68 | 6.75 | 8.43 |
| Foundations and structures | 3.08 | 14.52 | 17.60 | 1.86 | 12.90 | 14.76 | 4.94 | 27.42 | 32.36 |
| Boilers and auxiliaries | 2.98 | 0.60 | 3.58 | 23.27 | 5.31 | 28.58 | 26.25 | 5.91 | 32.16 |
| Turbogenerators and auxiliaries | 1.10 | 0.10 | 1.20 | 21.93 | 3.04 | 24.97 | 23.03 | 3.14 | 26.17 |
| Accessory Installation | 0.80 | 0.07 | 0.87 | 8.05 | 4.05 | 12.10 | 8.85 | 4.12 | 12.97 |
| 132 kv sub-station | 1.76 | 0.24 | 2.00 | 0.35 | 0.15 | 0.50 | 2.11 | 0.39 | 2.50 |
| Spares | - | - | - | 3.12 | - | 3.12 | 3.12 | - | 3.12 |
| Engineering | 0.46 | - | 0.46 | 1.14 | 0.02 | 1.16 | 1.60 | 0.02 | 1.62 |
| Overhead | - | 3.01 | 3.01 | - | 1.81 | 1.81 | - | 4.82 | 4.82 |
| Shipping Costs | - | 0.55 | 0.55 | - | 4.88 | 4.88 | - | 5.43 | 5.43 |
| Contingencies | - | - | - | 1.47 | 8.00 | 9.47 | 1.47 | 8.00 | 9.47 |
| Subtotal | 10.21 | 21.39 | 31.60 | 62.84 | 44.61 | 107.45 | 73.05 | 66.00 | 139.05 |
| Interest during Construction | 1.7 | 0.54 | 2.24 | 2.83 | 3.41 | 6.24 | 4.53 | 3.95 | 8.48 |
| Total | 11.91 | 21.93 | 33.84 | 65.67 | 48.02 | 113.69 | 77.58 | 69.95 | 147.53 |

Notes:

- Costs to date in foreign currency are the equivalent in US dollars of equipment actually installed, including escalation as accrued to date. In addition to the amount shown of \$11.91 million equivalent, equipment valued at about \$35 million equivalent has arrived on site and is shown in the estimate of cost to complete.
- Costs to date in local currency are the total of Argentine pesos spent to date, converted into US dollar equivalent at the current rate of 83. All other local costs have also been translated into dollars at the same rate.
- Costs to complete in foreign currency show the value of the balance of equipment still to be erected. The contingency allocation allows for the maximum escalation which may be charged under the contractual 15% ceiling, having regard to escalation accruals to date and to the rate of progress in manufacture.
- Costs to complete in local currency are computed from physical work to be performed at original contract prices adjusted according to contract provisions for labor rates and applicable costs prevailing in November 1961. They include the round of 20-30% wage and salary increases which took place during the past two to three months. The average multiplier from original contract prices has been found to be around three. The contingency allocation against future wage and price increases was calculated by assuming that a 20% increase would occur every year by mid-year beginning with mid-1962. There are practically no physical contingencies remaining.

43. The total equivalent cost of \$147.5 million US (\$246 per kw) including contingencies and interest during construction reflects the limited degree of competition obtained by seeking a manufacturers' credit arrangement, the high cost of site preparation, the inefficient manner in which construction has been pursued thus far, the assumptions made in calculating contingencies and the changes in the value of local currency.

132 kv Interconnection

44. During the mid-1950's AyEE was planning its activities in the Buenos Aires area on the basis of two main assumptions:

- that it would before long take over utility service in the metropolitan area;
- that large hydroelectric installations would soon be built in the interior to supply the Buenos Aires area.

On the basis of these assumptions, AyEE, with the cooperation of equipment manufacturers, engineered a plan for building a 132 kv ring around Buenos Aires which would receive supplies from the interior as well as from local

generating facilities, and from which supplies would be given to substations at 132/13.2 kv to be built in the metropolitan area. The transformers, switchgear, cables and civil works for the implementation of the plan were included in the contracts awarded in April 1958 in connection with the "Dock Sud package". No arrangements were made, however, for 13.2 kv distribution facilities.

45. When undertaking the execution of the Argentine Power Study, it was decided that the importance of this program and its conflicts with the reasonable expansion of distribution facilities in the metropolitan area warranted a special study of the situation. The study was carried out and its conclusions can be summarized as follows:

- a. The immediate construction of a 132 kv ring around the metropolitan area which would interconnect all local generating facilities was desirable.
- b. It would be a serious and costly mistake to superimpose a new 13 kv distribution system on those already in existence in the Capital District; and the 132/13.2 kv substations in the plan would make a very small contribution toward expanding distribution capacity as AyEE was only planning to use them for supplying new consumers.
- c. There would not be a need for some years to build 132 kv substations in the Capital District as the existing 27.5 kv cables could carry a much greater load once they were supplied from both ends after the establishment of the 132 kv ring.
- d. The equipment already on order could be modified, if decision were taken fairly rapidly, so it could be employed much more usefully in implementing a new plan compatible with existing facilities and capable of providing the necessary distribution expansion at the lowest cost. The outline of the new plan was included in the report.

46. The Government accepted the principles of the recommendations. The proposed new plan was modified to some extent by a compromise agreement acceptable to both AyEE and SEGBA, which was reached in September 1960. The main modification consisted in advancing by two or three years the construction of the first three 132 kv substations in the Capital District. Changes in equipment specifications were accepted by the manufacturers and the modified plan of September 1960 represents the present program. While it is a reasonable program, the facts that none of the part which was controversial has yet been physically implemented and that the artificial separation of the distribution system between AyEE and SEGBA is now to be eliminated warrant a detailed review by the new SEGBA to ensure the realization of any possible savings. The management of the new SEGBA share this view and consultants are going to be retained to review this matter as well as the overall planning and design of expansion of distribution facilities at 27, 13 and 6 kv.

47. The physical layout of the 132 kv system scheduled for execution by the end of 1964 is shown in the Map. The interconnection program involves laying 675 km of single phase cable at 132 kv and the construction of seven substations (three of these in the Capital District) aggregating 1040 MVA of transformer capacity. Detailed cost estimates are shown in Annex 3. The quality of these estimates and the manner in which they have been revised are the same as stated for the GBA Station. The following is a summary of the estimates, broken down by year:

132 kv Interconnection
Summary Cost Estimates
(all figures in million US\$)

| | <u>Cables</u> | | | <u>Substations</u> | | | <u>Total</u> | | |
|-------------|----------------|--------------|--------------|--------------------|--------------|--------------|----------------|--------------|--------------|
| | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> |
| to end 1961 | 1.02 | 0.81 | 1.83 | 2.93 | 2.31 | 5.24 | 3.95 | 3.12 | 7.07 |
| 1962 | 5.73 | 12.87 | 18.6 | 7.33 | 6.17 | 13.5 | 13.06 | 19.04 | 32.1 |
| 1963 | 1.99 | 11.84 | 13.83 | 5.32 | 4.11 | 9.43 | 7.31 | 15.95 | 23.26 |
| 1964 | 0.09 | 1.38 | 1.47 | 0.94 | 0.36 | 1.3 | 1.03 | 1.74 | 2.77 |
| Total 62-64 | 7.81 | 26.09 | 33.90 | 13.59 | 10.64 | 24.23 | 21.40 | 36.73 | 58.13 |
| Grand Total | 8.83 | 26.90 | 35.73 | 16.52 | 12.95 | 29.47 | 25.35 | 39.85 | 65.20 |

The interconnection plan includes a new 132 kv cable connection Dock Sud - La Plata, costing about \$10 million equivalent, which formed part of SEGBA's own previous program rather than AyEE's.

Distribution System Expansion

48. The SEGBA distribution system (including the area of the Fourteen Partidos) will consist of a primary network at 27.5 kv, secondary networks at 6.5 kv in the Capital District and Avellaneda Municipality, and at 13.2 kv in the other 27 municipalities, and a low voltage network at 380-220 V. The size and capacity of the distribution system at the end of 1960 can be summarized as follows:

| | |
|--------------------------------|----------|
| 27 kv cables | 950 km |
| Primary transformer capacity | 1100 MVA |
| 13.2 and 6.5 kv cables | 3000 km |
| 13.2 and 6.5 kv overhead lines | 560 km |
| Secondary transformer capacity | 970 MVA |
| Low voltage cables | 8700 km |
| Low voltage overhead lines | 17000 km |

30,320

30,264

The distribution system is saturated and in many sections overloaded at the time of peak. There is in addition the CIAE distribution system, which covers a relatively small portion of SEGBA's general area of supply, has a peak demand of about 200 MW and is even more overloaded than SEGBA's system.

49. SEGBA's program for distribution system expansion is the resultant of separate programs committed at various times partly as a result of agreements between SOFINA and the Government on the partial reinvestment of the Government's payments for shares. Thus there have been a "First SEGBA Program" committed in 1958, a "Second SEGBA Program" committed in 1959 and a "Third SEGBA Program" committed in 1960. There is now in addition a program for expanding the distribution system in the Fourteen Partidos, which SEGBA will take over early in 1962. Having regard to the scheduling of these various programs, the overall distribution system expansion work to be carried out during the period 1962-1964 consists of the following principal additions:

| | |
|---------------------------------------|----------|
| Primary transformer capacity | 340 MVA |
| Secondary transformer capacity | 500 MVA |
| 27 kv cables | 73 km |
| 13.2 cables and overhead lines | 470 km |
| 6.5 kv cables | 175 km |
| Low voltage cables and overhead lines | 4,000 km |
| Meters | 350,000 |
| New connections | 270,000 |
| Public lights | 11,200 |
| Lines for Public Lighting | 600 km |

50. The distribution expansion program has only been planned in detail for the part to be executed during the next few months. In the short time since the decision to return the Fourteen Partidos distribution system to the reorganized SEGBA it has not been possible to review in detail plans for the expansion of the system as a whole. The order of magnitude of the proposed distribution expansion, however, is a reasonable minimum to serve the load estimated for 1965. The present organization in SEGBA is inadequate to engineer and execute the expansion in view of its concentration in time and outside technical services will be needed. This being so, it seems reasonable that consulting engineers be retained as soon as possible and that they would form an integrated group with SEGBA's own personnel to review the overall requirements, establish modern and efficient standards as well as work priorities, and then process the detailed engineering and supervision of execution of the work. The management of the new SEGBA shares these views and is taking steps to select suitable consultants.

51. The estimates of cost of SEGBA's distribution expansion can be summarized as follows:

Distribution Program Cost Estimates

All figures in Mill.US\$ equivalent

| | <u>1962</u> | | | <u>1963</u> | | | <u>1964</u> | | | <u>Total</u> | | |
|-------------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|
| | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> |
| 1st SEGBA Program | 0.65 | 5.68 | 6.33 | 1.67 | 8.42 | 10.09 | | | | 2.32 | 14.10 | 16.42 |
| 2nd SEGBA Program | 1.18 | 7.90 | 9.08 | 3.58 | 14.53 | 18.11 | 2.23 | 9.88 | 12.11 | 6.99 | 32.31 | 39.30 |
| 3rd SEGBA Program | | | | | | | 2.59 | 15.22 | 17.81 | 2.59 | 15.22 | 17.81 |
| Fourteen Partidos | 2.33 | 5.02 | 7.35 | 4.28 | 8.32 | 12.60 | 4.86 | 9.43 | 14.29 | 11.47 | 22.77 | 34.24 |
| <hr/> | | | | | | | | | | | | |
| Total | 4.16 | 18.60 | 22.76 | 9.53 | 31.27 | 40.80 | 9.68 | 34.53 | 44.21 | 23.37 | 84.40 | 107.77 |
| <hr/> | | | | | | | | | | | | |
| Engineering | 0.40 | | 0.40 | 0.40 | | 0.40 | 0.20 | | 0.20 | 1.00 | | 1.00 |
| Contingencies | — | 1.00 | 1.00 | — | 6.50 | 6.50 | — | 13.00 | 13.00 | | 20.50 | 20.50 |
| <hr/> | | | | | | | | | | | | |
| Grand Total | 4.56 | 19.60 | 24.16 | 9.93 | 37.77 | 47.70 | 9.88 | 47.53 | 57.41 | 24.37 | 104.90 | 129.27 |

31.27

34.53

52. As most of the equipment required for distribution system expansion can be manufactured in Argentina, the program until recently was based on domestic procurement except for about \$5 million of special imports. The high cost of Argentine equipment, and the protective surcharges imposed on corresponding imports, resulted in a substantially higher cost for the distribution expansion program (about \$140 million equivalent instead of the \$129 million shown). The Bank's willingness to make a part of the proposed loan available to finance imports has induced the Government to consider exempting SEGBA from the payment of surcharges on imported equipment corresponding to the excess procurement required for the new total distribution expansion program over the level of actual SEGBA procurement during the past three years. As a result, the foreign exchange costs of the distribution program are now estimated to increase to about US\$25 million equivalent.1/

53. Confirmation of the Government's agreement to the stated procurement policy should be obtained during negotiations.

54. The estimated cost of the distribution program is based on end-1961 price and wage levels. Contingencies have been calculated to offset assumed changes in labor costs on the same basis as for the GBA Station. No contingency allocations have been made to allow for changes in the cost of equipment. To the extent that overall increases in the cost of the program may exceed the funds available, a rescheduling of lower priority components of the program might become necessary in the future.

55. Annex 4 shows, in tabular form and with year by year breakdown, the combined overall estimate of cost of SEGBA's 1962-1964 program.

VII. FINANCIAL ASPECTS

Present Financial Position

56. The initial balance sheet of the new SEGBA, reflecting the proposed consolidation, will not be available until sometime in the first half of 1962, after all legal and financial arrangements covering the reorganization of SEGBA have been concluded and the value of the assets taken over from AyEE has been determined. In order to appraise the financial position of SEGBA, however, an estimated consolidated opening balance sheet has been prepared using the notional date of January 1, 1962. This is shown in Annex 5 along with the estimated balance sheet of the existing SEGBA, as of the same date, and the estimated assets and liabilities to be taken over from AyEE in connection with the transfer to SEGBA of the GBA Station, 132 kv interconnection and of the distribution in the Fourteen Partidos.

1/ The remaining \$10 million foreign exchange component in the Bank loan for the Project is for engineering costs, shipping and insurance costs, and interest during construction on Bank funds.

SEGBA

57. SEGBA has been in operation for only three years, since October 1958, when it was formed as successor to CADE and CEP, two private utility companies owned by SOFINA and operating in the Greater Buenos Aires area. The agreement under which SEGBA was established had two important consequences: the first was the acquisition of the Fourteen Partidos' distribution system by the Government; the second was the recapitalization of the company, following a revaluation (tied to a cost of living index) of the assets of the previous companies.

58. Equity: Two classes of stock were created for a total of about M\$N11,542 million: "A" shares - entitled to an optional non-cumulative 8% dividend on par value - were issued to the Government for M\$N3,195 million, as a compromise settlement for various claims for loans and credits less the purchase value of the distribution properties in the Fourteen Partidos - and for Government rights to a reversion reserve under the original CADE concessions; "B" shares - earning an 8% cumulative dividend on par value were issued for M\$N8,347 million to the private shareholders represented by SODEC. These shares were to be purchased by the Government - and exchanged for "A" shares - in ten equal annual installments. The two first series were accordingly purchased in 1960 and 1961.

59. As part of the present plan the Government in October 1961 exercised its right under the original contract to accelerate the purchase of the "B" shares and to tender Government bonds rather than cash. The eight series of shares still outstanding, which, on the basis of the dollar value clause in the contract, represented a total of about \$109 million, were then exchanged for 6-1/2% bonds of the Argentine public debt issued at 95% of par, or for a total of \$114.83 million. These eight series of "B" shares plus the two series previously acquired will form part of the equity of the reorganized SEGBA. They will be exchanged for new stock to be issued to the Industrial Bank and consisting, in a 40/60 ratio, of 5% cumulative preferred shares, and of common bearer shares. The common shares are to be gradually sold to the public as market conditions permit. The original "A" shares will be cancelled and most of the corresponding value will be transferred to SEGBA's depreciation reserve, the balance to a capital reserve.

60. Debt: As of December 31, 1961 and before consolidation, SEGBA's debt would total about M\$N2,269 million consisting of the following:

| | M\$N (in millions) | \$ equiv. |
|--------------------------------------|-----------------------|-------------|
| Eximbank, 5-3/4% 1959-1968 term loan | 290 | 3.5 |
| Westinghouse credits, 6%, 1960-1965 | 614 | 7.4 |
| Other credits, 6%, 1960-1965 | 40 | 0.5 |
| SEGBA/SODEC debentures | | |
| Series 1, 6% 1960-1970 | 495 | 6.0 |
| Series 2 & 3, 8% 1961-1971 | 830 | 10.0 |
| | <u>2,269</u> | <u>27.4</u> |

The Eximbank loan, the Westinghouse and other suppliers credits helped finance Unit No. 7 at Puerto Nuevo. In addition a new Eximbank loan of \$13.2 million, at 5.7% interest and for a term of 15 years including three years grace, has been signed for the financing of Unit No. 8. Under the 1958 agreement, the former shareholders represented by SODEC agreed to reinvest certain proceeds of the annual redemption of "B" shares into SEGBA's expansion. Debentures repayable by equal installments over 10 years were issued to SODEC in three series totalling M\$N1,380 million of which M\$N1,325 million are still outstanding. They carry the Government guarantee and a dollar value clause. A fourth series of M\$N170 million will be issued in 1962. SODEC has further committed itself to make two three-year loans, of \$5 million and \$10 million respectively, in 1962 and 1963.

Fourteen Partidos

61. Separate financial data have not been available on the distribution system in the Fourteen Partidos since acquired three years ago and amalgamated with AyEE's other properties. It is assumed for the purpose of the initial SEGBA balance sheet that these properties would be re-acquired by SEGBA at the original sales price adjusted for net additions to plant and for normal depreciation charges. Against an estimated net value of M\$N2,341 million, shares of the reorganized SEGBA will be issued at par to the Industrial Bank in the indicated 40/60 ratio of preferred and common.

GBA Station and 132 kv Interconnection

62. Equity: New SEGBA shares will similarly be issued at par and deposited with the Industrial Bank in exchange for the Government's investment in the GBA Station and 132 kv interconnection. On the basis of the information presently available, this will amount to about M\$N4,694 million, of which M\$N2,035 million represents local currency, freight and insurance expenditure already incurred, M\$N2,386 million represents payments already made on foreign suppliers credits, and M\$N273 million is for capitalized interest and other financial charges.

63. Debt: The debt to be assumed by SEGBA in connection with the take over of the GBA Station and 132 kv interconnection will consist of three contracts between AyEE and respectively: (a) the BTH-ICL Partnership, of January 23, 1958, for power station equipment at an original price of £24.587 million; (b) Metropolitan Vickers, of April 2, 1958 for the 132 kv substation equipment at an original price of £3.874 million; and (c) the Pirelli-Siemens etc. partnership, of December 18, 1959 for the cable needed for the 132 kv ring at an original price of M\$N445 million for local supplies and \$6.20 million equivalent for foreign supplies. Down payments were made on the signatory dates of the three contracts. Promissory notes with respect to the BTH-ICL and Metrovick contracts were issued by AyEE and guaranteed by the Industrial Bank. These are payable to the suppliers. They are deposited with Baring Brothers, London, the banking syndicate representative. Baring Brothers, holds the notes and receives the payments from AyEE as they become due. It finances the suppliers for the difference between the cumulative payments received from AyEE and the cumulative amounts of invoices for goods delivered and services supplied.

64. It is estimated that by December 31, 1961, deliveries of equipment will amount to M\$N4,638 million, exceeding the payments of M\$N2,386 million already made by AyEE to the suppliers by M\$N2,252 million equivalent. This amount, which represents the outstanding debt to the suppliers, will consist of the following:

| <u>Suppliers' credits outstanding</u> | <u>M\$N</u> (in millions) | <u>US\$ equiv.</u> |
|---------------------------------------|------------------------------|--------------------|
| BTH-ICL Credits | 1,813 | 21.84 |
| Metropolitan Vickers Credits | 447 | 5.39 |
| Pirelli etc. Credits* | (8) | - |
| | <u>2,252</u> | <u>27.23</u> |

* Payments made under this contract would still slightly exceed deliveries, a situation which is about to change.

The original BTH-ICL and Metropolitan Vickers contracts provide for repayments through 1967. The next payment of £1.95 million (\$5.46 million equivalent) is due January 23, 1962. The total payments due for the three year period through December 31, 1964, during which the project will be completed, amount to about £11.8 million (\$33 million equivalent).

65. Meetings were held in London in July 1961 between representatives of the Argentine Government, the Bank of England, the Banking syndicate and the suppliers, to discuss the possibility of stretching out these credits, the early repayment of which would constitute a serious financial burden on the reorganized SEGBA. As a result, the Banking syndicate agreed, subject to the Bank making a loan to SEGBA, to postpone the ten payments due January 23, 1962 through April 1964. The postponed payments would be added at the end of the original schedule which would then extend to July 1969. In this connection, interest rates were increased from $3\frac{1}{4}\%$ above Bank of England rate, minimum $4\frac{1}{2}\%$, to 1% above Bank of England rate, minimum 5%, applying to all financing except for 10% of the newly extended notes, on which a rate of $7\frac{1}{2}\%$ would apply. At present the discount rate of the Bank of England is 6%. An additional charge of £620,000, still under negotiation, may be added for credit insurance to be provided by the Export Credit Guaranty Department, an agency of the British Government. Arrangements have been made with the British to make the stretch out effective simultaneously with the signature of the proposed Bank loan. No stretching out is anticipated for the smaller Pirelli-Siemens etc. credit, which provides for repayments through 1967 and carries interest at about 6%.

Consolidated Capitalization of SEGBA

66. The estimated consolidated capitalization of SEGBA on the notional starting date of January 1, 1962 is summarized below:

| | M\$N (in millions) | \$ equiv. |
|---|-----------------------|-----------|
| <u>Capital and Surplus</u> | | |
| 5% Government preferred | 6,153 | 74.13 |
| Common | 9,229 | 111.19 |
| Share capital | 15,382 | 185.32 |
| Capital surplus and legal reserve | 1,108 | 13.35 |
| | 16,490 | 198.67 |
| <u>Long term debt and suppliers credits</u> | | |
| Eximbank | 290 | 3.50 |
| Westinghouse & other credits | 654 | 7.88 |
| SODEC debentures | 1,325 | 15.96 |
| BTH-ICL credits | 1,813 | 21.84 |
| Metropolitan Vickers credits | 447 | 5.39 |
| | 4,529 | 54.57 |
| Total Capitalization | 21,019 | 253.24 |

Due to the small amount of debt in the existing SEGBA capital structure and the fact that the properties to be transferred from AyEE will be compensated for largely by common and preferred stock the initial debt ratio, of 22%, would leave considerable room for new borrowing.

Consolidated Assets

67. As of January 1, 1962, gross fixed assets in operation would amount to M\$N20,236 million of which M\$N16,880 million from the existing SEGBA, and M\$N3,356 million from the distribution facilities in the Fourteen Partidos. Depreciation reserves would total M\$N7,484 million, including most of the value of cancelled "A" shares. The net book value of fixed assets in operation would thus be M\$N12,752 million. These values are original values corrected in relation to variations of the Argentine cost of living index up to October 1958 when the agreement setting up SEGBA was executed. Since that time the cost of living index has increased almost 300% while the free exchange rate of the dollar increased 35%. There are no plans at present to correct the understated value of assets for balance sheet purposes. As will be seen in paragraph 70 below, however, the proposed new SEGBA concession provides for a revaluation of assets tied to the dollar to be used in determining rates. Consolidated work in progress would amount to M\$N7,778 million, consisting mostly of expenditure made and equipment received in connection with the GBA Station and 132 kv interconnection.

68. Current assets less current liabilities and provisions would be about M\$N1,076 million. Included in current assets are about M\$N1,566 million worth of inventories, part of which are construction inventories. Thus, current liabilities and provisions exceed current assets excluding inventories. As will be seen in paragraph 75 below, provision has been made in the proposed financing plan to gradually build up a suitable working capital.

Tariffs

69. SEGBA's tariffs are presently regulated by the 1958 agreement. New regulations have been prepared, as part of the concession of the reorganized

SEGBA which will come into force before effectiveness of the proposed loan. Both the existing and proposed regulations are in accordance with the very general tariff principles contained in the recent National Electric Energy Law No. 15,336 of September 20, 1960.

Existing Agreement: Under the 1958 agreement, tariffs have to generate revenues sufficient to cover: (a) operating expenses; (b) interest and amortization of loans; (c) depreciation of assets financed from sources other than loan funds; (d) a cumulative 8% dividend on the par value of privately-owned "B" shares; and (e) a dividend of 8% on the par value of Government-owned "A" shares, including those issued for the "B" shares acquired by the Government. In the three year period since these regulations were made effective, cumulative dividends were paid on "B" shares as scheduled. The Government, however, waived its right to dividends on "A" shares and rates were not adjusted to include provision for their payment. On November 30, 1961, SEGBA submitted its application to the Government for the 1962 tariff still based on the 1958 regulations. This application, which does not take into account the proposed reorganization of SEGBA, would result in a 15% increase of its average revenue per kwh from M\$N2.70 in 1961 to M\$N3.10 in 1962. The new tariff schedule may be summarized as follows:

| No. | Tariff | Millions of kwh sales | M\$N/kwh | US¢ equiv. per kwh |
|-----|--|--------------------------|----------|-----------------------|
| 1 | Residential | 1,024 | 2.97 | 3.6 |
| 2 | Industrial and commercial | 591 | 4.38 | 5.3 |
| 3a | Public lighting, incl. facilities | 16 | 3.71 | 4.5 |
| 3b | Public lighting, for power alone | 33 | 2.20 | 2.7 |
| 4 | Government, provincial, municipal | 108 | 3.12 | 3.7 |
| 5 | Large consumers, excl. traction & water supply | 573 | 2.95 | 3.6 |
| 5 | Traction & water supply | 305 | 2.00 | 2.4 |
| | Contract Sarmiento railroad | 90 | 1.15 | 1.4 |
| | | 2,740 | 3.10 | 3.7 |

This rate structure, under which industrial consumers pay more than residential consumers, has resulted from long standing power shortages and will have to be modified substantially as the supply situation returns to normal.

70. New Concession: The new concession provides for annual rate revisions and their prompt implementation. Rates should generate revenues sufficient to produce a return of 8% on the value - expressed in dollars - of net fixed assets in service at year end, and on a notional value of working capital equal to 5% of the revised value of net fixed assets in service. This is after covering all operating expenses, taxes and adequate straightline depreciation computed on the value - also expressed in dollars - of gross fixed assets in service at year end. In addition, changes arising in labor and fuel costs between the annual revisions will be automatically compensated for by rate adjustments. Furthermore, if changes in economic circumstances, such as reductions in sales, a change in the dollar exchange rate etc., could be expected to result in revenues insufficient to cover all expenses and achieve the permitted return, SEGBA could adjust proportionally its tariffs after informing

the Secretaria de Estado de Energia y Combustibles (SEEC), the Government department in charge of supervising power tariffs. To determine the tariff base, SEGBA shall maintain two accounts valued in dollars, one of the gross fixed assets in service, the other of the accrued depreciation. Additions to gross fixed assets will be translated into dollars at the average free exchange rate in effect during the year in which the assets are put in service. It is estimated that depreciation charges would amount to 3% of the dollar value of fixed assets. As a transitory measure, the concession will allow SEGBA to charge an additional 2% annually to compensate for insufficient provisions in the past, until such time as depreciation reserves build up to a maximum of 40% of fixed assets in service.

71. Before December 1, each year, SEGBA shall submit to the SEEC a tariff application documented with actual results for the previous year, estimates of income and expenses, profits and tariff base for the current and following year, and showing the average hourly wage and average price of fuel used in estimating labor and fuel expenses. This application will result in a proposed average tariff per kwh and a resulting tariff schedule, sufficient to generate the permitted return in the following year and to compensate for surpluses or short-falls in the earnings of the current and previous years. The new tariff will become effective with the first billing of the calendar year immediately following the application. It will be final if the SEEC has raised no objection within fifteen days of the application, or if its objections have been accepted and incorporated by SEGBA in the tariff. In case of a dispute, the tariff will be implemented provisionally while the matter is being decided upon by Executive Decree or ultimately by the competent courts to which SEGBA may appeal. Before May 31 each year SEGBA shall submit to the SEEC the final results of the previous fiscal year. Provision is made for their approval within a maximum delay - in case of a dispute - of about six months.

72. The provisions of the concession regarding power rates are sound and should help stimulate private investment in the industry. They would meet the purpose and requirements of the rate covenant in the proposed loan agreement. On the basis of the new concession, and after charging the maximum 5% depreciation permitted, the average revenue per kwh sold of the reorganized SEGBA would be about M\$N2.90 in 1962, 3.07 in 1963 and 3.02 in 1964. This is below the M\$N3.10 average revenue which would result from the 1958 agreement, primarily because of the large amortization payments due in 1962, which SEGBA is entitled to charge to revenues under the existing regulations but not under the new concession.

73. In order to generate more cash in 1962 and avoid excessive variations in rates, it has been assumed in the financial forecasts that the same average rate of M\$N3.0 per kwh sold would be charged in each of the next three years. The Government's agreement has been secured in this respect. Over the three year period earnings would be about equivalent to those permitted under a strict application of the concession.

Financing Plan

74. Annex 5 shows SEGBA's estimated balance sheets for December 31, 1961 and annually thereafter through 1967. Annex 6 shows the estimated annual income statements for 1961-1967 inclusive and Annex 7 the estimated sources and

application of funds annually for 1962-1967. For purposes of arriving at a financial plan, January 1, 1962 has been taken as a notional date of transfer to SEGBA of the GBA Station and 132 kv interconnection and of the distribution properties in the Fourteen Partidos.

75. Total requirements for the three year period ending December 31, 1964 during which both Puerto Nuevo No. 8 unit and the last unit of the GBA Station are to be commissioned, are estimated at M\$N24.213 billion or \$292 million as follows:

| | <u>M\$N</u> | <u>US\$ equiv.</u> (in millions) | <u>% of total</u> |
|-------------------------------|---------------|-------------------------------------|-------------------|
| Completion GBA Station | 6,020 | 72 | |
| Puerto Nuevo No. 8 unit | 1,539 | 19 | |
| Transmission and distribution | <u>15,010</u> | <u>181</u> | |
| | 22,569 | 272 | |
| Interest capitalized | <u>946</u> | <u>12</u> | |
| | 23,515 | 284 | |
| Increase in working capital | <u>698</u> | <u>8</u> | |
| | 24,213 | 292 | 100 |

The estimated sources of capital are as follows:

A. Internal Cash Generation

| | | | |
|-----------------------------|--------------|-----------|----|
| Net earnings after interest | 6,176 | 74 | |
| Add depreciation accruals | 6,682 | 81 | |
| Less amortization of debt | 1,660 | 20 | |
| Less cash dividends, common | <u>2,141</u> | <u>26</u> | |
| Net internal cash | 9,057 | 109 | 37 |

B. Sale of New Common

| | | |
|-------|----|---|
| 1,000 | 12 | 4 |
|-------|----|---|

C. New Borrowings

| | | | |
|-----------------------------|------------|-----------|----|
| Eximbank | 1,079 | 13 | |
| SODEC | 1,415 | 17 | |
| BTH-ICL credit | 2,320 | 28 | |
| Metropolitan Vickers credit | 562 | 7 | |
| Pirelli credits | <u>895</u> | <u>11</u> | |
| Sub-total | 6,271 | 76 | 26 |

D. Proposed IBRD loan

| | | |
|--------------|-----------|-----------|
| <u>7,885</u> | <u>95</u> | <u>33</u> |
|--------------|-----------|-----------|

| | | | |
|-------------|--------|-----|----|
| Total loans | 14,156 | 171 | 59 |
|-------------|--------|-----|----|

| | | | |
|-------------------|--------|-----|-----|
| Total all sources | 24,213 | 292 | 100 |
|-------------------|--------|-----|-----|

76. The internal cash generation - 37% - is high and results from tariffs averaging M\$N3.0 (3.6 cents US) for the three year period and straightline depreciation accruing at a rate of 5% on gross fixed assets in operation (see para. 70). It is further assumed, as provided in the charter, that dividends on the 5% preferred held by the Government will be paid in stock rather than cash in the three years through 1964, a cash saving of about M\$N924 million (\$11 million equivalent). Payment of cash dividends on preferred would start in 1965.

77. Payment of an 8% cash dividend is assumed on the common, together with a 4% stock dividend, a total of 12% per year. It is assumed that US\$6 million of new common shares can be sold per year starting in 1963 although the prospects of selling a substantial issue of stock in the Buenos Aires market at the present are nil. If this unsatisfactory market condition fails to improve, the management will have to re-examine its policy with respect to cash dividends. With the return of a capital market in Buenos Aires, not only should SEGBA be able to raise new common stock capital but the Industrial Bank also should be able to sell from time to time portions of its holdings of common for Government account.

78. The new borrowings listed above have already been arranged for. They include:

- (a) a \$13.2 million 15 year loan from Eximbank for Puerto Nuevo No. 8 unit, at 5.7% (see para. 60);
- (b) one series of 8% debentures of M\$N170 million, (\$2 million equivalent) to be issued to SODEC in 1962, due serially 1962 to 1971, and two three-year loans to be made by SODEC in 1962 and 1963, of \$5 million and \$10 million respectively, at an estimated interest rate of 7-1/2% (see para. 60);
- (c) the BTH-ICL and the Metropolitan Vickers credits, extended through October 1969; these credits now outstanding for an aggregate \$27 million equivalent would increase to a maximum in mid-1964 of \$62 million equivalent. The average life of these rescheduled credits will be about 5.2 years from the present time. Interest has been assumed at 7-1/2% (see para. 63 to 65);
- (d) the Pirelli-Siemens etc. credit, which will provide about \$11 million equivalent in the period and will be repaid by early 1967 with amortization throughout the period; interest rate is 6% (see paras. 63 and 65).

79. After taking into account all of the internal cash generation and new borrowings already arranged for, as described above, a gap would develop in SEGBA's three years financing plan which would reach \$95 million equivalent by December 31, 1964.

| | <u>\$ millions</u> |
|------|--------------------|
| 1962 | 38.5 |
| 1963 | 37.6 |
| 1964 | <u>18.9</u> |
| | 95.0 |

It is proposed that a Bank loan of \$95 million be made to finance this gap, for a term of 25 years, amortization starting in mid-1965.

80. The financing plan is sound. As shown in Annex 5, the debt ratio, of 22% as of December 31, 1961, would rise to a maximum of 45% by December 31, 1963 and thereafter decline to 44% by December 31, 1964 just prior to the start of amortization of the proposed Bank loan. Despite an assumed \$47 million loan in the three year period through 1967, by the end of 1967 the debt ratio would have further declined to 35% on account of the heavy repayments of suppliers' credits scheduled.

Estimated Future Earnings

81. Forecast income statements for the six years ending 1967 are shown in Annex 6. Earnings have been estimated on a conservative forecast of growth of sales, as mentioned previously. As also previously discussed under para. 70, operating expenses include a high straightline depreciation of 5% in the three years through 1964. Depreciation charges were assumed to decrease gradually thereafter to 3.5% in 1967 which would permit lowering industrial rates as new power is made available.

82. After payment of all expenses, depreciation and taxes, the net income before interest is based on a return of 8%. With the relatively low debt, the coverages of annual interest charges as shown in Annex 7, are very satisfactory throughout the period, ranging from a minimum of 2.8 in 1963 to a maximum of 4.0 times interest in 1967. Annual debt service will be covered by an average 3.5 times over the next three years, and by an average 2.0 times over the three following years. The high coverage of the first three years is due to extraordinary depreciation charges as explained under para. 70. The lower - but still adequate - coverage in the following three years is caused by heavy repayments of suppliers' credits.

83. Net profits available for dividends would be sufficient in each year to cover 5% on the preferred and 12% on the par value of the common and to leave a surplus which for the first three years averages about 4.8% and for the next three years about 5.2%. Thus, common stock earnings would average about 17% annually through the six years. This should help make the common stock attractive to investors.

Debt Limitation Covenant

84. In view of the size of the present program SEGBA has agreed that during the three year period through 1964 it would not contract any new debt, other than the borrowings listed in para. 75, without the prior consent of the Bank.

85. SEGBA has accepted a covenant which, starting 1965, would limit the incurrence of new debt by assets and earnings tests requiring (a) that net assets in operation (as valued and defined in the concession) plus work in progress be at least 1-1/2 times existing and proposed indebtedness, and (b) that actual net income for a recent twelve months period (factored with any rate increase in effect at the time new debt is to be incurred) be at

least 1-3/4 times the maximum interest requirements for any succeeding fiscal year on all indebtedness including the indebtedness proposed to be incurred. Both tests would permit by ample margins the borrowings necessary to provide the continued expansion of SEGBA after 1964.

Auditing Procedures

86. The by-laws of the reorganized SEGBA require its accounts to be certified by an internal auditor appointed by the shareholders. The loan agreement provides for submission to the Bank of annual reports of SEGBA's accounts prepared by independent accountants. SEGBA has employed, in the past, a firm of qualified independent accountants to audit its accounts and will do so in the future.

VIII. CONCLUSIONS AND RECOMMENDATIONS

87. The elimination of the critical power shortage in the Buenos Aires metropolitan area and the efficient provision of service in the future necessitate a consolidation and reorganization of electricity supply organizations.

88. The Pinedo Plan, which contemplates the reorganization of SEGBA and the completion by the new company of the facilities already under construction, is sound and feasible.

89. The by-laws of the new company and the concession which the Government proposes to award to it constitute a basis on which SEGBA should be able to operate soundly and restore suitable electric utility supply to the metropolitan area. The by-laws contain provisions which should enable the management to achieve and maintain the needed autonomy and independence of action. The new Chief Executive and the senior executives are able and reliable and though the management group will initially be limited in number, it will be rounded out with suitable new senior staff while the current program is carried out with substantial assistance from several consulting engineering firms.

90. The program for the addition of generating facilities and for the reorganization and expansion of the interconnection and distribution systems meets the urgent requirements of the system and arrangements are being made to ensure that its detailed engineering and implementation would be properly completed. The cost of the program reflects in some respects (GBA Station) the consequence of poor planning in the past but there are no better or less costly alternatives to it at this time.

91. The financial plan is sound. It is based on a high contribution to expansion from funds generated internally, made possible by the rate policy defined in the new concession. As a result SEGBA should be able to overcome the difficulties of the next three years and would be in a sound financial position from the outset. Net income before interest, based on a return of 8% on net fixed assets and working capital, should be about 3.2 times annual interest charges in 1964. The debt ratio should be about 44% only.

92. With the present depressed conditions of the Argentine Stock Market, the immediate prospects for the sale of shares of the new company to the public are nil. The earnings prospects of the common shares, however, should make them an attractive investment as soon as the market becomes active again.

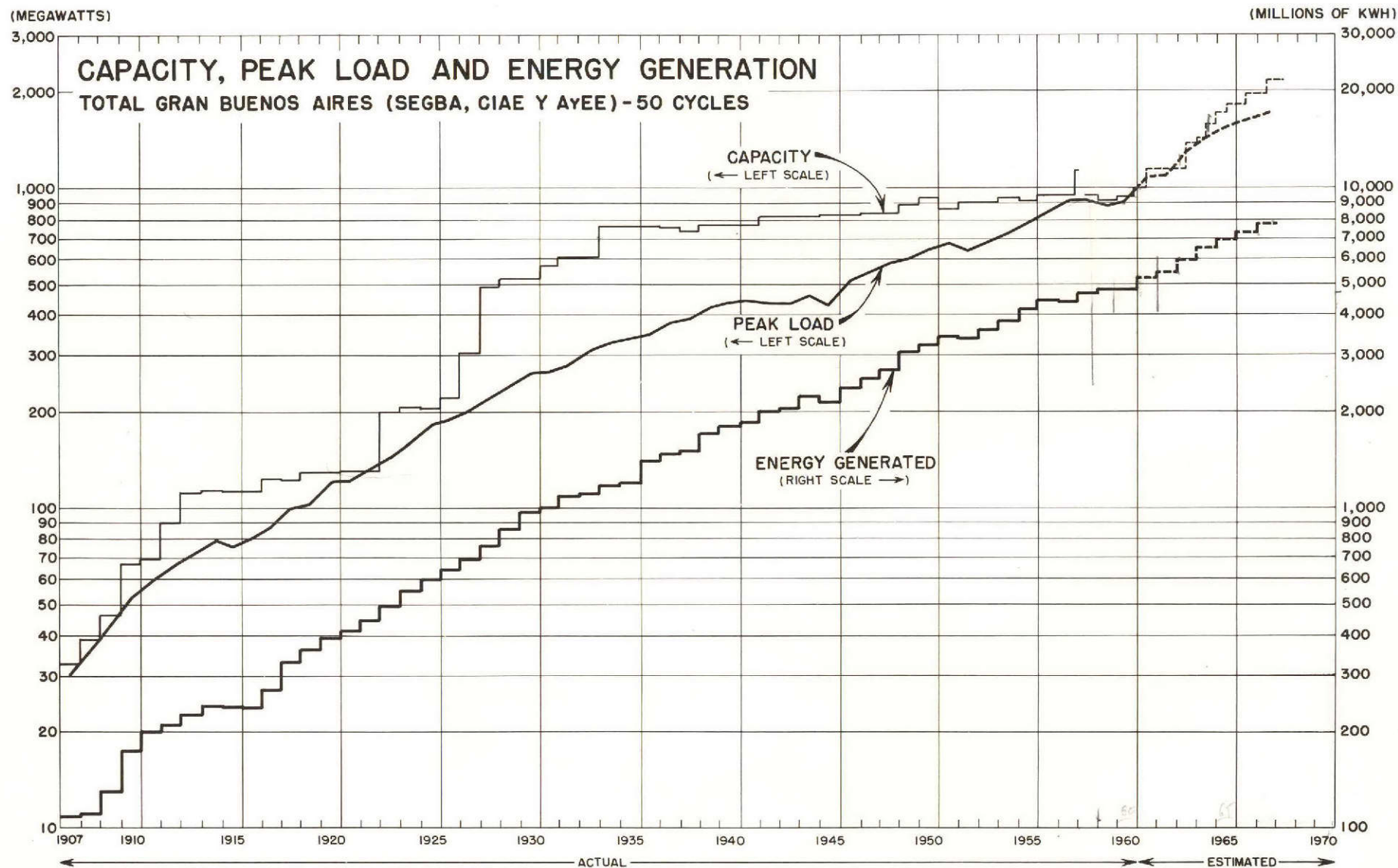
93. The project is suitable for a Bank loan of \$95 million with a term of 25 years including a three year grace period subject to the conditions listed below.

94. During negotiations the Bank has obtained satisfactory assurances that:

- (i) Formal action by the Government on the transfer to SEGBA of the GBA Station, 132 kv interconnection facilities and of the distribution system in the Fourteen Partidos will be completed. (para. 14)
- (ii) The new concession will be approved and the Government will approve SEGBA's average rate assumed in the financing plan. (para. 70 and 73)
- (iii) The bulk supplies of power from San Nicolas will continue as required until 1963. (para 16)
- (iv) The arrangements with BTH-ICL Partnership and with Baring Brothers for rescheduling repayment of the Dock Sud credits will be finalized. (para. 65)
- ✓ (v) The future appointment of the Executive Vice Presidents and General Managers will be subject to Bank approval. (para.26)
- (vi) Arrangements satisfactory to the Bank will be made for amending the consulting engineers' contracts for the GBA Station so that the consulting engineers will be responsible directly to SEGBA. (para. 41)
- ✓ (vii) Qualified consultants will be retained on terms and conditions satisfactory to the Bank to review, engineer and supervise the 132 kv interconnection and distribution system expansion. The terms of their employment should provide, inter alia, for a coordination of plans and facilities of SEGBA and CIAE. (para. 46 and 50)
- ✓ (viii) SEGBA will not contract any new long term debt during the three year period through 1964, without the prior consent of the Bank. (para. 84)
- ✓ (ix) SEGBA will not incur any long term debt after 1964 unless
 - (a) actual net income covers at least 1.75 times the annual interest charges on existing and proposed long term debt, and
 - (b) net assets are at least 1.5 times the long term debt outstanding and proposed. (para. 85)

- ✓ (x) Should SEGBA fail to raise funds from the market and should a shortage of funds arise in the next three years, SEGBA would withhold payments of dividends and/or the Government would supply the funds required. (para. 77)
- ✓ (xi) The necessary action will be taken by the Government to exempt SEGBA from import surcharges on the planned volume of equipment imports for the distribution system expansion program. (para.52)

Formal action under (i), (ii), (iv) and (vi) will be completed before the proposed loan can become effective.



1. Capacities until 1957 are installed capacities. From 1958 onwards they show maximum available system capacity, including bulk supplies from San Nicolas and with no allowance for reserve. Station auxiliary requirements are included.

2. Peak loads and generation include station auxiliary requirements.

IBRD - Economic Staff

1942

ANNEX I

PLANT CAPABILITIES AND PEAK LOADS, MW
TOTAL GRAN BUENOS AIRES AREA - 50 CYCLES
(all data by SEGBA)

| Plant Capability Net of Station Auxiliaries | | | | | | | Peak Loads at Annual Peak | | | | | Balance for Planned Reserve, outages and Retirements |
|---|-------------------|-------------------|-------------------|--------------------|------|--------------------|---------------------------|---------|-----------------|-------------------|--------------|--|
| No Reserve Allowance | | | | | | | | | | | | |
| Year | SEGBA | GBA Station | San Nicolas | Total New SEGBA | CIAE | Total System | SEGBA | ex-AyEE | Total New SEGBA | CIAE | Total System | |
| Actual | | | | | | | | | | | | |
| 1958 | 516 | | 165 | | 210 | 891 | 521 | 194 | | 176 | 891 | |
| 1959 | 470 | | 174 | | 210 | 854 | 489 | 186 | | 160 | 835 | |
| 1960 | 494 | | 192 | | 210 | 896 | 513 | 208 | | 174 | 895 | |
| 1961 | 690 | | 180 | | 246 | 1116 | 628 | 242 | | 191 | 1061 | |
| Estimated | | | | | | | | | | | | |
| 1962 | 690 | | 180 | 870 | 246 | 1116 | 628 | 242 | 870 | 200 ^{3/} | 1070 | 46 |
| 1963 | 847 ^{1/} | 336 ^{1/} | 1201 [/] | 1183 ^{2/} | 246 | 1429 ^{2/} | 776 | 300 | 1076 | 208 | 1284 | 145 |
| 1964 | 847 | 560 | | 1407 | 325 | 1732 | 850 | 328 | 1178 | 224 | 1402 | 330 |
| 1965 | 847 | 560 | | 1407 | 325 | 1732 | 897 | 345 | 1242 | 233 | 1475 | 257 |
| 1966 | 847 | 560 | | 1407 | 474 | 1881 | 942 | 361 | 1303 | 242 | 1545 | 336 |
| 1967 | 1039 | 560 | | 1599 | 474 | 2073 | 984 | 377 | 1361 | 252 ^{3/} | 1613 | 460 |

1/ Part of year only.

2/ Due to closeness of commissioning dates, total SEGBA may be only 1035 and total System 1281 at the time of the annual peak (June - July)

3/ Projected figures for CIAE's peak loads have been set arbitrarily by SEGBA and are unrealistically low - CIAE estimates its peak load to reach about 400 MW by 1967.

132 KV INTERCONNECTION
COST ESTIMATES 1962-64
(all figures in Million US\$ equiv.)

| | <u>1962</u> | | | <u>1963</u> | | | <u>1964</u> | | | <u>Total</u> | | |
|------------------------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|
| | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> |
| <u>Cables</u> | | | | | | | | | | | | |
| Cables and accessories | 5.62 | 5.76 | 11.38 | 1.94 | 5.49 | 7.43 | 0.08 | 0.48 | 0.56 | 7.64 | 11.73 | 19.37 |
| Civil works & installation | | 4.39 | 4.39 | | 2.36 | 2.36 | | 0.14 | 0.14 | | 6.89 | 6.89 |
| Supplementary works | | 0.72 | 0.72 | | 0.72 | 0.72 | | 0.24 | 0.24 | | 1.68 | 1.68 |
| Shipping and insurance | | 0.39 | 0.39 | | 0.14 | 0.14 | | | | | 0.53 | 0.53 |
| Supervision and overhead | | 0.48 | 0.48 | | 0.32 | 0.32 | | 0.05 | 0.05 | | 0.85 | 0.85 |
| Contingencies | 0.11 | 1.13 | 1.24 | 0.05 | 2.81 | 2.86 | 0.01 | 0.47 | 0.48 | 0.17 | 4.41 | 4.58 |
| Cables - Subtotal | 5.73 | 12.87 | 18.60 | 1.99 | 11.84 | 13.83 | 0.09 | 1.38 | 1.47 | 7.81 | 26.09 | 33.90 |
| <u>Substations</u> | | | | | | | | | | | | |
| Land and Civil Works | 0.24 | 4.11 | 4.35 | 0.16 | 2.06 | 2.22 | | 0.06 | 0.06 | 0.40 | 6.23 | 6.63 |
| Transformers | 1.56 | | 1.56 | 0.98 | | 0.98 | 0.42 | | 0.42 | 2.96 | | 2.96 |
| Switchgear and controls | 4.87 | | 4.87 | 3.43 | | 3.43 | 0.31 | | 0.31 | 8.61 | | 8.61 |
| Erection | | 0.66 | 0.66 | | 0.52 | 0.52 | | 0.08 | 0.08 | | 1.26 | 1.26 |
| Accessories and spares | 0.34 | | 0.34 | 0.34 | | 0.34 | 0.15 | | 0.15 | 0.83 | | 0.83 |
| Shipping and insurance | | 0.50 | 0.50 | | 0.35 | 0.35 | | 0.06 | 0.06 | | 0.91 | 0.91 |
| Supervision and overhead | | 0.37 | 0.37 | | 0.24 | 0.24 | | 0.04 | 0.04 | | 0.65 | 0.65 |
| Contingencies | 0.12 | 0.53 | 0.65 | 0.36 | 0.94 | 1.30 | 0.06 | 0.12 | 0.18 | 0.54 | 1.59 | 2.13 |
| Interest during Construction | 0.20 | | 0.20 | 0.05 | | 0.05 | | | | 0.25 | | 0.25 |
| Substation - Subtotal | 7.33 | 6.17 | 13.50 | 5.32 | 4.11 | 9.43 | 0.94 | 0.36 | 1.30 | 13.59 | 10.64 | 24.23 |
| Total | 13.06 | 19.04 | 32.10 | 7.31 | 15.95 | 23.26 | 1.03 | 1.74 | 2.77 | 21.40 | 36.73 | 58.13 |
| | .23 | 1.66 | 1.89 | .41 | 3.75 | 4.16 | .07 | .59 | .66 | .71 | 6.00 | 6.71 |

56.29

TOTAL SEGBA PROGRAM 1962-1964
SUMMARY OF ESTIMATED COSTS
(all figures in million US\$ equiv.)

Post Expend

| | <u>1962</u> | | | <u>1963</u> | | | <u>1964</u> | | | <u>Total (62-64)</u> | | |
|--|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|-------------------------|--------------|--------------|
| | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> | <u>Foreign</u> | <u>Local</u> | <u>Total</u> |
| GBA Station | 26.30* | 19.30 | 45.60 | 26.37* | 22.05 | 48.42 | 13.00* | 6.67 | 19.67 | 65.67* | 48.02 | 113.69 |
| 132 kv Interconnection | 13.06 | <u>19.04</u> | 32.10 | 7.31 | <u>15.95</u> | 23.26 | 1.03 | <u>1.74</u> | 2.77 | 21.40 | <u>36.73</u> | 58.13 |
| Subtotal, Local Currency "Dock Sud" package | | 38.34 | | | 38.00 | | | 8.41 | | <i>60 is BF.</i> BF. | 84.75 | |
| Distribution Expansion | <u>4.56</u> | 19.60 | 24.16 | <u>9.93</u> | 37.77 | 47.70 | <u>9.88</u> | 47.53 | 57.41 | <u>24.37</u> | 104.90 | 129.27 |
| Total, Bank Project | 43.92 | 57.94 | 101.86 | 43.61 | 75.77 | 119.38 | 23.91 | 55.94 | 79.85 | 111.44 | 189.65 | 301.09 |
| Puerto Nuevo Unit No.8 | 9.36 | 3.84 | 13.20 | 2.36 | 0.86 | 3.22 | | | | 11.72 | 4.70 | 16.42 |
| Accessory Expenditures | <u>00.05</u> | <u>0.76</u> | <u>0.81</u> | <u>0.10</u> | <u>2.01</u> | <u>2.11</u> | <u>0.08</u> | <u>1.13</u> | <u>1.21</u> | <u>0.23</u> | <u>3.90</u> | <u>4.13</u> |
| Grand Total | 53.33 | 62.54 | 115.87 | 46.07 | 78.64 | 124.71 | 23.99 | 57.07 | 81.06 | 123.39 | 198.25 | 321.64 |
| | | | | | | | | | | 10,241 | 16,455 | 26,696 |

* Foreign costs for GBA Station include value of equipment already received or in transit which has not yet been erected. Its value, in the order of \$35 million equivalent, has been prorated during the three years.

*+ 10 BF
for engineering, supervision
and interest.*

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Estimated Balance Sheets 1961-1967
(in millions of pesos)

M\$n 83 = US\$ 1

| Fiscal year ending December 31: | 1961 (pro forma) | | | | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 |
|---|------------------|------------------|----------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | SEGBA | Central B. A. | 14 Partidos | Total | | | | | | |
| Assets | | | | | | | | | | |
| Fixed assets in operation | 16,880 | | 3,356 | 20,236 | 25,447 | 39,006 | 50,554 | 53,227 | 55,821 | 61,085 |
| Less: depreciation | <u>6,411</u> | | <u>1,073</u> | <u>7,484</u> | <u>9,075</u> | <u>11,347</u> | <u>14,166</u> | <u>16,528</u> | <u>18,994</u> | <u>21,336</u> |
| Net fixed assets in operation | 10,469 | | 2,283 | 12,752 | 16,372 | 27,659 | 36,388 | 36,699 | 36,827 | 39,749 |
| Work in progress etc. | <u>832</u> | <u>6,946</u> | | <u>7,778</u> | <u>11,347</u> | <u>6,845</u> | <u>975</u> | <u>1,664</u> | <u>3,102</u> | <u>1,044</u> |
| Net total fixed assets | 11,301 | 6,946 | 2,283 | 20,530 | 27,719 | 34,504 | 37,363 | 38,363 | 39,929 | 40,793 |
| Net current assets | <u>1,018</u> | | <u>58</u> | <u>1,076</u> | <u>1,311</u> | <u>1,476</u> | <u>1,774</u> | <u>1,870</u> | <u>2,011</u> | <u>2,128</u> |
| Total assets | 12,319 | 6,946 | 2,341 | 21,606 | 29,030 | 35,980 | 39,137 | 40,233 | 41,940 | 42,921 |
| Liabilities | | | | | | | | | | |
| Preferred shares | | | | 6,153 | 6,461 | 6,784 | 7,123 | 7,123 | 7,123 | 7,123 |
| Common shares | 8,347 | 4,694 | 2,341 | 9,229 | 9,598 | 10,502 | 11,442 | 12,420 | 13,437 | 14,494 |
| Capital surplus & legal reserve | 1,108 | | | 1,108 | 1,505 | 1,340 | 1,354 | 1,534 | 1,652 | 1,777 |
| Earned surplus | <u>595</u> | | | <u>595</u> | <u>811</u> | <u>1,429</u> | <u>2,390</u> | <u>3,053</u> | <u>3,759</u> | <u>4,711</u> |
| Capital and surplus | 10,050 | 4,694 | 2,341 | 17,085 | 18,375 | 20,055 | 22,309 | 24,130 | 25,971 | 28,105 |
| Eximbank loans | 290 | | | 290 | 1,203 | 1,369 | 1,369 | 1,279 | 1,189 | 1,099 |
| Westinghouse etc. credits | 654 | | | 654 | 534 | 424 | 314 | 204 | 102 | |
| Sodec debentures & notes | 1,325 | | | 1,325 | 1,772 | 2,447 | 2,292 | 1,722 | 737 | 582 |
| BTH/ICL credit | | 1,813 | | 1,813 | 2,857 | 3,901 | 3,775 | 3,060 | 2,345 | 1,629 |
| Metropolitan Vickers credit | | 447 | | 447 | 815 | 1,009 | 911 | 716 | 521 | 326 |
| Pirelli-Siemens etc. credit | | (8) | | (8) | 280 | 460 | 282 | 100 | 14 | |
| Proposed IBRD loan | | | | | 3,194 | 6,315 | 7,885 | 7,694 | 7,492 | 7,279 |
| Other future loans | | | | | | | | 1,328 | 3,569 | 3,901 |
| Debt | <u>2,269</u> | <u>2,252</u> | | <u>4,521</u> | <u>10,655</u> | <u>15,925</u> | <u>16,828</u> | <u>16,103</u> | <u>15,969</u> | <u>14,816</u> |
| Total Liabilities | 12,319 | 6,946 | 2,341 | 21,606 | 29,030 | 35,980 | 39,137 | 40,233 | 41,940 | 42,921 |
| Debt ratio (debt as % of total capitalization)* | | | | 22 | 38 | 45 | 44 | 41 | 39 | 35 |

* Excluding from the capitalization, cash dividends earned in the current year but payable in the following year, temporarily carried under "earned surplus" in the following amounts:

| | | | | | | |
|-----|-----|-----|-----|-----|-------|-------|
| 595 | 738 | 808 | 880 | 955 | 1,034 | 1,115 |
|-----|-----|-----|-----|-----|-------|-------|

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Estimated Income Statements 1961 - 1967

- in millions of pesos -

M\$n 83 = US\$ 1

| Fiscal year ending December 31: | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 |
|---|--------------|--------------|--------------|---------------|---------------|---------------|---------------|
| Sales, in millions of kwh | 2,600 | 3,750 | 4,100 | 4,500 | 4,780 | 5,060 | 5,340 |
| Average revenue per kwh sold (in pesos) | 2.70 | 3.00 | 3.00 | 3.00 | 2.92 | 2.81 | 2.80 |
| + Operating revenues | + 7,020 | 11,250 | 12,300 | 13,500 | 13,979 | 14,229 | 14,977 |
| Operating costs | | | | | | | |
| - Operating expenses | - 4,663 | 5,582 | 5,966 | 6,383 | 6,622 | 6,864 | 7,070 |
| - Purchased power | - 22 | 1,210 | 754 | - | - | - | - |
| - Taxes, including income taxes | - 484 | 859 | 935 | 1,020 | 1,525 | 1,482 | 1,903 |
| + Depreciation | + 1,155 | 1,591 | 2,272 | 2,819 | 2,362 | 2,466 | 2,342 |
| | <u>6,324</u> | <u>9,242</u> | <u>9,927</u> | <u>10,222</u> | <u>10,509</u> | <u>10,812</u> | <u>11,315</u> |
| Net income before interest | 5860 696 | 2,008 | 2,373 | 3,278 | 3,470 | 3,417 | 3,662 |
| Interest | 101 | 529 | 861 | 1,039 | 1,041 | 983 | 920 |
| Less: capitalized | - | 349 | 340 | 257 | 62 | 152 | 216 |
| | <u>101</u> | <u>180</u> | <u>521</u> | <u>782</u> | <u>979</u> | <u>831</u> | <u>704</u> |
| Net profit | 595 | 1,828 | 1,852 | 2,496 | 2,491 | 2,586 | 2,958 |
| Disposition of profit | | | | | | | |
| Legal reserve | | 30 | 42 | 50 | 49 | 52 | 59 |
| Preferred: 5% cash dividend | | - | - | - | 356 | 356 | 356 |
| 5% stock dividend | | 308 | 323 | 339 | - | - | - |
| Common: 8% cash dividend | | 595 - 738 | 808 | 880 | 955 | 1,034 | 1,115 |
| 4% stock dividend | | 369 | 404 | 440 | 478 | 517 | 557 |
| earned surplus | | 73 | 548 | 889 | 588 | 627 | 871 |
| | | <u>1,518</u> | <u>2,125</u> | <u>2,598</u> | <u>2,426</u> | <u>2,586</u> | <u>2,958</u> |
| Net profit under new rate base | | 1,518 | 2,125 | 2,598 | 2,426 | 2,586 | 2,958 |
| Capital surplus or deficit | | 310 | (273) | (102) | 65 | - | - |
| | | 310 | 37 | (65) | - | - | - |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Estimated Sources and Applications of Funds 1962 - 1967

- in millions of pesos -

M\$ 83 = US\$ 1

| Fiscal year ending December 31: | 1962 | 1963 | 1964 | TOTAL 3 years | 1965 | 1966 | 1967 | TOTAL 3 years |
|---|--------|--------|-------|------------------|-------|-------|-------|------------------|
| Sources of Funds | | | | | | | | |
| Internal cash generation | | | | | | | | |
| Net income before interest | 2,008 | 2,373 | 3,278 | 7,659 | 3,470 | 3,417 | 3,662 | 10,549 |
| Depreciation | 1,591 | 2,272 | 2,819 | 6,682 | 2,362 | 2,466 | 2,342 | 7,170 |
| | 3,599 | 4,645 | 6,097 | 14,341 | 5,832 | 5,883 | 6,004 | 17,719 |
| New share capital | - | 500 | 500 | 1,000 | 500 | 500 | 500 | 1,500 |
| Borrowings | | | | | | | | |
| Eximbank | 913 | 166 | - | 1,079 | - | - | - | - |
| Sodec | 585 | 830 | - | 1,415 | - | - | - | - |
| BTH/ICL credit | 1,044 | 1,044 | 232 | 2,320 | - | - | - | - |
| Metropolitan Vickers credit | 368 | 194 | - | 562 | - | - | - | - |
| Pirelli-Siemens etc. credit | 458 | 390 | 47 | 895 | - | - | - | - |
| Proposed IBRD loan | 3,194 | 3,121 | 1,570 | 7,885 | - | - | - | - |
| Other loans | - | - | - | - | 1,328 | 2,241 | 332 | 3,901 |
| | 6,562 | 5,745 | 1,849 | 14,156 | 1,328 | 2,241 | 332 | 3,901 |
| Total Sources | 10,161 | 10,890 | 8,446 | 29,497 | 7,660 | 8,624 | 6,836 | 23,120 |
| Applications of Funds | | | | | | | | |
| Additions to Plant | | | | | | | | |
| Puerto Nuevo units 8 & 9 | 1,302 | 237 | - | 1,539 | 770 | 1,350 | 460 | 2,580 |
| Central Buenos Aires | 2,601 | 2,735 | 684 | 6,020 | - | - | - | - |
| Transmission & distribution | 4,528 | 5,745 | 4,737 | 15,010 | 2,530 | 2,530 | 2,530 | 7,590 |
| | 8,431 | 8,717 | 5,421 | 22,569 | 3,300 | 3,880 | 2,990 | 10,170 |
| Interest | | | | | | | | |
| Eximbank | 48 | 77 | 79 | 204 | 76 | 71 | 66 | 213 |
| Westinghouse etc. credits | 37 | 30 | 23 | 90 | 17 | 10 | 4 | 31 |
| Sodec debentures & notes | 73 | 119 | 144 | 336 | 122 | 69 | 32 | 223 |
| BTH/ICL credit | 175 | 253 | 293 | 721 | 246 | 192 | 139 | 577 |
| Metropolitan Vickers credit | 47 | 68 | 74 | 189 | 61 | 46 | 32 | 139 |
| Pirelli-Siemens etc. credit | 10 | 16 | 12 | 38 | 4 | 1 | - | 5 |
| Proposed IBRD loan | 139 | 298 | 434 | 871 | 453 | 442 | 431 | 1,326 |
| Other future loans | - | - | - | - | 62 | 152 | 216 | 430 |
| | 529 | 861 | 1,039 | 2,429 | 1,041 | 983 | 920 | 2,944 |
| Amortisation | | | | | | | | |
| Eximbank | - | - | - | - | 90 | 90 | 90 | 270 |
| Westinghouse etc. credits | 120 | 110 | 110 | 340 | 110 | 102 | 102 | 314 |
| Sodec debentures & notes | 81 | 89 | 89 | 259 | 504 | 919 | 89 | 1,512 |
| BTH/ICL credit | - | - | 358 | 358 | 715 | 715 | 716 | 2,146 |
| Metropolitan Vickers credit | - | - | 98 | 98 | 195 | 195 | 195 | 585 |
| Pirelli-Siemens etc. credit | 170 | 210 | 225 | 605 | 182 | 86 | 14 | 282 |
| Proposed IBRD loan | - | - | - | - | 191 | 202 | 213 | 606 |
| Other future loans | - | - | - | - | - | - | - | - |
| | 371 | 409 | 880 | 1,660 | 1,987 | 2,309 | 1,419 | 5,715 |
| Total debt service | 900 | 1,270 | 1,919 | 4,089 | 3,028 | 3,292 | 2,339 | 8,659 |
| Cash dividends | | | | | | | | |
| Preferred | - | - | - | - | 356 | 356 | 356 | 1,068 |
| Common | 595 | 738 | 808 | 2,141 | 880 | 955 | 1,034 | 2,869 |
| | 595 | 738 | 808 | 2,141 | 1,236 | 1,311 | 1,390 | 3,937 |
| Variations in working capital | 235 | 165 | 298 | 698 | 96 | 141 | 117 | 354 |
| Total Applications | 10,161 | 10,890 | 8,446 | 29,497 | 7,660 | 8,624 | 6,836 | 23,120 |
| Number of times interest covered by net income of current year | 3.8 | 2.8 | 3.2 | 3.2 | 3.3 | 3.5 | 4.0 | 3.6 |
| Number of times annual debt service covered by internal cash generation of current year | 4.0 | 3.7 | 3.2 | 3.5 | 1.9 | 1.8 | 2.6 | 2.0 |

COMPANIA ITALO-ARGENTINA DE ELECTRICIDAD

(CIAE)

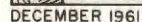
CIAE was formed in 1912 and established itself as one of the important electricity supply companies in Buenos Aires during the period of the first World War, when concessions were awarded on the basis of public competitive bids. From its origin, CIAE has been controlled by Swiss financial interests.

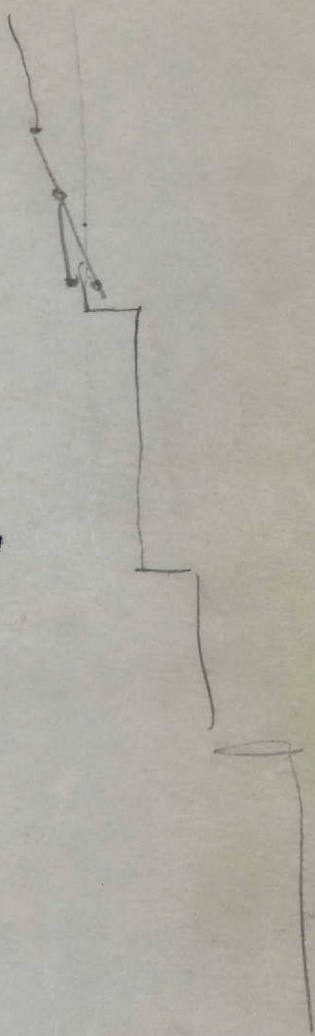
CIAE's distribution system developed over the years in parts of the Federal District and surrounding Partidos in which SEGBA predecessors were also active. At the present time CIAE's distribution network covers part of the area also served by SEGBA in the Federal District and in the four Partidos of Avellaneda, Lanus, Quilmes and Lomas de Zamora. CIAE's load, which currently reaches a peak of about 200 MW, is concentrated (about 85%) in the Federal District. In its development, CIAE followed the policy of seeking the larger commercial or industrial consumers. Though CIAE's distribution voltages (27.5 and 6.8 kv) are fractionally different from SEGBA's, a limited interconnection of the two systems exists and CIAE has been giving SEGBA bulk supplies at the time of peak in recent years (about 30 MW).

CIAE's generating plants, except for some very old installations of fractional capacity, are Nuevo Puerto (a few hundred yards from SEGBA's Puerto Nuevo) with 165 MW nameplate capacity, and the older Pedro Mendoza Station (in the Dock Sud area) with 96 MW nameplate capacity.

After CIAE's concession was cancelled in 1957, negotiations were continued with the Government to reach a settlement of the several disputes involved in the controversy. A conclusion was reached when, in mid-1961, a new concession was granted which will permit CIAE to continue operating indefinitely. Except for a provision giving the Government the option to buy the Company after 1966 by giving certain notices, the concession and its financial and rate provisions is very similar to that now being granted SEGBA. As a condition for the settlement, CIAE undertook to carry out certain extensions of its generating capacity and distribution system, which are mentioned in the text of the report.

LOCATION OF PRINCIPAL FACILITIES AND LAYOUT OF 132KV INTERCONNECTION IN THE BUENOS AIRES AREA





525

DECLASSIFIED

RESTRICTED

Report No. TO-606a

JAN 24 2023

WBG ARCHIVES

This report was prepared for use within the Bank and its affiliated organizations. They do not accept responsibility for its accuracy or completeness. The report may not be published nor may it be quoted as representing their views.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

APPRAISAL OF THE 1967-1970 EXPANSION PROGRAM
SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.
ARGENTINA

January 10, 1968

Projects Department

CURRENCY EQUIVALENTS

| | | |
|---------------|---|------------------|
| Currency Unit | - | Peso (M\$N) |
| US\$1 | = | M\$N 350.0 |
| US\$1 million | = | M\$N 350 million |
| M\$N1 | = | US\$ 0.002857 |
| M\$N1 million | = | US\$ 2,857 |

ABBREVIATIONS

| | | |
|-----|---|-----------------------------|
| kw | = | Kilowatt |
| Mw | = | Megawatt |
| kwh | = | Kilowatt hour |
| Gwh | = | Gigawatt hour |
| kv | = | Kilo volt |
| kva | = | Kilovolt-ampere |
| Mva | = | Megavolt-ampere |
| Km | = | One kilometer (0.6214 mile) |

ARGENTINA

APPRAISAL OF THE 1967-1970 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

TABLE OF CONTENTS

| | Page No. |
|------------------------------------|----------|
| SUMMARY | i |
| 1. INTRODUCTION | 1 |
| 2. BACKGROUND | 2 |
| 3. THE BORROWER | 2 |
| Organization | 3 |
| The Labor Problem | 4 |
| Power Rates | 6 |
| 4. FINANCIAL POSITION AND EARNINGS | 7 |
| Audit | 7 |
| Balance Sheets | 7 |
| Current Position | 10 |
| Past Earnings | 10 |
| 5. POWER MARKET | 11 |
| Sales | 12 |
| Future Growth | 14 |
| 6. THE PROGRAM | 15 |
| Description | 15 |
| Consulting Engineers | 18 |
| Construction Schedule | 18 |
| 7. THE LOAN | 19 |
| Procurement and Disbursement | 20 |
| 8. FUTURE FINANCES | 20 |
| Financing Plan | 20 |
| Future Earnings | 23 |
| Future Financial Position | 23 |
| 9. CONCLUSIONS | 23 |

This report is based on the findings of a Bank mission consisting of Messrs. Y. Rovani, R.H. Sheehan and G. Vacchelli who visited SEGBA in May 1967, and on additional information furnished by Argentine delegations which visited the Bank in October and December of 1967.

LIST OF ANNEXES

- ANNEX 1 - Balance Sheets as of December 31, 1962-1970
- ANNEX 2 -- Statement of Debt as of December 31, 1966
- ANNEX 3 - Income Statements 1962-1970
- ANNEX 4 - Sources and Applications of Funds 1967-1970
- ANNEX 5 - Buenos Aires Generating Plant
- ANNEX 6 - SEGBA Capacity, Peak Loads and Generation
- ANNEX 7 - Details of SEGBA's Investment Program

Map

ARGENTINA

APPRAISAL OF THE 1967-1970 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

SUMMARY

i. This report covers the appraisal of the 1967-1970 expansion program of Servicios Electricos del Gran Buenos Aires, S.A. (SEGBA), for which a loan of US\$55 million has been requested. The program for the addition of generating capacity and for the expansion of transmission and distribution meets the minimum needs of the system and is economically justified. The arrangements for the engineering and implementation of the program are acceptable. The total cost of the program is about US\$300 million equivalent.

ii. The performance of SEGBA, which had deteriorated in 1964 and most of 1965, has improved significantly in the course of 1966 and 1967. Progress is being made towards coordination of planning and operations of the Buenos Aires power sector, which is necessary to preclude the further overlapping of facilities and to realize the maximum possible economies from existing installations. Prospects for improving the labor situation are promising. SEGBA intends to reduce the number of personnel and eliminate uneconomic provisions of the labor contract.

iii. Power rates were brought to the level required by the concession by substantial increases in 1966 and early 1967. However, due to the March devaluation, revenues for 1967 will fall short of the 8 percent return on the dollar rate base to which SEGBA is entitled under its concession. Arrangements have been made to correct this situation in connection with the rate review at the end of last year. The proposed financing plan for 1967-1968 is satisfactory. Earnings prospects are good.

iv. A loan of US\$55 million, with a term of 20 years, including a 3 year grace period, is proposed.

ARGENTINA

APPRAISAL OF THE 1967-1970 EXPANSION PROGRAM

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A.

1. INTRODUCTION

1.01 Servicios Electricos del Gran Buenos Aires S.A. (SEGBA), a stock corporation all the shares of which are owned by the Argentine Government, applied to the Bank in January 1965 for a second loan to help finance its 1965-1967 expansion program. Because of serious problems affecting SEGBA, the appraisal had to be deferred until May 1966. The 1966 appraisal covered a revised expansion program for the period 1966-1969.

1.02 Shortly after the mission's return, representatives of the Government and SEGBA visited the Bank to discuss the settlement of a number of issues. They undertook to raise power rates, to correct the shortage of working capital of SEGBA with large Government contributions, and to initiate coordination of operations between SEGBA and Compania Italo Argentina de Electricidad (CIAE), which supplies power within SEGBA's service area. The Argentine delegation could not, however, offer any plan for a significant improvement in SEGBA's efficiency in the foreseeable future, and merely proposed to slow down hiring of new personnel in 1966 and 1967.

1.03 The proposed loan was further postponed because of the uncertainty as to the economic policy of the Government which took office in July 1966. When prospects improved, another mission was sent to Buenos Aires in May 1967 to review SEGBA's performance in the last year and to appraise the latest revision of SEGBA's program.

1.04 A loan of US\$55 million is now proposed, which would help finance expenditure on the generation, transmission and distribution facilities included in SEGBA's 1967-1970 expansion program. The size of the proposed loan is based on an estimate of expenditures forecast for the period October 1, 1967 through March 31, 1969. The estimated cost of the program is US\$306 million equivalent.

1.05 This report is based on the findings of the Appraisal Mission which visited SEGBA in May 1967, consisting of Messrs. Y. Rovani, R. H. Sheehan and G. Vacchelli. Additional information was submitted by Argentine delegations to the Bank in October and December 1967.

2. BACKGROUND

2.01 On January 19, 1962 the Bank made its first loan, 308-AR, to SEGBA for US\$95 million for a term of 25 years, including a grace period of three years, at an interest rate of 5-3/4 percent. The basis for the loan was described in Appraisal Report No. TO-306a of January 10, 1962. The original closing date was extended by six months to June 30, 1965 at which time, US\$93.35 million having been drawn down, the balance in the loan account was cancelled. The loan helped finance a three year program to eliminate power shortages by 1965. The program included the addition of 800 Mw of generating capacity, a new 132 kv transmission system for Buenos Aires, and a considerable amount of rehabilitation and expansion of distribution facilities. In connection with the Bank loan, the electricity supply services in the Buenos Aires area were consolidated and reorganized, along the lines of the Pinedo Plan, named after the elder statesman appointed by the Government in 1961 to establish the institutional basis for a sound development of the electrical facilities in the area.

2.02 The program was carried out successfully although there were delays in completing the distribution works. There were greater difficulties in achieving the organizational and financial improvements which were also important purposes of the loan. A good start was made; but serious problems were encountered in early 1964 when a new Government, which had taken office in October 1963, denied the rate increase for which SEGBA had applied in accordance with its concession. The result was a deterioration in the Company's finances and the resignation in March 1964 of the Directors, the Executive Vice President and the four department heads in the Executive Committee. Although a new Board was promptly appointed, it was not until January 1965 that a new appointment was made to the Executive Vice Presidency, the key position in the Company's management. The new Executive Vice President died within a year and several months elapsed before a successor was appointed. The Company's efficiency suffered greatly during this period. Indeed it was not until June 1966 that a beginning could be made, with Government backing, to take the corrective steps indicated in paragraph 1.02. A further change in the Board and the management was made following the change of Government in July 1966.

3. THE BORROWER

3.01 SEGBA supplies electricity to almost two million consumers in the Federal Capital and its suburbs. The Company's generating capacity consists of 1,370 Mw of steam plant installed in three stations. SEGBA also purchases power from Agua y Energia Electrica (AyEE), the Government agency for power and irrigation, and from CIAE. Its peak load was 1,235 Mw in 1966 and its sales exceeded 4.6 billion kwh.

3.02 SEGBA was formed in 1958 to take over part of the assets and responsibilities of CADE (Compania Argentina de Electricidad), a fully owned subsidiary of the Belgian Group SOFINA, which had been supplying the Greater Buenos Aires area since a few years after the first World War. The creation of SEGBA followed the settlement reached by the Government with SOFINA under which (1) AyEE took over CADE's distribution properties in 14 municipalities to the northwest of the Federal district (the fourteen partidos), and (2) SEGBA took over the remaining assets. SEGBA shares were issued to SODEC (Societe d'Electricite), an affiliate of SOFINA, which were to be bought by the Government in ten equal installments. At the end of 1961, in accordance with the Pinedo Plan, the Government exercised its option to accelerate the purchase from SODEC of the shares still outstanding, and to tender Government bonds for payment. Early in 1962, SEGBA took over all of AyEE's power facilities in Buenos Aires, including the distribution properties in the fourteen partidos. New by-laws (Estatutos) were approved at the end of 1961 and a new concession for an unlimited time came into effect on February 1, 1962.

3.03 SEGBA is a stock corporation with a Board of Directors elected by the shareholders. The Government holds all the shares. The Board, of five to eight members, includes the President and the Executive Vice President. The Executive Committee, consisting of the Executive Vice President and four or five department heads appointed by him, is responsible for the principal functions of the company including operations, planning, budgeting, award of contracts, wages and salaries, labor relations and hiring and firing. The existing Loan Agreement provides that changes in the by-laws, as well as in the concession, be subject to Bank approval and this undertaking will be repeated in the new Loan Agreement.

3.04 The present Executive Vice President, himself an engineer with long experience in utility and private business management, has filled the Executive Committee by appointing capable new managers to the Technical and Commercial Departments. The new Executive Committee of SEGBA appears to be well qualified to carry out its responsibilities. The Loan Agreement for Loan 308-AR provides for Bank approval to the appointment of SEGBA's Executive Vice President. In the case of the proposed loan, only prior consultation will be required.

Organization

3.05 Next to eliminating the Buenos Aires power shortage, which had existed for many years, the most important tasks confronting SEGBA's management in 1962 were to increase the productivity of labor, a subject discussed later in this report, and to gain control of the Company's activities, through improved organization and accounting. The initial step taken in this direction was the appointment of International Middle West Services Company as management consultants in the middle of 1963. Their contract has been renewed for varying periods over the last four years. A further extension is presently under negotiation.

3.06 Progress was quite slow, due in particular to lack of trained personnel, labor difficulties and inadequate management after March 1964. It has gained momentum under the present management, and tangible improvements have been made, and are expected to continue, in the quality of customer service and in the preparation of prompt and reliable information for management. The current emphasis is on reorganizing the commercial department. Billings have been computerized. A modified system of collection, involving the mailing of bills and their payment through banks, was successfully applied to about one million accounts in the Federal Capital and two suburban districts, several months ahead of the schedule set at the beginning of 1967; this system will be further expanded to other suburbs during 1968. The commercial department is being decentralized by the transfer of customers' service, meter reading and collection responsibilities to about fifteen branch offices in the Capital and Province. Computer capacity is being increased to handle all payroll, customer, labor and material accounting.

The Labor Problem

16 3.07 SEGBA's most difficult problem in 1962 was to secure all the funds needed to expand and meet the load growth. As a result, and until the power shortage was overcome, the primary emphasis was put on SEGBA's maintaining a sufficient level of revenues so as to generate internally a large proportion of the funds needed for expansion. As soon as this objective was achieved, the emphasis should have changed to holding down operating expenses in order to keep the average power rates to a reasonable level; a corollary should have been the introduction of industrial rates which would induce industries to abandon self-generation of power in favor of public supply. This expected lowering of operating costs did not materialize. Instead, the lack of effective management during the period from early 1964 to mid-1966 resulted in a sharp increase in the already excessive number of personnel and in labor costs. The Bank repeatedly called this problem to the attention of both the Government and SEGBA and stated in July 1965 that a new loan would be conditional on the initial results of a program to reduce labor costs.

3.08 The high labor costs stem from an unfavorable contract, inherited from the Peronist era and aggravated by the concessions made to the labor union by succeeding Governments. The labor contract is a two-year contract with the Light and Power Union, which was last renewed in January 1966. The provisions governing the level of wages are subject to an annual review, also in January. About 95 percent of the personnel of SEGBA (and of CIAE, whose contract is a facsimile of SEGBA's) belong to the Union, including most of the supervisory personnel. Hiring is done through a labor exchange run by the Union. Most new employees are hired as "peones," or unskilled labor, and are trained and promoted on strict rules of seniority. The work week is a five day week of only 36 hours, and the majority of personnel work from 7:00 am to 2:12 pm. These hours are not conducive to efficiency because they do not coincide with those of management nor with the needs of the public; furthermore they permit many workers to hold a second job. Other provisions restrict the Company's ability to contract

outside for distribution expansion and repairs. The main source of feather-bedding, however, lies with the fact that job descriptions are used not merely for establishing pay grades, but also for limiting employee work assignments, and consequently for inflating staff requirements. Under the contract, most of the management decisions require consultation with, or approval of, the Union. In the past, the point of view of the Union invariably prevailed because the Union was allowed to use the pressure at its disposal, including strike threats, partial work stoppages, slow-downs, refusal to allow overtime, etc.

3.09 SEGBA employed 19,220 persons at the end of 1962, when the number of consumers was about 1,578,000. This was equivalent to a ratio of only 82 consumers per employee. The management consultants estimated in 1963 that the same number of consumers could be handled better with several thousand fewer employees. A reasonable figure for this ratio would be in the order of 100 consumers per employee. During the three years through 1965, personnel increased considerably faster than consumers, to 25,068, and the ratio of consumers to employees deteriorated to 71. The largest annual personnel increase, of 2,500, was recorded in 1964. By June 1966, when representatives of the previous Government and management of SEGBA visited the Bank for discussions on the central issue of this proposed loan, SEGBA's personnel had reached a total of 25,780. While no exact standard exists for measuring the size of the labor force necessary for the efficient operation of SEGBA, there is general agreement that the number of excess personnel amounts to about 6,000.

3.10 Much has been done in the last year and a half to control labor costs and restore the management's authority within the Company. The increase in number of personnel was stopped, for the first time on record, and a slight reduction, to 25,542, was achieved, at the end of November 1967. In recent months, the work stoppages and go slow tactics of the Union have been effectively curbed.

3.11 More significant gains can be achieved only by amendment of the labor contract and with the continued support of the Government. Steps are being taken in this direction. A law of October 1967 established a new procedure for revising the labor contracts of state enterprises and public utilities. In accordance with this law, SEGBA and CIAE submitted to the Secretary of Labor a joint memorandum on November 20, proposing changes in those provisions of the labor contract which interfere with productivity of labor and efficiency of operations. The memorandum was forwarded on December 11, to the Light and Power Union for comments to be made within the next fifteen working days. The Secretary of Labor was then to decide which of the provisions of the contract should be discussed, and to call a committee of representatives of the companies and the Union, chaired by a representative of his department, to discuss amendments to these provisions within a period of 60 days. Agreed changes would then be incorporated in a new labor contract. Points on which no agreement is reached would be submitted to the arbitration of the Secretary of Labor, whose decision would be final. No time limit is set regarding the decisions of the Secretary. If the entire procedure is rejected by the Union, the Secretary will design new labor regulations to be promulgated as a law.

3.12 The extent to which the existing labor contract will be changed, what reductions in personnel would follow and the timing of such reductions, are questions that cannot be answered at this time. The Government's public statements and the action already taken by it and by SEGBA, however, constitute evidence of their determination to work towards resolving this important issue. The forecasts in this report reflect SEGBA's own assumption, approved by the Government, that personnel would be reduced by about 1,000, to about 24,600, in the course of 1968. As to later years, it was assumed that SEGBA's labor force would remain constant though it is hoped that further reductions would be achieved. No increase in the wage level is contemplated in the future except for an annual increase of about 3 percent for promotions and seniority. Wages have been frozen, by decree, at their 1967 level until the end of 1968. Under the terms of the concession, power rates will be adjusted should the level of wages rise above the estimates.

Power Rates

converted into \$ at end of yr ex. rate

3.13 The concession of February 1, 1962, provides that SEGBA's rates should generate revenues sufficient to produce a return of 8 percent on the average value, expressed in dollars, of net plant in service plus a notional value of working capital equal to 5 percent of the average value of net plant in service. Depreciation charges are computed on the value, also expressed in dollars, of gross plant in service at year-end. In 1962, SEGBA inaugurated the practice, interrupted in 1964 and 1965, of charging straightline depreciation at 3 percent, a reasonable minimum, on all assets (except furniture and fixtures, 10 percent; and vehicles, 20 percent).

3.14 Power rates are revised annually, effective with the first meter reading of January, on the basis of a detailed application submitted by SEGBA to the Secretaria de Estado de Energia y Minería (SEEM), for approval. The concession provides that, if the 8 percent return to which SEGBA is entitled has not been achieved (or has been exceeded) in any past year, the shortfall (or surplus) must be compensated for by revenues of the year immediately succeeding. Changes arising in labor and fuel costs during the year are to be automatically compensated for by interim rate adjustments. Furthermore, if changes in economic circumstances, such as lower sales, devaluation of the currency, etc., could be expected to result in an insufficient net income for the current year, SEGBA can adjust its rates proportionally after informing the Secretaria.

3.15 The failure of the Secretaria to apply these provisions fully, led to a serious shortfall of revenues in 1964 and 1965, when SEGBA's return was only 2.1 percent and 5.6 percent respectively (see Annex 3, Note 9). Since 1965 a serious attempt has been made to adjust rates in accordance with the concession and the return improved to 8.6 percent in 1966. In April 1967, SEGBA was asked by the Government to defer the adjustment to which it was entitled following the latest devaluation of the peso. It is estimated that, as a result, the net income for 1967 would fall about M\$N6.3 billion short of the permitted amount, corresponding

to a return of 6.4 percent, instead of 8 percent. After reviewing SEGBA's annual rate application for 1968, and obtaining the Bank's consent under the 1962 agreements, the Government decided, as exceptional measures consistent with its stabilization program, to: (a) allow rates to be increased to the extent necessary to generate the additional revenues required to achieve the 8 percent return in 1968 (about M\$N3.7 billion), and (b) compensate the shortfall at the end of 1967 by an equivalent appropriation from the National Energy Fund, to be treated by SEGBA as revenues (about M\$N6.3 billion). New resources were recently provided to the Fund by a substantial increase in the price of gasoline. Only residential power rates were increased, by the addition of a flat charge averaging M\$N180 per month, which would both avoid increasing production costs, a stated purpose of the Government's policy, and help correct the imbalance in SEGBA's rate structure, as discussed in para. 5.07.

3.16 The rate covenants in the existing agreements which provide that SEGBA should seek, and the Government should grant, the rates to which SEGBA is entitled under the concession, are repeated in the agreements for the proposed loan. Confirmation has been obtained from both parties that adequate depreciation charges will be maintained in the future, of not less than an average 3 percent of plant in service, pending the preparation of a new, mutually acceptable, schedule of estimated useful lives for the various kinds of assets.

4. FINANCIAL POSITION AND EARNINGS

Audit

4.01 Existing agreements with the Bank provide for the auditing of SEGBA's accounts, and the preparation of annual reports on SEGBA's financial condition, within four months after the end of the fiscal year, by a firm of qualified independent accountants. This provision is repeated in the agreements covering the proposed loan. Starting with fiscal year 1964, Deloitte, Plender and Griffith were replaced, as SEGBA's auditors, by Arthur Young-Henry Martin, the Argentine branch of a reputable firm of public accountants. The present arrangements are satisfactory.

Balance Sheets

4.02 Condensed balance sheets as of December 31, 1962 through 1966 are shown in Annex 1. Plant is recorded in SEGBA's balance sheet at historic cost although, as provided in the concession, dollar values of gross and net plant are used for computing the amounts of depreciation to be charged and of net income to be earned. Starting with 1965, and following its auditor's advice, SEGBA revalued its foreign exchange debt at current exchange rates. The effect of this partial revaluation is shown in the condensed balance sheets under "Exchange Difference." A

more meaningful set of Balance Sheets, expressed in dollars, is presented in part 2, at the right of Annex 1. The dollar values used are: (a) for plant in service and depreciation reserve, the dollar values used for tariff purposes in accordance with the concession; (b) for foreign exchange debts, the actual values expressed in dollars; (c) for other assets and liabilities, the peso values converted into dollars at the exchange rate in effect at the end of the fiscal year; and (d) for equity, the resulting difference between dollar assets and dollar liabilities.

4.03 The capitalization is characterized by an excessively high proportion of cash dividend free equity, and by a low, fast reducing amount of long term debt. A summary of the capitalization as of December 31, 1966, adjusted to reflect the revaluation described above, is shown in the following table in both pesos and dollar equivalent:

| | In millions | | % |
|---|-------------|----------------|----------|
| | M\$N | US\$ Equiv. 1/ | of Total |
| <u>Capital and Reserves</u> | | | |
| 5% Cumulative preferred shares, M\$N100 par | 10,480 | 42.4 | 7.5 |
| Common shares, M\$N100 par | 17,906 | 72.4 | 12.9 |
| Subtotal: Share Capital | 28,386 | 114.8 | 20.4 |
| Reserves and surplus | 11,316 | 45.7 | 8.1 |
| Revaluation reserve | 58,179 | 235.3 | 41.7 |
| Total | 97,881 | 395.8 | 70.2 |
| <u>Long Term Debt</u> | | | |
| IBRD Loan 308-AR | 21,354 | 86.4 | 15.3 |
| Eximbank and suppliers (Puerto Nuevo Nos. 7 & 8) | 3,221 | 13.0 | 2.3 |
| BTH-ICL, Metrovick (Costanera, 132 kv trans.) | 5,291 | 21.4 | 3.8 |
| Bonds and notes (Sodec, etc.) | 4,303 | 17.4 | 3.1 |
| Subtotal: Foreign Exchange | 34,169 | 138.2 | 24.5 |
| Local suppliers, customers' deposits | 1,394 | 5.6 | 1.0 |
| Caja Nacional de Ahorro Postal | 6,000 | 24.3 | 4.3 |
| Subtotal: Local Currency | 7,394 | 29.9 | 5.3 |
| Total | 41,563 | 168.1 | 29.8 |
| <u>Total Capitalization</u> | 139,444 | 563.9 | 100.0 |

1/ At M\$N247.3 per US\$, the exchange rate at December 31, 1966.

4.04 New shares were issued in 1962 to the Government in exchange for its shares in the original SEGBA and its estimated investments in the assets taken over from AyEE (see notes to Annex 1 for details). The original shares, and those issued for subsequent Government contributions, were issued in a 40/60 ratio of 5 percent cumulative preferred shares and of common bearer shares which are held in trust by the Industrial Bank. The Pinedo Plan provided for the sale of common shares to private investors to encourage the investment of private savings in electricity services, and this intention was recorded in covenants of the Guarantee and Loan Agreements for Loan 308-AR. No sales have taken place due to adverse market conditions. In connection with the proposed agreement, the Government reiterated its policy of encouraging the sale of shares to private investors, though prospects at this time are too remote to be considered for purposes of the financing plan.

4.05 SEGBA's equity grew rapidly since 1962 through (a) large Government cash contributions, of M\$N1.5 billion in 1964, to make up partially for the freeze then imposed on power rates, and of M\$N6 billion at the end of 1966 to help correct SEGBA's working capital position, and (b) retained earnings, as lack of funds prevented SEGBA from paying cash dividends on the large Government equity. As shown in the pro forma dollar valuation of SEGBA's balance sheets, the value of share capital has, as a result of devaluation, become but a small fraction of the Government's revalued equity in SEGBA.

4.06 Most of the debt is in foreign exchange and, with the exception of Loan 308-AR, which accounts for more than half the debt outstanding, most is for relatively short terms (see Annex 2 for details). By the end of 1969, annual amortization averaging over US\$20 million equivalent would bring down existing foreign debts from US\$138 million to about US\$94 million and existing local debts from about M\$N7.4 billion to about M\$N3.5 billion. The main reduction in debt would result from the repayment of the BTH-ICL (British Thompson Houston-International Combustion Ltd.) and Metrovick (Metropolitan Vickers) credits, outstanding as of the end of 1966, for US\$32.3 million equivalent (including a current portion of US\$10.9 million equivalent), which are due in full by July 23, 1969. The only significant new debt incurred in recent years was an 8 percent, five year loan of M\$N6 billion from the Caja Nacional de Ahorro Postal, which was arranged by the Government at the end of 1966 to complement the capital contributions already referred to and to restore a sound financial condition for SEGBA.

4.07 The existing Bank Loan Agreement includes a negative pledge clause and a debt limitation covenant which are both repeated in the agreement for the proposed loan. The incurrence of long term debt is limited by an assets test and an earnings test. Under the assets test, SEGBA is not permitted to incur new debt if after the incurrence of the proposed new debt, its net assets in operation plus work in progress would be less than 1-1/2 times its total indebtedness. Under the earnings test, SEGBA would not be able to incur new debt unless the maximum

future interest payments on all indebtedness, including the proposed new debt, were covered at least 1-3/4 times by net income for the past twelve-month period or the last fiscal year. SEGBA could presently meet both tests and incur debts substantially in excess of the amount of the proposed Bank loan.

Current Position

4.08 A critical negative current position was reached at the end of 1965 due to inadequate cash generation and the lack of outside financing. In accordance with understandings reached between representatives of the previous Government and the Bank in June 1966, the Government provided M\$N12 billion to SEGBA at the end of the year, half as capital and half as a five year loan, as already indicated in paras. 4.05 and 4.06 above. As a result, the current position improved markedly from a current ratio of 0.58 at the end of 1965, with current liabilities exceeding current assets by M\$N9.3 billion, to a current ratio of about 1.0, at the end of 1966.

4.09 Accounts receivable increased by almost M\$N6 billion during 1966 to M\$N17.3 billion reflecting mainly rate increases aggregating 57 percent over the 1965 level and, to a lesser extent, growth of sales. SEGBA's receivables usually represent the equivalent of about four months of revenues which is high. This is due principally to delayed payments by Government authorities and agencies, and to slow billing and collecting procedures (see Annex 1, note 2, for details). Steps are being taken to correct both of these causes.

4.10 Accounts and notes payable at the end of 1966 totalled M\$N15.3 billion and still included large arrears which SEGBA was in the process of repaying gradually in accordance with a plan to bring accounts payable down to normal trade terms by the end of 1967. (See Annex 1, note 4, for details).

Past Earnings

4.11 Income statements for the five years ended December 31, 1966 are summarized in the table and notes to Annex 3. They show a sharp decline in earnings in 1964, to a return of 2.1 percent (adjusted on the basis of a 3 percent rate of depreciation), followed by a recovery which brought the return to 8.6 percent at the end of 1966.

4.12 The actual financial results bear little resemblance to the estimates prepared at the end of 1961 for the first appraisal report. The chief reasons are: the severe economic recession in 1962/63; the considerable increase in SEGBA's operating expenses due to rapid inflation and sharp increases in personnel through 1965; and the consequences on the dollar rate base of the devaluation of the currency from M\$N83 per dollar at the beginning of 1962 to M\$N247.3 at the end of 1966. and

The index of prices increases in 1964-65 & 1967

4.13 Interest coverages were ample, except in 1964, reflecting the relatively low debt. It was originally intended that SEGBA would pay cash dividends to the Government as a return on its considerable equity and as a means of establishing a record which would help the future sales of common shares in the local market. This, however, was not possible in view of SEGBA's shortage of funds which, instead, required further large cash contributions by the Government. Stock dividends on preferred shares were paid each year at the statutory rate of 5 percent, and on common shares at 10 percent in 1962 and 1963 and at 20 percent in 1965 and 1966. These dividends are not high as the value on which they apply is understated (see para. 4.05). Dividends on common shares had to be passed in 1964 because of insufficient profits.

5. POWER MARKET

5.01 The Greater Buenos Aires market consists of the Federal Capital, and 31 surrounding municipalities. It is supplied primarily by SEGBA, but, as mentioned previously, CIAE also has a Government concession to supply the Capital and the four partidos of Avellaneda, Quilmes, Lanus and Lomas de Zamora. Until recently, each supplier operated its own system independently of the other, although there is 160 Mva of interchange capacity between them. A table of the existing generating capacity of both companies is shown in Annex 5.

5.02 CIAE's franchise was renewed for an indefinite period in 1961 with a provision which calls for the construction of new generating plant. At the end of 1966 CIAE had 352 Mw of effective capacity in two steam stations and was supplying 250,400 customers. In 1966 the peak load on CIAE's system was 226 Mw. During the past four years CIAE's load (exclusive of sales to SEGBA) has been growing at an average rate of only about 5 percent per annum and its sales of energy to ultimate consumers at slightly less than 3 percent. These low rates of growth reflect the limited expansion of CIAE's distribution system in recent years.

5.03 At the end of 1966 SEGBA had 1,370 Mw of installed capacity, all of which is steam plant, and was supplying 1,875,000 consumers. For the three previous years SEGBA was required to buy energy from AyEE's San Nicolas plant near Rosario at a price higher than its own marginal cost, even though SEGBA had unused capacity, because of the Government's desire to burn as much Argentine coal as possible. For 1967 and the next few years, however, SEGBA will need some of the excess capacity at San Nicolas in order to ensure reliable service to its own consumers (see para. 5.09). As shown in Annex 6, the maximum demand on SEGBA's system has grown from 888 Mw in 1962 to 1,235 Mw in 1966. During the same years sales increased from 3,200 Gwh to 4,564 Gwh. Although the average rates of increase in peak load and sales during the period were 8.5 percent and 9.3 percent, respectively, it is significant that the only year in which a large increase occurred was 1964 when the Bank financed Costanera plant went

into operation and restrictions were removed. SEGBA's annual rate of increase in load has fallen off considerably since 1964, and in 1966 the increase in both peak load and sales was less than 6 percent.

5.04 The interchange facilities between SEGBA and CIAE have been used until last year only in emergencies. With proper scheduling of generation, the combined operating costs of the two utilities can be reduced. For example, the newer, more efficient units of each company have not been used to their maximum capabilities while some of the older, less efficient units were regularly used to carry peak loads instead of being employed for standby or emergencies. The situation with regard to transmission and distribution is even more disturbing, particularly in the Federal Capital, where facilities of the two companies overlap. On many streets it has been possible to receive supply from either or both companies. In fact, as a carryover from the 1950's, some of the more affluent customers still maintain a dual service in the event of a power failure on either system. The quality of supply from both systems leaves much to be desired. Many sections of the distribution networks are overloaded, resulting in low voltage at the time of peak demand and causing frequent outages. Although service by both companies has improved noticeably since 1962, there are still large areas which require extensive rehabilitation.

*member
distribution
1962-65*

5.05 The Government is aware that the long range solution of the Buenos Aires power problems would be some kind of a merger of CIAE with SEGBA but for the present CIAE is being asked to increase its generating facilities and to provide its own financing. In due course a consolidation may take place but in the meanwhile both companies are cooperating in all phases of their activities. Eleven joint committees have been set up at the top and middle management levels to handle such matters as central dispatching, planning of expansion, labor relations (see para 3.11), tariffs, and customers' service. In the latter part of 1966, with the guarantee of the Argentine Government, CIAE completed financial arrangements with banks in Switzerland and the United Kingdom for the purchase of a new 250 Mw generating unit for its Nuevo Puerto plant. This unit is scheduled for operation before the winter peak of 1969 and will meet the Greater Buenos Aires load growth until SEGBA's Puerto Nuevo unit No. 9 is completed (see paras. 6.03 and 6.11). The first move toward effective coordination of operations was the commissioning at the beginning of 1968 of a central dispatch office to control the use of all the generating plants of both companies.

Sales

5.06 A breakdown of SEGBA's sales for 1965 and 1966 showing consumption by classes of consumers is given in the table below:

| | 1965 | 1966 | | |
|--|-----------------|-----------------|---------------|-------------------------|
| | Sales in Gwh | Sales in Gwh | % of Total | % Increase over 1965 |
| <u>Consumer Group</u> | | | | |
| Domestic | 1,896 | 1,970 | 43.5 | 3.9 |
| Commercial | 476 | 497 | 11.0 | 4.4 |
| Industrial | 1,299 | 1,323 | 29.2 | 1.8 |
| Governmental (lighting, traction, water supply, etc.) | 637 | 736 | 16.3 | 15.5 |
| Total | 4,308 | 4,526 1/ | 100.0 | 5.1 |

1/ Excluding energy repaid to CIAE (38 Gwh).

The 5.1 percent increase in SEGBA's sales shown above should be viewed in the light of CIAE's increase for 1966 of only 3.5 percent. The combined rate of sales' increase was only about 4.8 percent in 1966, which is low for a mature system and indicates a slow down in the economy. SEGBA's 1966 system load factor of 54.2 percent reflects the still relatively high proportion of residential consumption as compared to industrial. During the 1950's when the shortage of power became critical many industrial and commercial establishments installed their own generating plant. By the end of 1963 this captive capacity in the Greater Buenos Aires area totalled about 600 Mw and the self-generation in that year amounted to about 1,200 Gwh. Later statistics are not available but it is reasonable to assume that there is still at least 500 Mw of captive plant capable of operation and that the annual generation may be of the order of magnitude of 1,000 Gwh. SEGBA has taken steps to attract more of this captive load but the Company is handicapped to some extent by the high tariffs and the fact that it must charge the industrial consumer sales taxes which private industry does not have to pay on its own generation. However, the major deterrent to recapturing the load is the memory of past outages and it will take SEGBA quite some time to create a new image of reliability.

5.07 The rate schedules in effect at the time of the last loan were unbalanced in favor of the residential consumer at the expense of the industrial users. In 1965 a night-hour reduction for industrial consumption was initiated, but the average price per kwh paid by the industrial consumer in 1966 was actually higher than the average charge to the residential user (M\$N9.35 per kwh versus M\$N9.15, excluding taxes). This situation has, however, been improved recently, when the Government decided to increase only residential rates in 1968, and granted SEGBA's earlier request to apply a flat charge on residential consumers. This charge varies from M\$N50 per month for small users up to M\$N250 per month for large users (an average of M\$N180 per consumer per month). Further adjustments in the rate structure are intended in connection with the next regular rate review at the end of 1968.

5.08 Distribution losses in 1966 totalled some 936 Gwh out of 5,500 Gwh sent-out or about 17 percent. This is high for a large metropolitan network and emphasizes the need for SEGBA to continue spending funds on strengthening the distribution network to lower the losses and improve the service.

Future Growth

5.09 SEGBA's forecast of peak loads and sales for 1967 through 1970 is shown in Annex 6. The projected increases for 1967 are based on normal load growth plus new contracts which have already been signed. From 1968 onward, a 7 percent increase has been assumed for maximum demands and about 7.5 percent for sales of energy. These assumed rates are considered reasonable, provided the economy of Argentina does not suffer a recession. A table of SEGBA's plant capability and peak loads for 1966 and as projected for the next four years is shown below:

SEGBA SYSTEM ONLY (in Mw)

| | <u>Actual</u> | <u>Forecast</u> | | | |
|---|---------------|-----------------|-------------|-------------|-------------|
| | <u>1966</u> | <u>1967</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
| Plant capability, gross | 1,350 | 1,400 | 1,490 | 1,520 | 1,770 |
| Peak load | 1,235 | 1,319 | 1,412 | 1,510 | 1,617 |
| Excess capability without any reserve allowance | 115 | 81 | 78 | 10 | 153 |
| Capability shortage with the largest unit out of commission | (70) | (104) | (107) | (175) | (84) |

Although SEGBA squeezed by the winter peak last year it is clear that even with the expected addition of 120 Mw of new gas turbines in 1968/69, it will not have firm capacity to meet the future demands unless power can be purchased from CIAE and AyEE.

5.10 The following table shows the combined capability and peak loads of SEGBA, CIAE and AyEE's Litoral system for the same five year period:

COMBINED SEGBA, AyEE AND CIAE SYSTEMS (in Mw)

| | <u>Actual</u> | <u>Forecast</u> | | | |
|--|---------------|-----------------|-------------|-------------|-------------|
| | <u>1966</u> | <u>1967</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> |
| Plant capability, gross | 2,120 | 2,170 | 2,260 | 2,540 | 2,790 |
| Peak load | 1,719 | 1,839 | 1,979 | 2,128 | 2,287 |
| Capacity available to meet load after provision for reserve. <u>1/</u> | 1,829 | 1,877 | 1,962 | 2,176 | 2,413 |
| Excess or (shortage) | 110 | 38 | (17) | 48 | 126 |

1/ Reserve includes the largest machine in the system (less auxiliaries) plus 5% of installed system capacity to cater for accidental unavailability.

Sufficient capacity will be available to meet the load in each year except 1968 when there may be a small deficit if the largest unit in the system is actually out of operation over the peak. However, should in any year more than one company have its largest unit out of service at the time of the peak, (which is not an impossible situation), it would be necessary to ration. In view of the limited spare capacity available, the organization in charge of the central dispatch should also be responsible for the coordination of scheduled overhauls for the generating units of all three entities. During negotiations, SEGBA informed the Bank that it had agreed with CIAE that future overhauls and maintenance would be planned jointly.

6. THE PROGRAM

Description

6.01 SEGBA has prepared an expansion program for the period 1967 through 1970 which includes: new generating capacity and transmission lines; new substations and additions to existing substations; and expansion of its distribution network. The estimated cost of the program for the four years totals M\$N107.2 billion (US\$306 million equivalent). The table below gives a breakdown of the cost of the major items with an estimate of the annual expenditures. Further details are shown in Annex 7.

(See table on next page)

SEGBA'S INVESTMENT PROGRAM^{1/} 1967-1970
(in millions of M\$N)

| | <u>1967</u> | <u>1968</u> | <u>1969</u> | <u>1970</u> | <u>Total</u> |
|--|-------------|-------------|-------------|-------------|--------------|
| <u>Generation</u> | | | | | |
| Peaking Units 8 @ 15 Mw | 505 | 2,760 | 410 | - | 3,675 |
| Puerto Nuevo - 250 Mw | 230 | 5,568 | 5,135 | 1,180 | 12,113 |
| Future Generating Plant | - | - | 100 | 400 | 500 |
| Total | 735 | 8,328 | 5,645 | 1,580 | 16,288 |
| | 20 | 600 | 380 | 120 | 1,052 |
| <u>Transmission</u> | 755 | 8,928 | 6,035 | 1,715 | |
| New 132 kv Substations | 536 | 3,347 | 1,510 | - | 5,393 |
| Ext. to Existing 132 kv s/s | 638 | 611 | 767 | 50 | 2,066 |
| 132 kv Lines & Cables | 785 | 3,533 | 2,147 | - | 6,465 |
| Misc. Civil Works & Extension to 27.5 kv & 13.2 kv Systems | 278 | 311 | - | - | 589 |
| Future Program | - | - | 100 | 100 | 200 |
| Total | 2,237 | 7,802 | 4,524 | 150 | 14,713 |
| | 65 | 595 | 310 | 15 | |
| <u>Distribution</u> | 2,302 | 8,423 | 4,834 | 1,65 | |
| Extension to Networks | 13,010 | 16,673 | 17,163 | 17,163 | 64,009 |
| Buildings | 240 | 784 | 1,000 | 800 | 2,824 |
| Total | 13,250 | 17,457 | 18,163 | 17,963 | 66,833 |
| | 200 | 1,235 | 240 | 1,320 | |
| <u>Other</u> | | | | | |
| Vehicles | 300 | 500 | 600 | 600 | 2,000 |
| Consultants' Fees | 140 | 250 | 250 | 200 | 840 |
| Contingencies | 500 | 2,500 | 2,000 | 1,500 | 6,500 |
| Total | 940 | 3,250 | 2,850 | 2,300 | 9,340 |
| | 500 | | | | |
| GRAND TOTAL | 17,162 | 36,837 | 31,182 | 21,993 | 107,174 |
| | 16,662 | 34,337 | 29,182 | 20,493 | 100,674 |
| US\$ Equivalent (millions) | 49.0 | 105.3 | 89.1 | 62.8 | 306.2 |

1/ Excluding interest during construction.

Add interest

6.02 The planned new generating capacity includes: five gas turbine peaking installations, composed of two 15 Mw units each at Malaver, La Matanza and Escalada, and one 15 Mw each at Gutierrez and Berisso; and a 250 Mw steam turbine base load unit (No. 9) to be installed in the Puerto Nuevo station. The expansion of the 132 kv transmission system includes the construction of 23 new substations, the extension of 12 existing substations, and 208 circuit Kms of underground cables and overhead lines. The planned distribution system investments include primary and secondary cables and transformers, low voltage cables and overhead lines, meters, new connections, and public lighting. The locations of the new peaking plants and the physical layout of the 132 kv transmission system are shown in the attached Map.

6.03 The decision to install peaking plants in the generating program was taken after studies made in 1965 by SEGBA and its consultants, Societe Francaise d'Etudes et de Realisations d'Equipements Electriques (SOFRELEC). These studies took into account the capability of the existing generating capacity in the SEGBA and CIAE systems and the availability of surplus capacity from AyEE to meet jointly the forecasted increase in demand for the Greater Buenos Aires area. The studies concluded that the most economical long term solution would be for SEGBA to install 120 Mw of new peak load units to help meet the winter season peak of 1968, followed by CIAE's base load unit in 1969, and SEGBA's 250 Mw base load unit in 1970. The Bank Appraisal Mission reviewed these studies and agrees with the conclusions.

6.04 The proposed lines and substations for the transmission system have been based upon a conservative estimate of the load growth over the next few years. In selecting the sizes of cables and transformers SEGBA has made realistic assumptions regarding the normal growth of demand, has considered all reasonably firm prospective new loads of over 100 kw, and has used acceptable diversity coefficients.

6.05 The planned annual expansion of the distribution system over the next few years is comparable to the works carried out during 1963 and 1964 when SEGBA had sufficient funds for a normal program. Part of the proposed distribution investment would be for the essential rehabilitation and strengthening of the overloaded networks.

6.06 The estimated cost of SEGBA's program is realistic. The unit cost of the peaking plants is equivalent to US\$87 per kw based upon major contracts which have already been awarded. The cost of the 250 Mw base load unit is based upon the cost of the similar unit now being installed by CIAE. Its estimated unit cost is equivalent to US\$138 per kw which is reasonable for this type of installation in Argentina. Because the equipment for the transmission and distribution systems will be procured on the basis of international competitive bidding with a 15 percent margin of preference for local suppliers, the actual cost of the equipment cannot yet be determined and will depend, inter alia, upon the proportion of equipment orders placed locally and abroad. The cost estimates of the program used international prices for the transmission and distribution equipment, plus, for equipment which can be produced in Argentina, a 15 percent margin. An average amount of about 6 percent has been included in the cost estimate of the program to cover contingencies. (Rubi says these are only physical contingencies).

6.07 The facilities in SEGBA's program are urgently needed and form the most economic combination of new generating plants and transmission lines to meet the projected increase of load. The program can be considered as the minimum which would allow SEGBA to improve gradually service to present consumers while at the same time furnishing power to new consumers.

Consulting Engineers

6.08 SEGBA's contract with Merz & McLellan expired in June 1965, following which SOFRELEC was engaged as a replacement. This contract, signed in October 1965, calls for SOFRELEC to provide technical assistance to SEGBA in preparing expansion plans and to complement SEGBA's staff, as required, with personnel to be seconded from Electricite de France. The consultants will furnish this assistance to SEGBA in two ways: through a permanent mission in Buenos Aires; and by means of special studies - parts of which may be made in France. These arrangements are satisfactory and would be continued.

6.09 The permanent mission's main function will be to assist in the preparation of projects for the extension of transmission and distribution networks along the lines of a study made in 1965 by M. Cahen of Electricite de France. The SOFRELEC engineers' work will include detailed design, the preparation of specifications and tender documents, selection of types of materials, analyses of tenders, preparation of contracts, preparation of construction schedules, and supervision of construction. The mission will also provide assistance, as requested by SEGBA, in improving the maintenance and operations of generating plants and networks.

6.10 In February 1966 SEGBA and SOFRELEC signed a new contract covering the technical assistance to be furnished by SOFRELEC with regard to the purchase and installation of the peaking units; in August of 1966 the two firms signed another contract covering the design services and erection supervision of the 250 Mw base load plant. The arrangements for consulting engineering services are satisfactory.

Construction Schedule

6.11 Construction of the gas turbine installations is proceeding satisfactorily; the Malaver and Escalada units are scheduled for completion by May 31, 1968 and the La Matanza units before July 15, 1968. This would provide 90 Mw of new capacity for the winter peak. The single units at Gutierrez and Berisso would be completed by September 30 and October 31, 1968, respectively. Following international competitive bidding, letters of intent to purchase the 250 Mw turbogenerator and boiler of Puerto Nuevo unit No. 9 were issued in November 1967. Fabrication of the main components will commence before February 1, 1968 and erection and testing are expected to be completed by May 1970 so that the unit can enter into commercial operation by June 1, 1970.

6.12 During 1967, SEGBA carried out a reduced program of transmission and distribution expansion, with a minimum of new expenditure, by drawing down its construction inventories. When SEGBA was invited by the Bank to come to Washington for negotiations in September of 1967, the procurement of transmission and distribution equipment was accelerated and the program is now moving at a satisfactory pace. The construction of the transmission system will be done almost entirely by contractors but SEGBA will

do the purchasing for the permanent equipment, such as cables, switchgear, transformers, etc. There will be 10 to 15 contracts for the laying of underground cables and about 50 for the construction of substations and the erection of equipment. The average time for the completion of these contracts is estimated to be about 12 months. As for the distribution expansion, somewhat more than half of the construction program will be carried out by contract and the remainder by SEGBA's own forces. SEGBA expects to place at least 80 separate civil works contracts for the distribution network early in 1968.

7. THE LOAN

7.01 The proposed Bank loan of US\$55 million would help to finance SEGBA's expansion program for the four years 1967 through 1970. The amount of the loan has been determined from an estimate of SEGBA's financing needs during the period October 1, 1967 through March 31, 1969. The proceeds of the loan would be applied to equipment expenditures and the foreign exchange component of civil works, to the extent that these items are not covered by other resources. On the basis of the construction program envisaged in October 1967, the assumed disbursements from the loan, including a small reimbursement for 1967, would be as follows:

| | Millions of M\$N | | | | Millions of US\$ Equiv. |
|------------------------------|-------------------|---------------------------|----------------|------------------|-------------------------|
| | Last Quarter 1967 | 1968 | 1969 | Total | |
| <u>Equipment</u> | | | | | |
| Puerto Nuevo Unit No. 9 | ✓ | 1,125 (54) | 415 | 1,540 (96) | 4.4 |
| Transmission & Distrib. | 519 | 9,976 (481) | 2,425 | 12,920 (840) | 36.9 |
| Subtotal | 519 | 11,101 + 535 11,636 | 2,840 | 14,460 (906) | 41.3 |
| <u>Civil Works</u> | | | | | |
| Peaking Units | 11 | 116 (37) | 18 | 145 (59) | .4 |
| Puerto Nuevo No. 9 | 44 | 645 (37) | 112 | 801 (59) | 2.3 |
| Transmission & Distrib. | 326 | 1,673 (84) | 340 | 2,339 (147) | 6.7 |
| Subtotal | 381 | 2,434 + 118 2,552 | 470 | 3,285 (206) | 9.4 |
| Consulting Services | 50 | 250 + 12 262 | 70 | 370 (23) | 1.1 |
| Interest during Construction | - | 665 | 470 | 1,135 | 3.2 |
| Total | 950 | 14,450 13,785 | 3,850 3,380 | 19,250 17,115 | 55.0 |
| Millions of US\$ Equiv. | 2.7 | 41.3 | 11.0 | 55.0 | |

7.02 The equipment contracts for the peaking units are being financed by European credits. It is expected that suppliers' credits financing on reasonable terms will be forthcoming for at least 80 percent of the equipment cost of the 250 Mw base load unit (see para. 8.04); the necessary

initial cash payments for the turbogenerator and boiler would be drawn from the Bank loan as well as the foreign cost of smaller items for which suppliers' credits could not be obtained. About two-thirds of the loan amount would finance transmission and distribution equipment. Most of this equipment can be manufactured in Argentina, and it is likely that some will actually be purchased there under the procedures described in paragraph 7.03. Finally, the proposed loan would also cover: the foreign exchange cost of civil works for generation, transmission, and distribution, which is estimated to average about 17 percent of the total cost; the foreign exchange cost of consulting services; and interest during construction.

Procurement and Disbursement

7.03 The equipment to be financed by the Bank loan would be procured after international competitive bidding, and supported by normal import documentation. Domestic suppliers who submit tenders under international bidding will be granted exemptions from sales taxes and import duties on raw materials and component parts. In order to provide a margin of preference for Argentine suppliers, contracts would be awarded to the lowest qualified local bidder provided that his offer does not exceed the landed price of the lowest qualified foreign bidder by more than 15 percent. However, disbursements from the proposed loan for the local expenditure component of Argentine procurement would be limited to US\$10 million.

7.04 Civil works contracts would also be awarded after international competitive bidding but it is doubtful whether foreign contractors would compete because of the relatively small size of the individual contracts. SEGBA uses a system of pre-qualification whereby civil contractors are divided into categories according to size and ability to carry out jobs of different magnitudes. SEGBA has informed all the Embassies in Buenos Aires of the general scope of the program so that foreign contractors who wish to be included in the bidding can submit their qualifications. Disbursements for civil works would be on a percentage basis, which would reflect the estimated foreign exchange component, and would be supported by certified monthly statements of work performed.

7.05 The Closing Date would be December 31, 1969, and any outstanding balance would be cancelled.

8. FUTURE FINANCES

Financing Plan

8.01 A forecast of sources and applications of funds for the four years 1967-1970 is attached as Annex 4. The financing plan for the two years through 1968 is summarized below:

| | In millions | | | | |
|---------------------------------------|----------------|----------------------|------------------------------|---|-------|
| | 1967 (M\$N) | 1968 (M\$N) | Total 1967-1968 (M\$N) | Total 1967-1968 (US\$ Equiv.) ^{1/} | % |
| <u>Applications of Funds</u> | | | | | |
| Construc. Expenditure | 17,162 | 36,837 | 53,999 | 154.3 | 91.2 |
| Increase in Working Capital | 900 | 4,291 | 5,191 | 14.8 | 8.8 |
| Total | 18,062 | 41,128 | 59,190 | 169.1 | 100.0 |
| <u>Sources of Funds</u> | | | | | |
| Internal Cash Generation | 21,254 | 32,682 ^{2/} | 53,936 | 154.1 | 91.1 |
| Less: Debt Service, Fees and Bonus | 11,300 | 13,260 | 24,560 | 70.2 | 41.5 |
| Net Internal Cash Generation | 9,954 | 19,422 | 29,376 | 83.9 | 49.6 |
| Reduction in Inventories | 555 | 1,705 | 2,260 | 6.5 | 3.9 |
| Subtotal: Own Resources | 10,509 | 21,127 | 31,636 | 90.4 | 53.5 |
| Proposed IBRD Loan ^{3/} | - | 15,400 | 15,400 | 44.0 | 26.0 |
| Suppliers' Credits | 853 | 4,301 | 5,154 | 14.7 | 8.7 |
| Caja Nacional de Ahorro Postal | 6,700 | 300 | 7,000 | 20.0 | 11.8 |
| Subtotal: Borrowings | 7,553 | 20,001 | 27,554 | 78.7 | 46.5 |
| Total | 18,062 | 41,128 | 59,190 | 169.1 | 100.0 |

- ^{1/} At the current exchange rate, effective since March 1967, of M\$N350 per US\$.
- ^{2/} Includes the M\$N6.3 billion appropriation from the National Energy Fund (see para. 3.15).
- ^{3/} The balance of the proposed US\$55 million loan would be disbursed in 1969.

8.02 Internal cash generation, net of debt service, would amount to US\$84 million equivalent, or 50 percent of the total requirements. This high proportion, considering the heavy debt service requirements, reflects the fact that revenues are high, since they include the recovery of the M\$N3.2 billion deficiency which existed at the end of 1966, and since no cash dividends are contemplated. Inventories of equipment and materials which had been built up in 1965 and 1966 for works which were postponed, are being used for the current reduced program and will continue to be brought down by an estimated total of M\$N 2.3 billion.

8.03 In October 1967, two new 15 percent loans, aggregating M\$N6.7 billion, were obtained from the Caja Nacional de Ahorro Postal. Of this, M\$N5 billion will be repaid over six years, including three years grace. The balance of M\$N1.7 billion was added to an outstanding short-term credit

of about M\$N300 million, and the aggregate will be repaid over the next three years in equal monthly installments. SEGBA has reserved the right to prepay, should it be successful in its current efforts to raise loans on more favorable terms from private sources.

8.04 SEGBA would incur about US\$14.7 million of suppliers' credits in the period, including:

- (a) local credits of M\$N743 million and foreign credits of M\$N116 million, most of which have been incurred in 1967;
- (b) two foreign credits aggregating US\$7.2 million for the supply of the peaking units, with interest rates at 7-1/2 percent and terms of eight years; and
- (c) assumed foreign credits, with interest at 7 percent and a term of 13 years, including 3 years grace (the exact terms are not yet known), aggregating US\$12.5 million, of which about US\$5.1 million would be used in the period, for the main components of the base load unit.

8.05 The proposed Bank loan of US\$55 million is assumed to carry interest at 6-1/4 percent. Based on the nature of the project and the Company's financial position, a term of 20 years, including a grace period of three years, is proposed. About US\$44 million would be used towards the requirements of 1967 and 1968, of which it would cover 26 percent. The US\$11 million balance would help finance expenditures of the first quarter of 1969. (Details of the tentative financing plan for 1969 and 1970 are included in Annex 4).

8.06 This financing plan is satisfactory. The Government, as shareholder, would make additional equity investments or receive dividends in stocks rather than cash, if, during the period covered by the proposed loan, insufficient funds were available to carry out the program.

8.07 SEGBA should be encouraged to raise within the next year a substantially higher amount of loans, to further improve working capital, pay cash dividends, and more generally establish its credit and financial autonomy. Until sufficient amounts can be raised from private sources, a future sound development of the electricity supply in Buenos Aires would still be dependent on availability of Government and Bank loan funds. This is evidenced by the financing plan tentatively forecast in Annex 4 for 1969 and 1970. SEGBA would then need a minimum of M\$N15 billion (about US\$43 million) fresh borrowings, part of which would no doubt be asked from the Bank, to supplement the high level of cash generation. Larger borrowings would be needed if cash dividends were to be paid in that period.

Future Earnings

8.08 Forecast income statements for the four years 1967-1970 are shown in Annex 3, together with explanatory notes. These forecasts are based on the estimated results for 1967, the arrangements described in paragraph 3.15 for the recovery in 1968 of the 1967 shortfall, and the general assumption that SEGBA will earn in each future year the 8 percent return permitted by the concession, after charging adequate depreciation. The forecast coverages of interest by net income would be ample.

8.09 On the basis of the assumptions in paragraph 3.12 regarding the future number of personnel, the ratio of consumers per employee would continue to improve slowly from the minimum of 71 reached at the end of 1965, to 83 at the end of 1968 and 89 at the end of 1970.

Future Financial Position

8.10 Annex 1 shows two sets of balance sheets as at the end of each of the years 1967 to 1970, one based on SEGBA's existing accounting practice, the other, more meaningful, adjusted to show the dollar values of plant in service and depreciation, as used for rate making purposes (see para. 4.02). After a slight setback to about 0.9 at the end of 1967, the ratio of current assets to current liabilities would improve to over 1.0 in subsequent years. SEGBA's financial condition and performance, as shown in Annexes 1, 3 and 4, would reflect the expected high earnings, and the assumptions that only a minimum amount of debt would be incurred and that no cash dividends would be paid. The coverage of annual debt service by internally generated cash would be satisfactory, ranging between 2 and 2.5 times; internal cash generation, net of debt service, would represent in the four year period about 60 percent of the program, which is more than would normally be required for a utility of this size; and debt would fall below 30 percent of the total capitalization. The existing and proposed financial covenants would all be met with ample margins.

9. CONCLUSIONS

9.01 The program for the addition of generating capacity and for the expansion of transmission and distribution meets the minimum needs of the system and is economically justified. The arrangements for the engineering and implementation of the program are acceptable. The total cost of the program is estimated at about US\$300 million.

9.02 The coordination of planning and operations of the Buenos Aires power sector is necessary to prevent the further overlapping of the facilities of SEGBA and CIAE and to realize the maximum possible economies from existing installations. As a significant step in this direction, SEGBA and CIAE have just started operating a central dispatch office to control generation.

9.03 Prospects for the improvement of the labor situation are promising. There has been a slight reduction in the number of personnel since the high reached in mid-1966, and another reduction of about 1,000 is planned during 1968. This and further reductions would be contingent on amendments to the labor contract, which are being actively considered in accordance with the procedure set out by recent legislation.

9.04 Power rates were brought to the 8 percent return level to which SEGBA is entitled under its concession, by substantial increases in 1966 and early 1967. However, due to the March devaluation, revenues for 1967 would fall short of the 8 percent return. As an exceptional measure, consistent with its stabilization program, the Government decided with the agreement of the Bank to compensate this shortfall with an extraordinary appropriation to be made during 1968 and to be treated by SEGBA as revenues. Residential rates were increased at the beginning of this year to generate the additional revenues needed to achieve the 8 percent return in 1968. This increase would improve the rate structure which has long been unbalanced at the expense of industrial consumers.

9.05 The financial condition of SEGBA has greatly improved. The capitalization is characterized by very little long term debt and a high proportion of Government equity on which no cash dividends are being paid. The ratio of current assets to current liabilities has improved to an acceptable level. The high accounts receivable and accounts payable are being reduced.

9.06 The proposed financing plan for 1967-1968 is satisfactory. Earnings prospects are good. SEGBA would earn satisfactory returns, achieve ample coverages of interest and debt service, and would generate a high proportion of its new capital requirements. Even with the proposed and forecast loans, debt would remain under 30 percent of capitalization.

9.07 The appropriate term for the proposed Bank loan of US\$55 million would be 20 years, including a 3 year grace period. A ceiling of US\$10 million would be placed on the local expenditure component of Argentine manufactured goods to be financed by the loan. Confirmation has been obtained that:

- (i) Changes in the by-laws and the concession of SEGBA would remain subject to Bank approval (para. 3.03);
- (ii) SEGBA would consult with the Bank prior to the appointment of an Executive Vice President (para. 3.04);
- (iii) SEGBA would continue to apply for, and the Government would grant, the level of rates to which SEGBA is entitled under the concession; and depreciation should be charged at a minimum average rate of 3 percent (para. 3.16);

- (iv) SEGBA would continue to limit incurrence of long-term debt by the tests already provided for in the existing agreements; and the existing security arrangements would apply to the proposed loan (para. 4.07);
- (v) The equipment to be financed by the proposed Bank loan would be procured after international competitive bidding, with a 15 percent maximum preference for Argentine manufacturers (para. 7.03);
- (vi) The Government, as shareholder, would agree to make additional equity investments, or to receive dividends in stocks rather than cash, if, during the period covered by the proposed loan, insufficient funds were available to carry out the program (para. 8.06); and
- (vii) It would continue to be the policy of the Government to encourage the investment of private savings in SEGBA (para. 4.04).

January 10, 1968

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGRA)

ACTUAL AND FORECAST BALANCE SHEETS AS OF DECEMBER 31, 1962 THROUGH 1970

| Fiscal Year Ending December 31 | 1. Historic peso values (M\$N millions) | | | | | 2. Dollar values in the Concession (\$ millions) | | | | |
|--|---|----------|----------|----------|----------|--|----------|----------|----------|---------|
| | ACTUAL | | | | | FORECAST | | | | |
| | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | |
| ASSETS | | | | | | | | | | |
| Fixed Assets | | | | | | | | | | |
| Plant in service | 22,938 | 41,872 | 53,113 | 63,522 | 73,161 | 87,960 | 116,024 | 145,057 | 178,911 | 702.4 |
| Exchange difference | - | - | - | 9,681 | 18,823 | 33,229 | 33,229 | 33,229 | 33,229 | (186.2) |
| Less: Depreciation | (10,808) | (11,443) | (13,093) | (15,354) | (20,755) | (29,053) | (38,293) | (48,476) | (59,690) | (208.0) |
| Customers' contributions | - | (375) | (460) | (609) | (812) | (1,032) | (1,282) | (1,562) | (1,872) | (233.1) |
| Net plant in service | 12,130 | 30,054 | 39,560 | 57,240 | 70,417 | 91,104 | 109,678 | 128,248 | 150,578 | (261.2) |
| Work in progress | 13,110 | 4,245 | 4,370 | 3,081 | 5,037 | 7,207 | 15,837 | 17,855 | 5,826 | 544.1 |
| Construction inventories | 2,610 | 3,536 | 3,472 | 5,433 | 6,380 | 5,825 | 4,120 | 4,000 | 4,000 | 598.1 |
| Total | 27,850 | 37,835 | 47,702 | 65,754 | 81,834 | 104,136 | 129,635 | 150,103 | 160,404 | 651.3 |
| Current Assets | | | | | | | | | | 715.0 |
| Fuel and other materials | 154 | 233 | 227 | 382 | 506 | 620 | 715 | 750 | 780 | 21.6 |
| Accounts receivable | 4,943 | 6,633 | 7,364 | 11,403 | 17,321 | 18,700 | 21,000 | 22,600 | 24,300 | 45.3 |
| Cash | 128 | 69 | 159 | 950 | 4,538 | 1,500 | 1,500 | 1,000 | 1,000 | 51.0 |
| Prepaid expenses | - | 34 | 69 | 275 | 412 | 740 | 700 | 700 | 700 | 16.7 |
| Total | 5,225 | 6,969 | 7,819 | 13,010 | 22,777 | 21,560 | 23,915 | 25,050 | 26,780 | 11.4 |
| Deferred Charges | | | | | | | | | | |
| | 657 | 936 | 1,146 | 949 | 72 | 245 | 250 | 250 | 250 | 61.6 |
| TOTAL ASSETS | 33,732 | 45,740 | 56,667 | 79,713 | 104,683 | 125,941 | 153,800 | 175,403 | 187,434 | 716.6 |
| LIABILITIES | | | | | | | | | | |
| Capital and Reserves | | | | | | | | | | |
| 5% cumulative preferred shares | 6,153 | 6,153 | 6,753 | 7,351 | 10,480 | 10,900 | 11,445 | 12,017 | 12,618 | 418.4 |
| M\$N 100 par | 9,229 | 9,229 | 10,129 | 11,922 | 17,906 | 20,864 | 25,037 | 30,044 | 36,053 | 468.4 |
| Common shares M\$N 100 par | 2,372 | 5,119 | 6,003 | 7,174 | 11,316 | 14,983 | 27,782 | 34,623 | 42,104 | 503.9 |
| Reserves and surplus | | | | | | | | | | 544.0 |
| Total | 17,754 | 20,501 | 22,885 | 26,447 | 39,702 | 46,747 | 64,264 | 76,684 | 90,775 | 395.8 |
| Long-Term Debt | | | | | | | | | | |
| Proposed IBRD Loan | | | | | | | 15,400 | 19,250 | 18,618 | - |
| IBRD Loan 308-A1 | 1,987 | 8,831 | 11,600 | 16,741 | 21,354 | 29,312 | 28,349 | 27,329 | 26,251 | 86.4 |
| Eximbank and suppliers, Puerto Nuevo 7 & 8 | 1,741 | 1,636 | 1,968 | 2,907 | 3,221 | 2,905 | 2,497 | 2,089 | 1,681 | 13.0 |
| BTH-ICL, Metrovick | 4,064 | 4,112 | 4,811 | 5,870 | 5,291 | 3,254 | - | - | - | 8.3 |
| Bonds and notes, Sodec & Ser | 547 | 1,594 | 2,621 | 3,682 | 4,303 | 5,265 | 4,357 | 3,431 | 2,627 | 9.3 |
| Local suppliers | 305 | 515 | 471 | 1,023 | 975 | 1,200 | 711 | 361 | 135 | 15.0 |
| Caja Nacional Ahorro Postal I | | | | | 6,000 | 5,265 | 4,357 | 3,431 | 2,627 | 17.4 |
| " " " " II | | | | | 5,000 | 1,200 | 711 | 361 | 135 | 3.9 |
| " " " " III | | | | | 1,100 | 6,000 | 4,800 | 3,000 | - | 17.1 |
| Foreign suppliers: peaking units | | | | | - | 5,000 | 5,000 | 4,000 | 2,500 | 14.3 |
| Foreign suppliers: base load unit | | | | | - | 1,100 | 800 | 200 | - | 11.3 |
| Other and foreign suppliers | | | | | - | - | 2,209 | 1,850 | 1,491 | 2.3 |
| Future loan - 1967-1970 Program | | | | | - | - | 1,770 | 3,682 | 3,715 | 6.3 |
| Customers' deposits | | | | | 419 | 81 | 54 | 28 | 6 | 5.1 |
| Total | 8,644 | 16,683 | 21,471 | 30,223 | 41,563 | 419 | 419 | 419 | 419 | 10.5 |
| Current Liabilities | | | | | | | | | | |
| Accounts and notes payable | 5,548 | 6,461 | 8,315 | 12,245 | 15,280 | 12,000 | 12,000 | 12,500 | 13,000 | 1.2 |
| Banks | 186 | 350 | 805 | 5,597 | 3,158 | 4,480 | 2,499 | 1,873 | 2,050 | 22.1 |
| Current portion of long-term debt | 1,266 | 1,332 | 2,133 | 4,448 | 4,544 | 7,728 | 8,171 | 6,707 | 8,666 | 23.3 |
| Total | 7,000 | 8,143 | 11,833 | 22,290 | 22,982 | 24,208 | 22,670 | 21,080 | 23,716 | 19.2 |
| Deferred Income and Provisions | | | | | | | | | | |
| | 334 | 408 | 478 | 753 | 436 | 450 | 500 | 500 | 500 | 64.8 |
| TOTAL LIABILITIES | 33,732 | 45,740 | 56,667 | 79,713 | 104,683 | 125,941 | 153,800 | 175,403 | 187,434 | 60.2 |
| Debt as % of total capitalization | 33 | 45 | 48 | 53 | 51 | 54 | 51 | 50 | 44 | 27 |
| Current assets to current liabilities | .75 | .86 | .86 | .88 | .99 | .89 | 1.05 | 1.19 | 1.13 | 29 |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Notes on Balance Sheets

1. SEGBA's accounts reflect historic costs. Starting 1965, however, foreign exchange liabilities have been shown at current exchange rates. The resulting, partial, revaluation of assets is shown under "Exchange difference" in Part 1, Historic peso values, of the tabulation in Annex 1. Part 2 of this tabulation shows SEGBA's balance sheets as of December 31, 1966 through 1970, expressed in dollars, and adjusted on the basis of the dollar values actually used to calculate depreciation charges and financial returns, and to determine the level of power rates, in accordance with the Concession. The effect of this valuation of assets is reflected in a revaluation of equity which is included in the corresponding values shown in Part 2 under "Capital and Reserves, Total".

2. (a) The item "Accounts Receivable" as of December 31, 1966 is detailed below (in millions of M\$N):

| | | |
|------------------------------------|--------------|---------------|
| Private Consumers | | 7,881 |
| Government Entities and Agencies: | | |
| current | 1,052 | |
| more than 4 months | <u>2,600</u> | 3,652 |
| Municipalities and Province | | 834 |
| Notes Receivable | | 187 |
| Doubtful Accounts | | 417 |
| Power supplied but not invoiced | | 3,670 |
| Other accounts receivable | | <u>1,380</u> |
| | | 18,021 |
| Less: Provision for doubtful debts | | <u>700</u> |
| | | <u>17,321</u> |

- (b) The Government debt has been classified according to aging: of the M\$N 2.6 billion of arrears, about M\$N 1.3 billion have been outstanding since December 31, 1965 and before. Four months (or about M\$N 1 billion at December 31, 1966) have been considered a reasonable delay for the future and the gradual payment of all other overdue balances has been assumed in the forecasts.
- (c) The item "Power supplied but not invoiced", M\$N 3.67 billion, represents the estimated value of the electricity consumed between the last reading of the meter and December 31 (see Note 3 to Income Statements). The amounts will be billed after the next meter reading in January or February at the rates effective the following year; because of SEGBA's bimonthly meter reading cycle they represent in average one month billings.

3. The following is a summary of SEGBA's share capital history:

| | |
|---|-------------------------------|
| (a) <u>October 1958: creation of SEGBA</u> | <u>M\$N</u> <u>million</u> |
| Series A shares, optional cumulative 8 percent dividend on par, issued to Government for its "original investment" in the two foreign predecessor companies (CADE AND CEP) | 3,195 |
| 10 Series of B shares, 8 percent cumulative dividend on par, issued to SODEC for agreed value of Belgian investment, and redeemable by Government in ten annual installments | <u>8,347</u> |
| Total original share capital | 11,542 |
| (b) <u>Period through October 1961: purchase of B Shares by Government</u> | |
| First two series B shares purchased for cash 1960 and 1961 | 1,669 |
| Eight remaining series B shares purchased October 1961 in exchange for US\$ 114.83 million of 6-1/2 percent Argentine Government 1961/73 dollar bonds under option in original agreement to accelerate purchase | <u>6,678</u> |
| Total B shares purchased | 8,347 |
| Add original A shares | <u>3,195</u> |
| Total share capital, fully owned by Government | <u>11,542</u> |

(c) The New SEGBA

| | Original Investment M\$N million | Preferred Shares M\$N million | Common Shares M\$N million | Total Shares M\$N million |
|--|--|-------------------------------------|----------------------------------|---------------------------------|
| <u>Recapitalization of 1961/62</u> | | | | |
| (i) Cancellation of original A shares, value trans- ferred to depreciation reserve | 3,195 | | | |
| (ii) Exchange of B shares purchased for new pre- ferred and common shares in a 40/60 ratio | 8,347 | 3,339 | 5,008 | 8,347 |
| Sub-total | 11,542 | 3,339 | 5,008 | 8,347 |
| (iii) Transfer of AyEE properties and exchange of new shares, in 40/60 ratio, for esti- mated value of: | | | | |
| - distribution properties in 14 "partidos" | 2,341 | | | |
| - Costanera Station and 132 kv interconnection | 4,694 | | | |
| Sub-total | 7,035 | 2,814 | 4,221 | 7,035 |
| Total share capital in new SEGBA as of December 31, 1962 | | 6,153 | 9,229 | 15,382 |
| <u>Additions since 1962</u> | | | | |
| (i) by stock dividends: | | | | |
| - 1962, issued 1965 | | 290 | 870 | 1,160 |
| - 1963, issued 1965 | | 308 | 923 | 1,231 |
| - 1964, issued 1966 | | 344 | | 344 |
| - 1965, issued 1966 | | 385 | 2,384 | 2,769 |
| Sub-total | | 1,327 | 4,177 | 5,504 |
| (ii) for Government cash contributions, in 40/60 ratio: | | | | |
| - 1964 contribution | | 600 | 900 | 1,500 |
| - 1966 contribution | | 2,400 | 3,600 | 6,000 |
| Sub-total | | 3,000 | 4,500 | 7,500 |
| <u>Share capital at December 31, 1966</u> | | 10,480 | 17,906 | 28,386 |

4. The item "Accounts and Notes Payable" as of December 31, 1966 and its foreseen evolution to the end of 1967 and 1968 are detailed below (in millions of M\$N):

| <u>Fiscal Year ending December 31:</u> | <u>Actual</u> | <u>Forecast</u> | |
|--|---------------|-----------------|--------------|
| | <u>1966</u> | <u>1967</u> | <u>1968</u> |
| Fuel Suppliers <u>a/</u> | 4,502 | 3,150 | 2,700 |
| Suppliers and Contractors <u>b/</u> | 3,129 | 3,700 | 4,150 |
| Wages and Social Charges <u>c/</u> | 1,761 | 400 | 400 |
| Taxes <u>d/</u> | 3,781 | 2,255 | 1,820 |
| Accrued Interest, etc. | 983 | 1,220 | 1,230 |
| Taxes | <u>1,124</u> | <u>1,275</u> | <u>1,700</u> |
| Total | 15,280 | 12,000 | 12,000 |

- (a) Some M\$N 2 billion of overdue payments are included in the M\$N 4.5 billion due to suppliers of fuel. SEGBA is planning to bring terms of payment to an acceptable maximum of 5 months by mid-1968.
- (b) For 1968 a delay of 90 days, instead of up to 180 days in the past would be respected for payments to suppliers and contractors.
- (c) The high level of "Wages and social charges" at the end of 1966 was due to an exceptional delay in paying the "thirteenth month" of wages due at the end of December. Normally only the retirement fund contribution (21% of wages, due within 30 days from pay day) would show.
- (d) This item includes substantial arrears, which are being gradually paid off at the rate of M\$N 100 million per month; also included are over M\$N 500 million, whose payment is disputed by the entities from which SEGBA should have collected the tax.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

STATEMENT OF DEBT AS AT DECEMBER 31, 1966

(in millions of pesos unless otherwise indicated)

| Date Contracted | Source | Interest % | Amortization Period | Amount (millions of original currency) | Purpose | Gross Long Term Debt Outstanding Dec. 31, 1966 (at 247.30) | Current Portion (at 247.30) | Net Long Term Debt Outstanding Dec. 31, 1966 (at 247.30) | Effective Amortization in 1967 (1) | Gross Long Term Debt Outstanding as of Dec. 31, 1967 (at 350) |
|------------------------------|--|------------|------------------------|--|---|--|-----------------------------|--|------------------------------------|---|
| 1/19/1962 | IERD Loan 308 AR | 5.75 | 1965/1986 | US\$ 93.35 | GBA (Costanera) Power Station and 1962-64 Distribution | 21,962 | 608 | 21,354 | 747 | 30,223 |
| 4/22/1959 | Eximbank Loan 1056-A | 5.75 | 1968 | US\$ 3.5 | No. 7 Unit P.N. | 866 | - | 866 | - | 1,225 |
| 1/ 4/1962 | Eximbank (I) Loan 1056-X (II) | 6 5.75 | 1965/1973 1965/1976 | US\$ 3.115 " 9.878 | No. 8 Unit Puerto Nuevo | (599 2,029 | 86 203 | 513 1,826 | 121 287 | 728 2,585 |
| 8/ 4/1962 | General Electrica Espanola | 7.5 | 1963/1967 | " .105 | Transformers for No. 8 Unit P.N. | 5 | 5 | - | 6 | - |
| 3/ 7/1966 11/14/1966 | Asociados Internacionales | 8 | 1966/1968 | DM .192 | Material and instruments addition to inter-connection | 12 | 8 | 4 | 10 | 6 |
| 1/23/1958 | BTH-ICL (2) | | 1962/1969 | £ 16.689 | GBA (Costanera) Power Station equipment | 6,404 | 1,873 | 4,531 | 2,315 | 5,514 |
| 4/ 2/1958 | Metropolitan-Vickers (2) | | 1962/1969 | £ 3.953 | 132 Kv S/S equipment | 1,276 | 516 | 760 | 733 | 926 |
| 2/16/1959 | Westinghouse | 6 | 1960/1968 | US\$ 9.926 | No. 7 Unit Puerto Nuevo | 342 | 330 | 12 | 467 | 18 |
| 11/30/1964 | Sodec Dollar Notes | 6 | 1966/1974 | US\$ 4.5 | Rescheduling of debt | 1,062 | 107 | 955 | 151 | 1,352 |
| 11/30/1964 | Cofipa Notes | 6 | 1967/1974 | MM\$ 450 | Purchase of building | 741 | 75 | 666 | 99 | 943 |
| 4/19/1960 7/ 1/1960 | SEGBA/Sodec Bonds | 6 | 1961/1970 | MM\$ 550 | No. 7 Unit P.N. and Distribution | 398 | 100 | 298 | 111 | 423 |
| 4/14/1961 6/ 1/1961 | " " " | 8 | 1962/1971 | MM\$ 500 | No. 7 Unit P.N. and Distribution | 393 | 79 | 314 | 111 | 444 |
| 1/ 2/1962 (1961) | " " " | 8 | 1962/1971 | MM\$ 500 | No. 8 Unit P.N. | 333 | 67 | 266 | 94 | 377 |
| 1/10/1962 | " " " | 8 | 1963/1972 | | No. 8 Unit P.N. | 143 | 24 | 119 | 24 | 168 |
| 11/27/1964 | " " " | 6 | 1966/1974 | MM\$ 400 | Postponed payments Dec. 1964 through Dec. 1966 of Bonds 1960/1962 | 620 | 77 | 543 | 110 | 768 |
| 11/19/1965 | SEGBA Rosario Bonds | 5.75 | 1968/1980 | MM\$ 825 | 1965/1966 Program | 1,142 | - | 1,142 | - | 1,617 |
| A) Subtotal Foreign Currency | | | | | | 38,327 | 4,158 | 34,169 | 5,416 | 47,317 |
| 1963/1966 | Pirelli (3) | 8 | 1964/1971 | MM\$ 893 | Cables | 669 | 181 | 488 | 181 | 488 |
| " " | CAMELA | 8 | " | MM\$ 8 | " | 5 | 2 | 3 | 2 | 3 |
| " " | General Electric Argentina | 8 | " | MM\$ 118 | Meters | 78 | 25 | 53 | 25 | 53 |
| " " | Galileo | 8 | " | MM\$ 330 | " | 233 | 70 | 163 | 70 | 163 |
| " " | Ind. Electricas de Quilmes | 8 | " | MM\$ 234 | Cables | 168 | 48 | 120 | 48 | 120 |
| " " | Compania Standard Electric | 8 | " | MM\$ 7 | " | 5 | 2 | 3 | 2 | 3 |
| " " | CEGELEC | 8 | " | MM\$ 50 | Transformers | 36 | 10 | 26 | 10 | 26 |
| " " | SIAM Electromecanica | 8 | " | MM\$ 89 | " | 75 | 18 | 57 | 18 | 57 |
| 12/13/1966 | Electromecanica Argentina | 8 | 1967/1971 | MM\$ 50 | Panels | 50 | 10 | 40 | 10 | 40 |
| 6/ 2/1965 | International Harvester | 15 | 1965/1968 | MM\$ 46 | Purchase of building | 22 | 16 | 6 | 16 | 6 |
| 10/20/1960 | Direccion Nacional de la Energia | 3 | 1962/1971 | MM\$ 43 | (Addition to distribution District San Francisco Solano) | 20 | 4 | 16 | 4 | 16 |
| 10/20/1960 | Contribucion clientela sujeta a devolucion | | | | | 419 | - | 419 | - | 419 |
| 12/30/1966 | Caja Nacional de Ahorro Postal | 8 | 1969/1971(4) | | | 6,000 | - | 6,000 | - | 6,000 |
| B) Subtotal Local Currency | | | | | | 7,780 | 386 | 7,394 | 386 | 7,394 |
| GENERAL TOTAL A + B | | | | | | 46,107 | 4,544 | 41,563 | 5,802 | 54,711 |

(1) "Effective amortization" takes into account the devaluation of the peso on March 13, 1967.

(2) Ten payments from January 23, 1962 through April 2, 1964 were postponed and added to the original schedule, thus extended to July 23, 1969. Interest rate was formerly at 3 1/2% above the Bank of England discount rate but was revised and increased, when the contracts were taken over from A y EE by SEGBA (January 1962) to: (a) a flat 7-1/2% per annum on part of the notes (presently 45% of the total outstanding) and (b) 1% above the B. of E. discount rate (8%, as at November 18, 1967) on the remaining part. The amounts due to BTH/ICL and Metropolitan-Vickers at the end of 1967 have been reduced by MM\$20 million and MM\$154 million respectively, reflecting devaluation of the British Pound on November 18, 1967.

(3) Includes several credits, at 5 years and 8% interest rate.

(4) The reimbursement schedule of this loan is as follows:

October 26, 1967 MM\$ 1,000 million
 September 30, 1970 " 1,000 "
 September 30, 1971 " 3,000 "

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

ACTUAL AND FORECAST INCOME STATEMENTS 1962-70
(in millions of Pesos unless otherwise indicated)

| | ACTUAL | | | | | FORECAST | | | |
|---|--------|--------|--------|--------|--------|----------|--------|--------|--------|
| Fiscal year ending December 31 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 |
| Sales billed in millions of kwh | 3,200 | 3,485 | 3,916 | 4,270 | 4,602 | 4,860 | 5,230 | 5,620 | 6,040 |
| Average revenue per kwh, including taxes (in pesos) | 3.71 | 5.09 | 5.07 | 7.27 | 10.00 | 12.60 | 13.42 | 13.44 | 13.13 |
| Average revenue per kwh, excluding taxes (in pesos) ^{1/} | 3.43 | 4.80 | 4.78 | 6.73 | 9.38 | 11.87 | 12.57 | 12.58 | 12.29 |
| Total revenues | 11,872 | 17,734 | 19,864 | 31,050 | 46,011 | 61,231 | 70,203 | 75,519 | 79,325 |
| Less: Sales taxes ^{2/} | 908 | 987 | 1,150 | 2,298 | 2,830 | 3,540 | 4,440 | 4,811 | 5,093 |
| Operating revenues | 10,964 | 16,747 | 18,714 | 28,752 | 43,181 | 57,691 | 65,763 | 70,708 | 74,232 |
| Adjustment for unbilled sales ^{3/} | 902 | (138) | 534 | 759 | 1,086 | 500 | - | - | - |
| Contribution from F.N.E. ^{4/} | - | - | - | - | - | - | 6,259 | - | - |
| Total operating revenues | 11,866 | 16,609 | 19,248 | 29,511 | 44,267 | 58,191 | 72,022 | 70,708 | 74,232 |
| Operating expenses | | | | | | | | | |
| Salaries, wages and social benefits ^{5/} | 3,008 | 4,490 | 7,104 | 9,865 | 13,434 | 18,387 | 18,571 | 18,757 | 19,320 |
| Fuel ^{6/} | 1,923 | 3,019 | 3,295 | 4,307 | 5,902 | 7,340 | 8,174 | 8,720 | 9,340 |
| Purchased power ^{7/} | 1,352 | 1,128 | 1,001 | 1,109 | 1,348 | 1,851 | 1,509 | 3,416 | 2,454 |
| Taxes ^{8/} | 610 | 1,002 | 1,171 | 1,794 | 2,591 | 3,592 | 4,045 | 4,396 | 4,616 |
| Other expenses | 1,061 | 1,865 | 2,461 | 3,449 | 4,108 | 5,987 | 7,291 | 6,739 | 7,037 |
| Depreciation ^{9/} | 1,473 | 2,198 | 1,778 | 2,462 | 5,584 | 8,491 | 9,383 | 10,314 | 11,382 |
| Total operating expenses | 9,427 | 14,002 | 16,810 | 22,993 | 32,967 | 45,648 | 48,973 | 52,342 | 54,149 |
| Net income before interest | 2,439 | 2,607 | 2,438 | 6,518 | 11,300 | 12,543 | 23,049 | 18,366 | 20,083 |
| Interest | 461 | 1,098 | 1,678 | 2,600 | 3,509 | 4,704 | 5,438 | 5,735 | 5,841 |
| Less: Capitalized interest ^{10/} | (387) | (172) | (214) | (147) | (204) | - | - | - | - |
| Other income deductions | 38 | 56 | 71 | 67 | 128 | - | - | - | - |
| Net profit | 2,327 | 1,625 | 903 | 2,520 | 3,433 | 4,704 | 5,438 | 5,735 | 5,841 |
| Disposition of profit ^{11/} | | | | | | | | | |
| Reserves and surplus | 1,144 | 375 | 132 | 601 | 3,695 | 3,027 | 11,821 | 5,870 | 6,229 |
| Directors' fees | 23 | 19 | 11 | 48 | 94 | 94 | 211 | 151 | 171 |
| Bonus to personnel ^{12/} | - | - | 415 | 580 | 700 | - | - | - | - |
| Stock dividends - preferred ^{13/} | 290 | 308 | 345 | 385 | 420 | 545 | 572 | 601 | 631 |
| - common | 870 | 923 | - | 2,384 | 2,958 | 4,173 | 5,007 | 6,009 | 7,211 |
| Net income necessary under Concession ^{14/} | | | | | | | | | |
| Net income for year | 2,392 | 3,250 | 5,112 | 7,319 | 10,445 | 15,586 | 16,790 | 18,366 | 20,083 |
| Deficiency for previous year | - | (47) | 596 | 3,270 | 4,071 | 3,216 | 6,259 | - | - |
| Less: Net income earned | 2,392 | 3,203 | 5,708 | 10,589 | 14,516 | 18,802 | 23,049 | 18,366 | 20,083 |
| Earnings (surplus) or deficiency carried over | (47) | 596 | 3,270 | 4,071 | 3,216 | 6,259 | - | - | - |
| Exchange rate at year end M\$N per dollar | 134.1 | 132.5 | 150.9 | 188.5 | 247.3 | 350.0 | 350.0 | 350.0 | 350.0 |
| No. of employees | 19,220 | 20,944 | 23,495 | 25,068 | 25,768 | 25,600 | 24,600 | 24,600 | 24,600 |
| Increase in wage level % | 31.1 | 29.3 | 29.6 | 26.9 | 28.5 | 31.0 | 3.0 | 3.0 | 3.0 |
| No. of consumers: In '000 | 1,578 | 1,646 | 1,711 | 1,779 | 1,875 | 1,950 | 2,030 | 2,110 | 2,200 |
| Ratios | | | | | | | | | |
| Return on average net plant in service % ^{15/} | 8.2 | 6.4 | 2.1 | 5.6 | 8.6 | 6.4 | 11.0 | 8.0 | 8.0 |
| Times interest covered by net income | 5.3 | 2.4 | 1.5 | 2.5 | 3.2 | 2.7 | 4.2 | 3.2 | 3.4 |
| Consumers per employee | 82 | 79 | 73 | 71 | 73 | 76 | 83 | 86 | 89 |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

NOTES AND ASSUMPTIONS ON INCOME STATEMENTS

1. The following rate increases have taken place in the period reviewed:

| <u>Date</u> | <u>Average revenue, M\$N per kwh (excluding sales taxes)</u> | <u>% increase over previous average</u> | <u>Purpose</u> |
|----------------|--|---|-------------------------------|
| 1961 | 2.70 | | |
| 1962 - January | 3.12 | 15.6 | Annual Review |
| - March | 3.68 | 17.9 | Labor and fuel costs |
| 1963 - January | 4.80 | 30.4 | Annual review |
| 1965 - January | 6.44 | 34.2 | Annual review |
| - June | 7.00 | 8.7 | Exchange rate |
| 1966 - January | 8.35 | 19.3 | Annual review |
| - August | 11.01 | 31.9 | Recovery of past deficiencies |
| 1967 - January | 11.87 | 7.8 | Annual review |
| 1968 - January | 12.57 | 5.9 | Annual review |

The average revenues per kwh in 1969 and 1970 were calculated so as to generate revenues which would match exactly the requirements of the concession as presently estimated.

2. These taxes, which are collected by SEGBA for the account of the Federal, Provincial and Municipal authorities, consist of the following:

- (a) A federal tax of 30 centavos (ctvs) per kwh, is used to finance the National Fund for Electrical Energy (Law 15336 of September 15, 1960). An additional federal tax, for financing the Chocon hydroelectric project, was introduced by Law 16882 of May 19, 1966. Since it is not known when the tax will become effective it has not been taken into consideration for the purpose of these projections.
- (b) Until August 31, 1967, two taxes on sales in the Province of Buenos Aires were used to finance DEBA, the Province's utility:
 - (i) Provincial Law 5880: 5 ctvs/kwh on residential and 20 ctvs/kwh on commercial, industrial and federal authorities consumption.
 - (ii) Provincial Law 5544: 10% on all commercial and industrial consumption (thus excluding residential).

Effective September 1, 1967 these two laws have been replaced by Provincial Law 7290, of July 27, 1967 which introduced a unified tax on energy consumption of 15% on commercial and industrial consumption, and 2% on residential and other. All national, provincial and municipal authorities are now exempted.

- (c) A tax on sales in the city of Buenos Aires is collected for the Municipal budget. It was raised in 1966 to 1% for residential, and 1-1/2% for commercial and industrial consumption.

3. This adjustment is intended to report the revenues of the fiscal year on the basis of consumption rather than billings. It represents the difference between the estimated value of energy billed during the last part of the year, and the corresponding estimate at the end of the previous year. This difference is usually positive, due to increases in both units sold and rates charged. The negative figure in 1963 arose because the estimated consumption for the broken periods at the end of 1963 was less than the estimated consumption for broken periods at the end of 1962. Also there was no rate increase on January 1, 1964. The adjustment has not been projected in the forecast for 1968 through 1970, since SEGBA's own revenue estimates, used in preparing rate applications, are based on billed sales only.

4. As described in paragraph 3.15, to compensate the shortfall in revenues at the end of 1967 (presently estimated at about M\$N 6.3 billion) the National Energy Fund will provide SEGBA during 1968 with additional funds to be treated as revenues, which will be made available in approximately equal monthly installments. The exact amount will depend upon the final figure for the shortfall.

5. SEGBA charges about 22% of the total wage bill to construction. In 1966, the total wage bill was about M\$N 19,199 million and the part charged to operations was about M\$N 15,016 million. Of the latter amount, M\$N 13,434 million, representing the labor expenses of generation, distribution, maintenance and administration, is shown in "Salaries, wages, etc.". The M\$N 1,582 million balance (labor expenses for transportation, stores, etc.) is included in "Other expenses". The labor contract which came into effect at the beginning of 1967 called for increases in wages averaging about 28%; the figure given for 1967, of M\$N 18,387 million, corresponds to a higher increase, due in part to seniority and promotions (about 3% of the wage bill), and in part to reduced investment activity during the year. The wage level is frozen till the end of 1968 and it was assumed it would be also maintained in 1969 and 1970. The only increase assumed was 3% for seniority and promotions, adjusted in 1968 and 1969 to take into account the reductions of personnel planned during 1968 (paragraph 3.12).

6. Fuel costs are based upon the present average price of M\$N 475 per million KiloCalories and with heat rates improving from 2,820 KCal per kwh sent-out in 1967 to 2,750 KCal per kwh sent-out in 1970.

7. Until 1967, purchased power includes the cost of power and energy bought from AyEE and CIAE under previous contracts. In 1967 SEGBA expected to purchase 150 Gwh from CIAE at a cost of M\$N 4.00 per kwh plus a demand charge for excess power over 50,000 kva, and 200 Gwh from AyEE at a cost of M\$N 1.85 per kwh and M\$N 1,260 per kw per month. For the years 1968 through 1970, it is not possible to estimate the exact amounts of system generation which would be supplied by each entity because the detailed arrangements for the central dispatch just commissioned are not yet known. It has been assumed that SEGBA would meet only its own kwh requirements, whereas in all probability it will actually supply more economical energy to the other entities. During this same period both CIAE and AyEE will have excess capacity over and above their own requirements and it has been assumed that SEGBA would pay a pro-rata share of this cost to the other two entities in the form of capacity charges at the rate of M\$N 12,000 per kw per year.
8. The concession provides that, in lieu of income and all other taxes, SEGBA shall pay two taxes on sales, one to the municipalities and the other to the Province of Buenos Aires. The Municipal tax, of 6% on all sales except to railways and for public lighting, is set off quarterly against the power bills of municipalities. The Provincial tax, of 6% on sales in the Province to the same categories of consumers as the Municipal tax, is set off from time to time, by ad hoc arrangements, against the Province's power bills.
9. Depreciation of utility plant in service is charged at one single rate of 3%, applied to the dollar value of the aggregate plant, rather than at different rates applying to the different classes of assets. Depreciation of assets other than utility plant, which are also valued in dollars, and represent together a relatively insignificant proportion of the fixed assets, is charged at 10% for furniture and fixtures and 20% for automobiles, trucks, etc. To justify its denial of a power rate increase for 1964, the previous Government imposed a reduction of the depreciation rate to an overall average of 2% for 1964, maintained in 1965. It reversed this decision in connection with the power rate application for 1966, and allowed SEGBA to resume charging the higher depreciation rates described above. This policy would continue to apply after 1967. To allow for comparisons with other years, the rates of return shown in the income statement for 1964 and 1965 were computed on net income adjusted as if depreciation had been charged at the normal rates of respectively 3%, 10% and 20% described above.
10. SEGBA is reviewing its past practice of capitalizing interest at the rate of 1% over the work in progress outstanding at year end. Pending this, no attempt has been made at forecasting capitalized interest for the future since it would be inconsequential.
11. The statutes of December 29, 1961, call for the following appropriations of profit:
- (a) 2% to the Legal Reserve, until it reaches 10% of the share capital; the corresponding appropriations are included in the item "Reserves and surplus" in the attached statements;

- (b) 0.60% to the directors and the "syndic", but not exceeding 0.30% of the total wage bill for the year;
- (c) cumulative dividend of 5% on the par value of preferred shares;
- (d) 0.60% to the members of the executive committee (in addition to their respective salaries), but not exceeding 0.25% of the total wage bill for the year; and
- (e) a bonus to personnel, if any, and dividends on common shares as may be proposed by the Board of Directors.

12. The Government, as shareholder, granted personnel a share in the profits for fiscal years 1964 and 1965 on the basis of an initial agreement between the Secretariat for Energy and Fuels, SEGBA, and the Union, which was later recorded in the Labor Contract. The maximum bonus paid varied between 80% and 120% of one month's wages, according to seniority in the Company. It rewarded presence, punctuality and discipline and for all practical purposes constituted supplementary wages. The bonus, of M\$N 700 million, was again paid for 1966 but, in future the Company intends with Governments agreement to administer the bonus with exclusive regard to individual performance. None has been assumed in the forecasts.

13. Dividends have been paid in stock: on preferred shares, at 5%, every year and on common shares, at 10% for 1962 and 1963; the 1964 common dividend had to be passed, because of insufficient surplus. This was compensated for by a 20% common dividend for 1965. This higher rate was maintained for 1966. As long as SEGBA has not found yet any significant outside source of financing, other than the Government budget and the Bank, it was assumed that all surplus would be reinvested and that dividends would continue being paid in stock, rather than cash, at rates of 5% on preferred and 20% on common..

14. This net income represents the sum of:

- (a) the amount of net income necessary to achieve in the current fiscal year the required return of 8% on the net dollar value of utility plant in service, plus notional working capital of 5% of such value; and
- (b) the amount by which the actual net income of the previous year fell short of the required net income, which amount should be recovered fully out of the current year's revenues.

15. The return is calculated in accordance with the Concession, as described in paragraph 3.13. For 1964 and 1965, also see note 9 above.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGHA)

FORECAST SOURCES AND APPLICATIONS OF FUNDS 1967-1970

(in millions of pesos)

| Fiscal Year Ending December 31 | 1967 | 1968 | 1969 | 1970 | Sub-total 1967-1968 | Total 1967-1970 |
|--|---------|--------|--------|--------|------------------------|--------------------|
| SOURCES OF FUNDS | | | | | | |
| Internal Cash Generation | | | | | | |
| Net income before interest | 12,543 | 23,049 | 18,366 | 20,083 | 35,592 | 74,041 |
| Depreciation | 8,491 | 9,383 | 10,314 | 11,382 | 17,874 | 39,570 |
| Customers' contributions | 220 | 250 | 280 | 310 | 470 | 1,060 |
| Total | 21,254 | 32,682 | 28,960 | 31,775 | 53,936 | 114,671 |
| Borrowings | | | | | | |
| Proposed IHRD Loan | - | 15,400 | 3,850 | - | 15,400 | 19,250 |
| Foreign suppliers: peaking units | - | 2,525 | - | - | 2,525 | 2,525 |
| Foreign suppliers: base load unit | - | 1,770 | 2,130 | 470 | 1,770 | 4,370 |
| Other foreign suppliers | 110 | 6 | - | - | 116 | 116 |
| Local suppliers | 743 | - | - | - | 743 | 743 |
| Caja Nacional de Ahorro Postal II | 5,000 | - | - | - | 5,000 | 5,000 |
| Caja Nacional de Ahorro Postal III | 1,700 | 300 | - | - | 2,000 | 2,000 |
| Future loan: 1967-1970 Program | - | - | 11,500 | 3,500 | - | 15,000 |
| Total | 7,553 | 20,001 | 17,480 | 3,970 | 27,554 | 49,004 |
| Reduction of Construction Inventories | 555 | 1,705 | 120 | - | 2,260 | 2,380 |
| TOTAL SOURCES | 22,362 | 54,388 | 46,560 | 35,745 | 83,750 | 166,055 |
| APPLICATIONS OF FUNDS | | | | | | |
| Additions to Plant | | | | | | |
| Generation | 735 | 8,328 | 5,645 | 1,580 | 9,063 | 16,288 |
| Transmission | 2,237 | 7,802 | 4,524 | 150 | 10,039 | 14,713 |
| Distribution | 13,250 | 17,457 | 18,163 | 17,963 | 30,707 | 66,833 |
| Other | 940 | 3,250 | 2,850 | 2,300 | 4,190 | 9,340 |
| Total | 17,162 | 36,837 | 31,182 | 21,993 | 53,999 | 107,174 |
| Debt Service | | | | | | |
| Interest | | | | | | |
| Proposed IHRD Loan | - | 665 | 1,132 | 1,203 | 665 | 3,000 |
| IHRD Loan 308-AR | 1,692 | 1,707 | 1,653 | 1,596 | 3,399 | 6,648 |
| Eximbank and suppliers, Puerto Nuevo 7 & 8 | 310 | 219 | 158 | 132 | 529 | 819 |
| BTH-ICL, Metrovick | 629 | 315 | 66 | - | 944 | 1,010 |
| Bonds and notes, Sodec & Ser | 432 | 356 | 298 | 239 | 788 | 1,325 |
| Local Suppliers | 110 | 92 | 58 | 31 | 202 | 291 |
| Caja Nacional de Ahorro Postal I | 480 | 480 | 464 | 348 | 960 | 1,772 |
| Caja Nacional de Ahorro Postal II | - | 750 | 750 | 750 | 750 | 2,250 |
| Caja Nacional de Ahorro Postal III | 200 | 230 | 165 | 75 | 430 | 670 |
| Foreign suppliers - peaking units | - | 17 | 190 | 166 | 17 | 373 |
| Foreign suppliers - base load unit | - | - | - | 153 | - | 153 |
| Other foreign suppliers | 1 | 7 | 6 | 3 | 8 | 17 |
| Future loan 1967-1970 Program | - | - | 345 | 795 | - | 1,140 |
| Short-term loans | 850 | 600 | 450 | 350 | 1,450 | 2,250 |
| Total | 4,704 | 5,438 | 5,735 | 5,841 | 10,142 | 21,716 |
| Amortization | | | | | | |
| Proposed IHRD Loan | - | - | - | - | - | - |
| IHRD Loan 308-AR | 747 | 911 | 963 | 1,020 | 1,658 | 3,641 |
| Eximbank and suppliers, Puerto Nuevo 7 & 8 | 891 | 1,657 | 408 | 408 | 2,548 | 3,364 |
| BTH-ICL and Metrovick | 3,048 | 3,186 | 3,254 | - | 6,234 | 9,488 |
| Bonds and notes, Sodec & Ser | 730 | 827 | 908 | 926 | 1,557 | 3,391 |
| Local suppliers | 386 | 518 | 489 | 350 | 904 | 1,743 |
| Caja Nacional de Ahorro Postal I | - | - | 1,200 | 1,800 | - | 3,000 |
| Caja Nacional de Ahorro Postal II | - | - | - | 1,000 | - | 1,000 |
| Caja Nacional de Ahorro Postal III | - | 600 | 600 | 600 | 600 | 1,800 |
| Foreign suppliers: peaking units | - | - | 316 | 359 | - | 675 |
| Foreign suppliers: base load unit | - | - | - | 218 | - | 218 |
| Other foreign suppliers | - | 29 | 33 | 26 | 29 | 88 |
| Total | 5,802 | 7,728 | 8,171 | 6,707 | 13,530 | 28,108 |
| Total Debt Service | 10,506 | 13,166 | 13,906 | 12,548 | 23,672 | 50,126 |
| Directors and Executive Committee's Fees | 94 | 94 | 211 | 151 | 188 | 550 |
| Bonus to Personnel | 700 | - | - | - | 700 | 700 |
| Variations in Working Capital | | | | | | |
| Short-term Bank loans (received), repaid | (1,322) | 1,981 | 626 | (177) | 659 | 1,106 |
| Net accounts receivable/payable, etc. | 5,260 | 2,310 | 1,135 | 1,230 | 7,570 | 9,935 |
| Cash (decrease) | (3,038) | - | (500) | - | (3,038) | (3,538) |
| Net increase in working capital | 900 | 4,291 | 1,261 | 1,053 | 5,191 | 7,505 |
| TOTAL APPLICATIONS | 29,362 | 54,388 | 46,560 | 35,745 | 83,750 | 166,055 |
| Times Annual Debt Service covered by Internal Cash Generation (excluding Customers' Contributions) | 2.0 | 2.5 | 2.1 | 2.5 | 2.3 | 2.3 |

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

BUENOS AIRES GENERATING PLANT - 1966

(I) SEGBA

Plants

| <u>Dock Sud</u> | <u>Effective Capacity (MW)</u> | <u>Date of Installation</u> |
|--------------------------|--------------------------------|-----------------------------|
| Units # 8, 9 | 2 @ 24 - 48 | 1954 |
| 10, 11 | 2 @ 21 - 42 | 1928 |
| 12 | 20 | 1927 |
| | <u>110</u> | |
| <u>Puerto Nuevo</u> | | |
| Units # 1, 2, 3, 4, 5, 6 | 6 @ 50 - 300 | 1928/49 |
| 7 | 145 | 1961 |
| 8 | 195 | 1963 |
| | <u>640</u> | |
| <u>Costanera</u> | | |
| Units # 1, 2, 3, 4, 5 | 5 @ 120 - 600 | 1963/64 |

(II) CIAE

Pedro Mendoza

| | | |
|-----------------|-------------|---------|
| Units # 1, 2, 3 | 3 @ 12 - 36 | 1947/49 |
| 4, 5 | 2 @ 8 - 16 | 1916/19 |
| 6 | 16 | 1924 |
| 7 | 18 | 1924 |
| | <u>86</u> | |

Nuevo Puerto

| | | |
|-----------------|-------------|------|
| Units # 1, 2, 3 | 3 @ 32 - 96 | 1929 |
| 4 | 60 | 1949 |
| 5 | 110 | 1963 |
| | <u>266</u> | |

January, 1968.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Capacity, Peak Loads, and Generation

| | ACTUAL | | | | | PROJECTED | | | |
|--------------------------------------|-------------|-------------|---------------------------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | <u>1962</u> | <u>1963</u> | <u>1964</u> ^{2/} | <u>1965</u> | <u>1966</u> ^{3/} | <u>1967</u> ^{4/} | <u>1968</u> ^{5/} | <u>1969</u> ^{6/} | <u>1970</u> ^{7/} |
| Installed Capacity (MW) (year end) | 740 | 1,359 | 1,429 | 1,399 | 1,370 | 1,420 | 1,510 | 1,540 | 1,790 |
| Peak Load (MW) | 888 | 940 | 1,100 | 1,169 | 1,235 | 1,319 | 1,412 | 1,510 | 1,617 |
| Gross Generation (GWH) ^{1/} | 4,131 | 4,544 | 5,116 | 5,579 ^{8/} | 5,864 ^{8/} | 6,230 | 6,670 | 7,120 | 7,620 |
| Sales (GWH) | 3,200 | 3,485 | 3,916 | 4,308 ^{8/} | 4,564 ^{8/} | 4,860 | 5,230 | 5,620 | 6,040 |
| Consumers (1000's) | 1,578 | 1,646 | 1,711 | 1,779 | 1,875 | 1,950 | 2,030 | 2,110 | 2,200 |
| Percentage increase in peak loads | - | 5.9 | 17.0 | 6.3 | 5.6 ^{9/} | 6.8 | 7.0 | 7.0 | 7.0 |
| Percentage increase in sales | - | 9.0 | 12.3 | 10.0 | 5.9 ^{9/} | 6.5 | 7.6 | 7.5 | 7.5 |

- ^{1/} Includes purchased energy from CIAE and AyEE .
- ^{2/} 70 MW @ Dock Sud - reconditioned
- ^{3/} 14 MW at La Paternal and 15 MW at Berisso - retired
- ^{4/} 50 MW at Dock Sud - reconditioned
- ^{5/} 90 MW of Gas Turbines
- ^{6/} 30 MW of Gas Turbines
- ^{7/} 250 MW Base Load Unit
- ^{8/} 38 GWH difference between these figures and those of Annex 3 represent the unbilled sales at the end of 1965 due to labor difficulties.
- ^{9/} If SEGBA's repayment of energy to CIAE for 1966 is subtracted (38 GWH) the percentage increase would be only 5.1%.

DETAILS OF INVESTMENT PROGRAM

ANNEX 7

Table 1

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

New 132 kv Substations

| | <u>Transformer Capacity (MVA)</u> | <u>Estimated Cost (in millions of pesos)</u> |
|-------------------------------|---------------------------------------|--|
| Agronomia | 60 | 201 |
| Perito Moreno | 40 | 148 |
| Pozos | 80 | 345 |
| Parque Centenario | 80 | 370 |
| Nueva Pompeya | 80 | 369 |
| Liniers | 80 | 358 |
| Burzaco | 80 | 246 |
| Quilmes | 80 | 241 |
| Merlo | 80 | 229 |
| Ensenada | 20 | 140 |
| Wilde 1 | 80 | 235 |
| Berazategui | 80 | 237 |
| Temperley | 40 | 200 |
| Esteban Echeverria | 40 | 200 |
| Boulogne | 80 | 237 |
| Castelar | 80 | 253 |
| Munro | 80 | 264 |
| Tres de Febrero | 40 | 159 |
| Reserve Transformer | 20 | 25 |
| Valentin Alsina | 80 | 233 |
| Isla Maciel | 40 | 213 |
| Villa Corina | 80 | 264 |
| Las Catonas | 20 | 95 |
| Darsena | 40 | 176 |
| TOTAL | 1,480 | 5,438 |
| Investment made prior to 1967 | | 45 |
| Investment 1967 through 1970 | | 5,393 |

Extensions to Existing 132 kv Substations

| | <u>Switchgear</u> | <u>Transformer Capacity (MVA)</u> | <u>Estimated Cost (in millions of pesos)</u> |
|-------------------------|-------------------|---------------------------------------|--|
| Costanera | 5 | - | 173 |
| Agronomia | 5 | 40 | 188 |
| P. Moreno | 5 | - | 136 |
| Dock Sud | 4 | - | 107 |
| Colegiales | - | 40 | 48 |
| Escalada | 4 | 40 | 148 |
| Tolosa | 1 | - | 24 |
| Ramos Mejia | 2 | 120 | 215 |
| Moron | 4 | 40 | 143 |
| Matanza | 1 | 40 | 28 |
| Malaver | 1 | 40 | 30 |
| Puerto Nuevo | 2 | - | 55 |
| Rehabilitation Dock Sud | - | - | 112 |
| Various Reactors | 10 | - | 659 |
| | 44 | 360 | 2,066 |

January, 1968.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)132 kv Lines and Cables

| | <u>No. of Circuits</u> | <u>Distance km</u> | <u>Estimated Cost (in millions of pesos)</u> |
|--|----------------------------|------------------------|--|
| Costanera-Pozos | 2 | 6.5 | 553 |
| P. Moreno-Liniers | 2 | 4.0 | 280 |
| Tolosa-Ensenada | 1 | 9.0 | 174 |
| Escalada-Burzaco | 2 | 14.0 | 982 |
| Moron-Merlo | 2 | 10.0 | 768 |
| Temperley-Echeverria | 2 | 10.0 | 768 |
| Spur to Castelar | 2 | 1.3 | 114 |
| Spur to Boulogne | 2 | 0.1 | 6 |
| Spur to Wilde I | 2 | 0.1 | 8 |
| Spur to Munro | 2 | 3.0 | 208 |
| Ramos Mejia - Tres de Febrero | 1 | 4.0 | 177 |
| Costanera - Dock Sud (4th Circuit) | 1 | 6.0 | 273 |
| Costanera - Agronomia (2nd Circuit) | 1 | 17.0 | 746 |
| Costanera - P.Moreno (3rd Circuit) | 1 | 15.0 | 649 |
| Spur to Villa Corina | 2 | 0.3 | 21 |
| Dock Sud - Valentin Alsina | 1 | 8.6 | 384 |
| Valentin Alsina - Escalada | 1 | 7.3 | 325 |
| Dock Sud - Isla Maciel | 2 | 0.7 | 63 |
| Isla Maciel - Berazategui | 2 | 20.3 | 549 |
| | | <hr/> | <hr/> |
| TOTAL | | 137.2 | 7,048 |
| Investment made prior to 1967 | | | 583 |
| Investment 1967 through 1970 | | | 6,465 |

January, 1968.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Miscellaneous Civil Works and Extensions to
27.5 and 13.2 kv Systems

Estimated Cost
(in millions of pesos)

GENERATING PLANTS

| | |
|--------------|----|
| Puerto Nuevo | 64 |
| Dock Sud | 64 |
| Costanera | 64 |
| Other Works | 16 |

27.5 and 13.2 kv SUBSTATIONS

| | | |
|--|--------------------------|-----|
| Austria | (one 12 MVA transformer) | 15 |
| Mitre | " " " | 15 |
| Saavedra | " " " | 32 |
| Villa Luro | " " " | 15 |
| Various Substations in Federal Capital | | 108 |
| Various Substations in Provinces | | 96 |

27.5 kv NETWORK

| | |
|-------------------------------------|-----|
| Colegiales - Saavedra (3rd Circuit) | 100 |
| | — |
| TOTAL | 589 |

January, 1960.

SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES (SEGBA)

Distribution System - 1968

| | | <u>Estimated Cost</u> |
|--------------------------------------|-------------------|-----------------------------------|
| | <u>Quantities</u> | <u>(in millions of pesos)</u> |
| Cables 6.5/13.2 kv - Capital (km) | 115 ✓ | 1,528 |
| Cables 13.2 kv - Provinces (km) | 135 ✓ | 1,807 |
| Lines 13.2 kv - Provinces (km) | 280 ✓ | 1,122 |
| Transformer vaults - Capital | 110 | 450 |
| Transformer vaults - Provinces | 85 | 369 |
| Transformer platforms - Provinces | 285 | 243 |
| Transformers - Capital (KVA) | 120,000 | 423 |
| Transformers - Provinces (KVA) | 150,000 | 528 |
| Low tension cables - Capital (km) | 115 ✓ | 1,280 |
| Low tension cables - Provinces (km) | 105 ✓ | 1,074 |
| Low tension lines - Provinces (km) | 2,200 ✓ | 6,000 |
| New connections - Capital | 4,500 | 175 |
| New connections - Provinces | 60,000 | 709 |
| Meters - Capital | 16,000 | 102 |
| Meters - Provinces | 65,000 | 416 |
| Street lights | 5,500 | <u>447</u> |
| | | <u>16,673</u> |

January, 1968.

ARGENTINA
S.E.G.B.A.
GENERATING PLANTS AND
132 KV. TRANSMISSION SYSTEM

