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DEPARTMENT OF STATE
EMBASSY ECONOMIC AFFAIRS SECTION
Washington, D.C. 20523

512-278

CAPITAL ASSISTANCE PLAN

Proposal and Recommendations
For the ...
...

Subject: ...
...

421-4007-410

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

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AID-DIC/P-622
September 13, 1967

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Brazil: Electrobras Power Training and
Technical Assistance Project

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$717,000 to Centrais Electricas Brasileiras S.A. (ELECTROBRAS) to assist in financing the dollar costs of (a) the training in the United States of a number of Brazilian power engineers and management officials in extra high voltage and interconnected system techniques, and (b) technical assistance to Borrower and its subsidiaries in the areas of power rate structure and power pool operation.

If any member of the DIC has a basic policy issue arising out of this proposal, it is requested that you communicate this to us as early as possible but in no event later than close of business on Friday, September 22, 1967. In the absence of any indication that there is a fundamental policy problem, we propose to proceed with the authorization of this loan promptly after September 22, 1967.

Rachel C. Rogers
Assistant Secretary
Development Loan Committee

Attachments:

Summary and Recommendations
Project Analysis
Annexes I-V

Re: Brazil EHV and transmission lines

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BRAZIL - ELETROBRAS POWER TRAINING AND
TECHNICAL ASSISTANCE PROJECT
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BRAZIL - ELETROBRAS POWER TRAINING AND
TECHNICAL ASSISTANCE PROJECT

SUMMARY AND RECOMMENDATIONS

1. BORROWER: Centrais Elétricas Brasileiras S.A. (ELETROBRAS)
2. GUARANTOR: The Government of Brazil
3. AMOUNT OF A.I.D. LOAN: US\$717,000
4. TOTAL COST OF PROJECT:

Local Costs	\$ 250,000	1/
Foreign Exchange	<u>717,000</u>	
	\$ 967,000	

5. PROJECT DESCRIPTION AND PURPOSE OF A.I.D. LOAN:

As part of its long range planning program ELETROBRAS is sponsoring a post-graduate engineering course for extra-high voltage (EHV) interconnected systems.

This program will train approximately 10 graduate engineers per year for a period of five years. The course will consist of six-months of pre-requisite courses given at a Brazilian university, two university semesters (approximately one year) of specialized courses in the United States, and a two-month practical training program with power utilities (or other suitable organizations) in the United States. Total duration for the complete course is 18 months.

1/ Dollar equivalent of NCr\$674,000 at the current rate of exchange of NCr\$2,700 per dollar.

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The A.I.D. loan would finance all the dollar expenses incurred by this training project in the U.S. for university tuition and supervision, special courses books and supplies, consultant fees, living expenses medical insurance, traveling expenses (within the U.S.) and incidentals.

The estimated stateside costs are \$109,000 per year. Over five years the total dollar cost would be \$545,000.

Additionally, ELETROBRAS is planning to meet a critical short run need for specific technical advice in the areas of power rate structure and power pool operation through utilization of 2 U.S. consultants who will work with ELETROBRAS and its operating subsidiaries for a period of 2 years. The A.I.D. loan would finance the U.S. dollar costs, estimated at \$172,000 over the 2-year period, of these consultants.

Thus, total U.S. dollar costs for this joint training and technical assistance project would total \$717,000 and run over a 5-year period.

6. OTHER FREE WORLD FINANCING:

Other international lenders (IDB, EXIM, and IBRD) have been solicited and expressed no interest in this project. Borrower is a publicly owned power utility and therefore it is unlikely that private U.S. capital would be interested or its participation encouraged.

7. PLACE OF THE LOAN IN THE PROGRAM:

The project will fill a vital need. The power systems in Brazil are being interconnected by EHV ties rapidly. A.I.D. is directly involved in these developments through its capital investment loans for new equipment. The engineer training program is a long range method of ensuring that skilled local personnel will be available for safe and efficient operation of the new complex systems. Training in the U.S. is necessary since the required courses are generally not yet available in Brazil, short run technical assistance by U.S. consultants is

needed to shore up existing deficiencies in the technical staff which will eventually be filled by returning Brazilian participant engineers.

8. STATUTORY CRITERIA: (See Annex I)
9. ISSUES: (See Section VI)
10. COUNTRY CLEARANCE: COCAP recommends approval of this loan.
11. RECOMMENDATIONS:

It is recommended that the subject loan proposal be authorized as follows:

- 1) A loan be extended to Centrais Elétricas Brasileiras S.A. (ELETROBRAS), not to exceed \$717,000 to finance the costs incurred in the United States of training Brazilian electrical engineers in extra-high voltage and interconnected systems techniques and to finance the dollar costs of 2 U.S. consultants who will work for 2 years in Brazil in the areas of power rate structure and power pool operation.
- 2) Repayment be made within twenty (20) years from the date of the first disbursement in approximately equal semi-annual installments of principal and interest. The first installment of principal will be payable five (5) years after the date of the first disbursement under this loan.
- 3) Interest shall accrue at the rate of six percent (6%) per annum on the outstanding balance of principal and on any due and unpaid interest.
- 4) The two-step loan option will be offered to the GOB, with repayment scheduled at forty (40) years including a ten (10) year grace period with interest at one (1) percent during the grace period and two and one-half (2-1/2) percent thereafter.
- 5) Such other conditions as A.I.D. may deem necessary.

12. PROJECT COMMITTEE:

Loan Officer:	John G. Ogilvie-USAID/B-ADCD
Engineer:	Helio M. Vanzolini-USAID/B-ENRP
Legal Officer:	Peter Hornbostel-USAID/B-LGS
Drafting Officers:	Helio M. Vanzolini-USAID/B-ENRP John G. Ogilvie-USAID/B-ADCD
Approved by:	Stuart H. Van Dyke-USAID/B-DOM Louis V. Perez-USAID/B-ADCD

SECTION I - PLACE OF THE LOAN IN THE PROGRAM

1.01 - From 1964 to 1966 A.I.D. made substantial loans for capital investments in the power sector in Brazil. Including the recently-approved Santa Cruz thermal expansion loan of \$41.2 million, the level of A.I.D. financing in this sector amounts to more than \$180 million out of total capital assistance loans of more than \$315 million as of June 1, 1967.

1.02 - These power loans are increasing the generating transmitting, and distributing capacities of Brazil. They provide for technical training and technical assistance only to a limited degree. This program will serve a large number of power utilities, benefit operating engineers who in a few years will become managers and directors of these companies, assure that there is a long run supply of highly trained engineers to supervise the operation of the many new power facilities in Brazil, and provide short term technical assistance to attack important problems in two critical technical areas.

SECTION II - THE BORROWER

- 2.01 - The applicant is Centrais Elétricas Brasileiras S.A. (ELETROBRAS), the holding corporation for all power utilities owned by the Federal Government. ELETROBRAS often associates itself with State or County-owned power utilities for the purpose of promoting the development of the National Electrification Plan. Additionally, ELETROBRAS performs development studies and planning of power requirements, and cooperates with and advises branches of the Government responsible for the implementation of power programs and policies.
- 2.02 - The capital of ELETROBRAS is NCr\$ 400 million, most of which is provided by the Federal Government. Other subscribers are States and Counties. ELETROBRAS is the main recipient of resources of the National Electrification Fund. During 1965 this fund generated more than NCr\$ 100 million. Electric power consumers are required to purchase ELETROBRAS debentures in a fixed proportion of the amount of their power bill.
- 2.03 - ELETROBRAS is managed by a President and a board of five directors answerable to a Fiscal Council. The present incumbents are: Mario Penna Bhering, President; Manoel Pinto Aguiar, Director of Economics and Finance; Leo Amaral Penna, Director of Planning and Engineering; Maurício Schulman, Director of Business Management; Amyr Borges Fortes, Director of Administration; Lucas Nogueira Garcez, Director of Coordination.
- 2.04 - ELETROBRAS was started with 4 subsidiary companies (Furnas, Charqueadas, CHEVAP and CHESF) in 1961. With the acquisition of the American Foreign Power Group in 1964 and the extinction of CHEVAP in 1965 this figure was raised to 15 subsidiaries. It is also associated to 16 other power utilities.
- 2.05 - The 15 subsidiaries serve a total population of over 15 million people in all sections of the country by means of a plant aggregating 1,330,000 Kw. In 1965 these subsidiaries produced 8 billion Kwh.

SECTION III - DETAILED DESCRIPTION OF THE PROJECT

A. Project Analysis

- 3.01 - As part of its long range planning program ELETROBRAS is sponsoring a post-graduate course to provide specialized training to electrical engineers in the techniques of extra-high voltage interconnected power systems.
- 3.02 - Until recently the electric power systems in Brazil were operated separately with few interconnecting links of over 220 Kv. Today major utilities are already operating at higher voltage levels and are becoming solidly interconnected at 345 and 420 Kv. The trend toward more interconnections, and at higher voltage levels, is an irreversible one.
- 3.03 - To adequately design, construct, and operate these extra-high voltage systems it is essential that adequately trained Brazilian engineers be available. Particularly important is the availability of engineers skilled in the interconnected operation of such systems. Such personnel are currently in short supply and Brazilian colleges of electrical engineering are not yet equipped to provide satisfactory training in this area.
- 3.04 - With this situation in mind, ELETROBRAS has developed an 18-month course, to be administered partly in Brazil and partly in the United States for 5 consecutive years. The initial 6-month period will be given in Brazil at the Catholic University of Rio de Janeiro. This will be followed by two academic semesters (approximately 1 year) of study at the Illinois Institute of Technology (IIT) and 2 months of practical training with U.S. power companies, power equipment manufacturers, and consulting firms in the power field.
- 3.05 - The training program envisages the training of at least 10 engineers per year over a period of 5 years. It was started in March 1967 and will be completed in 1972. Expenditures from the requested A.I.D. loan for this training will be at the rate of approximately \$109,000 per year. It is estimated that, at present costs, the local disbursements to be made by ELETROBRAS will amount to NCr\$120,000 per year.

- 3.06 - The Illinois Institute of Technology was selected by ELETROBRAS on the basis that it offered the most adequate post-graduate curriculum in this field. The investigation and analysis of courses available at other leading American universities was made by a group of Brazilian engineers with previous experience in the United States. The group was headed by Dr. Ernani da Motta Rezende, ELETROBRAS technical consultant and professor at the Federal University of Rio de Janeiro.
- 3.07 - The investigation included the Illinois Institute of Technology, Rensselaer Polytechnic Institute, Cornell and Purdue Universities, the University of Michigan and Texas A&M.
- 3.08 - Contacts have been established with Professor W.A. Lewis, IIT Research Professor in Electric Systems, who has had previous experience with training of Brazilian engineers in his courses at IIT. Professor Lewis has been very helpful in assisting ELETROBRAS in outlining the courses to be taken at that Institution (see Annex II). Professor Lewis recently visited Rio de Janeiro as a guest of ELETROBRAS to become better acquainted with the Catholic University and the engineering profession in Brazil.
- 3.09 - Two Brazilian universities were considered for the project: the Federal and Catholic universities. The latter was selected because its curriculum included all those courses needed as prerequisites for the work to be undertaken in IIT.
- 3.10 - The participants will be graduate electrical engineers working in full-time positions for utilities operating EHV interconnected systems. Such engineers will be in (or will be being trained for) positions in which the EHV technology is mandatory for efficient performance.
- 3.11 - An adequate knowledge of the English language will be required of all participants. English language training at the Catholic University will be provided according to individual needs. ELETROBRAS will only send participants who have taken a test indicating a level of competence in the English language satisfactory to IIT.
- 3.12 - Annex II shows the courses to be taught in the Catholic University and IIT. Approval of this course schedule

has been obtained from IIT. The study program in Brazil will concentrate on such basic subjects as higher mathematics, statistics, electro-dynamics, circuit analysis, energy conversion, and power system engineering. These courses will be substantially equivalent to prerequisite courses administered at IIT and will serve as refresher courses for students returning to academic work after a period in professional life.

3.13 - Courses to be given at IIT under this program are selected from IIT's regular post-graduate curriculum and focus on the highly specialized field of power systems. They are not presently available at Brazilian universities.

3.14 - Selection of courses was done with the idea of providing training in the interconnected operation of EHV systems particularly in mind.

3.15 - Another technical problem of increasing importance to ELETROBRAS is that of power rate structure. The level and form in which power rates are structured and presented to power consumers has important implications not only for the efficiency with which power facilities are used but also for the long range development of various industrial groups and the power industry itself. While this problem has been recognized by ELETROBRAS for some time, little systematic analysis of it has yet been done.

3.16 - The technical assistance component of this loan project provides ELETROBRAS with the skilled personnel needed to make an immediate attack on the rate structure problem and to begin the systematic operation of interconnected power systems which will later be handled by Brazilian engineers participating in the training component of this project.

3.17 - Two U.S. consultants will be contracted by ELETROBRAS to work in Brazil for a minimum of 2 years each. One of these will be a power rate specialist who will assist ELETROBRAS

and its subsidiaries in cooperating with the Departamento Nacional de Aguas e Energia (DNAEE) on the question of power rate design. This specialist will not directly involve himself in the problem of rate base determination but will rather direct his attention to the determination of rate levels and forms for the major power consuming industries such as aluminum, fertilizer, electro-chemical, and electro-metallurgical industries. He will also investigate geoeconomic problems of the different regions of Brazil with different types of consumers and recommended adequate types of contracts (large blocks of power wheeling charges, interruptible contracts, etc.) and rate structures compatible with the financial stability of the individual power supply companies. Brazilian counterpart personnel will receive on-the-job training in power rate design.

3.18 - The other consultant will be a specialist in power pool operation who will assist ELETROBRAS in planning organizing, and running the Operating and Load Despatch Committee that is being set up to run the Integrated South Central Power System. Assistance will be provided to other such committees as they are formed. These are the groups specifically charged with affecting efficient operation and utilization of the rapidly-emerging EHV interconnected power systems. They will eventually be staffed by Brazilian participants in the training program being partially financed by this A.I.D. loan.

B. Project Implementation

3.19 - ELETROBRAS will share with Central Elétrica de Furnas S.A. (FURNAS), a subsidiary, the administration and supervision of this project. FURNAS has a highly competent staff, a number of whom have had training in the United States. FURNAS has recently shown its competence in the recruiting and training of operators for a new A.I.D.-financed power plant (Santa Cruz) to be operated under FURNAS responsibility.

3.20 - A committee of four members, two each from ELETROBRAS and FURNAS, will direct the program. One member will be elected as coordinator (chairman) of the committee. The utilities to be invited to participate in the training aspect of this project are those which are (or will shortly be) interconnected with other important power systems through trunk lines of 220Kv or over and which are (or will shortly be) committed to the sale (or interchange) of power.

3.21 - ELETROBRAS has, with A.I.D. agreement, established certain selection criteria for candidates. In general, candidates proposed by eligible power utilities must: (1) be less than 45 years old; (2) have at least one year of satisfactory performance with the utility; (3) have the required proficiency in English; and (4) agree to stay with the utility for a period of at least three years after completing the course.

3.22 - The committee will select from the candidates that fulfill the above conditions those with the best credentials, keeping in mind that each engineer selected should have an academic record sufficient to justify his admission to a graduate school.

3.23 - The timing schedule for program implementation is set forth in Annex III.

3.24 - As of June 1, 1967 the program is on schedule.

3.25 - Participants under this program will be asked to submit a signed statement to ELETROBRAS (with a copy for USAID) stating their intention to return to their respective companies in Brazil upon successful completion of training in the U.S. The companies, on their part, will agree to re-employ returned participants in positions in which the training received can be efficiently utilized.

3.26 - The technical assistance aspect of this project will be largely supervised and administered by ELETROBRAS, who

will define further the consultant's scope of work, determine the subsidiary operating companies with whom they will work, and handle such problems as may arise.

C. Financial Analysis

3.27 - ELETROBRAS, acting in its capacity as the advisory and cooperating agency responsible for the implementation of power programs in Brazil, has assumed the responsibility of sponsoring, administering, and partly paying for this important program. It is seeking A.I.D.'s participation in the project in the form of a \$717,000 loan to cover the U.S. dollar costs.

3.28 - The training program expenses in U.S. dollars were based on figures given by the 1965-1966 Bulletin of the Illinois Institute of Technology and include a reasonable margin for contingencies. The technical assistance U.S. dollar estimates reflect USAID's appraisal of the costs of obtaining such U.S. consultants.

3.29 - The local currency cost estimates were made on the basis of present costs and will have to be readjusted according to actual cost rises. This imposes no special problems since ELETROBRAS' revenues increase roughly in proportion to inflation. Total estimated costs are \$717,000. and NCr\$674,000.

3.30 - A summary cost breakdown is presented below. For more detailed information see Annex IV.

ANNUAL PROJECT COST SUMMARY

<u>Item Description</u>	<u>Estimate of Cost per Year</u>	
	<u>A.I.D. Loan</u> US\$	<u>ELETRORAS</u> NCR\$
University Fees	\$ 21,000	20,000
Books and Supplies	2,000	5,000
Housing and Per Diem Allowance	51,600	-
Student Transportation		60,000
Utility Training Fee	10,000	-
Accident and Medical Insurance	4,000	-
Course Supervision	7,000	28,000
Incidentals and Contingencies	8,400	7,000
One Year Training Program Cost	\$109,000	NCR\$120,000
Five Year Training Program Cost	\$545,000	NCR\$600,000
Consultant Salaries and Benefits	70,000	-
Transportation	6,000	7,500
Secretarial Expenses	-	24,500
Contingencies	10,000	5,000
One Year Technical Assistance Cost	86,000	37,000
Two Year Technical Assistance Cost	172,000	74,000
Total Project Cost	\$717,000	NCR\$674,000

3.31 - The training program cost estimates are intended to represent ceilings. If experience shows them to be lower, a larger number of trainees may be assigned.

3.32 - ELETRORAS will finance the total costs of the project through its own funds and the A.I.D. loan. Eighty percent (80%) of the training program costs (local and U.S.) are to be prorated among the participating utilities according to the number of participants. The 20% balance represents ELETRORAS' contribution to the long range development of new technical skills in the power field in Brazil. ELETRORAS will work out on terms acceptable to A.I.D. provision for repayment of the training costs to ELETRORAS by the participating utilities.

- 3.33 - ELETROBRAS intends to absorb completely the local cost of the technical assistance part of this project.
- 3.34 - The letter of commitment method or the reimbursement method or a combination of the two will be utilized to effect disbursement of A.I.D. loan funds. Dollar expenses under this project will be covered from June 1, 1967.
- 3.35 - The participating utilities will be required to provide salary maintenance for their participants for the duration of the training period. Such salaries will be deposited in Brazilian banks and will be available to each participant for transmittal to the U.S. should the participant so desire. Arrangements for such transmittal will be the responsibility of each participant, and funds transmitted will be subject to existing regulations, taxes, and restrictions.
- 3.36 - ELETROBRAS has indicated they will provide supplementary per diem if they believe any is required.
- 3.37 - Any additional expenses in technical assistance part of this project will be met by ELETROBRAS.

SECTION IV - REPAYMENT CAPACITY

4.01 - Borrower is ELETROBRAS, the Federal Government's holding corporation for all federally-owned power utilities. USAID considers that ELETROBRAS will have little difficulty in repaying the proposed loan.

4.02 - For a discussion of why this loan is needed, see Section VI.

SECTION V - IMPACT ON U.S. ECONOMY

- 5.01 - The training program, as part of the Brazilian Government's long range planning in the electric power field, **should result in** better utilization and performance of A.I.D.-financed, American-made equipment, improved quality of service, and reduced costs.
- 5.02 - The requested loan will permit the training of these engineers to be done exclusively in Brazil and the U.S., instead of in other technically advanced countries, and will enhance the prestige of U.S. engineering. It is expected that the U.S. training of these engineers will weigh heavily in favor of the future adoption of U.S. standards for E.H.V. equipment in Brazil. The adoption of such standards should markedly improve the competitive position of American manufacturers. The full amount of the loan is to be spent in the United States.
- 5.03 - All A.I.D. loan funds will be used exclusively for the procurement of U.S. goods and services.

SECTION VI .- ISSUES

A. Need for the Loan

- 6.01 - The question can be raised why ELETROBRAS, with total assets of NCr\$763 million, needs A.I.D. financing for an expenditure of \$717,000. There is little reason to believe that ELETROBRAS could not, if required to do so, make such funds available from its own resources.
- 6.02 - ELETROBRAS has requested the loan (1) because they desire the training to be carried out in the United States, (2) because they want to use U.S. consultants, and (3) because the A.I.D. loan will obviate curtailing their extensive program of high priority power projects.
- 6.03 - The USAID desires to accomodate ELETROBRAS in their request to assure that sound U.S. criteria will become the standard for Brazilian extra high voltage transmission.
- 6.04 - In considering the loan request, previous A.I.D. loans in the power sector were carefully reviewed to determine whether funds might be available in existing loans to incorporate this program. The review did not disclose loan funds which could be so earmarked at this time. Moreover, some of the utility companies which will be participating in the program are not recipients of A.I.D. loans. To avoid the administrative problems which would ensue from charging one borrower for the expenses of other utilities, therefore, earmarking funds from existing A.I.D. financed power projects did not appear a satisfactory or feasible alternative.

B. Justification for a 5-Year Program

- 6.05 - As noted earlier, Brazil's power sector is expanding rapidly and is moving into the stage of large interconnected power systems. Such power plants as Jupiá and Ilha Solteira are located hundreds of miles from the load

centers. As these projects are only justified on the basis of extra-high voltage transmission, the need for highly trained power engineers in this field of specialization will continue over the next decade.

C. Possibility of establishing these Training Facilities in Brazil

6.06 - Brazil's need for such highly trained personnel is limited. The number required would not justify the establishment of such sophisticated training facilities in Brazil.

D. Possibility of obtaining Technical Consultant Services in Brazil

6.07 - The services of such technically trained specialists are not presently available in Brazil.

August 29, 1967

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ANNEX I
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CHECK LIST OF STATUTORY CRITERIA
(Alliance for Progress)

(FAA - Foreign Assistance Act of 1961, as amended by the Foreign Assistance Act of 1966).
(App.- Foreign Assistance and Related Agencies Appropriations Act, 1967)

1. FAA Section 102. Precautions that have been or are being taken to assure that loan proceeds are not diverted to short-term emergency purposes (such as budgetary, balance of payments, or military purposes) or any other purpose not essential to the country's long-range economic development.

USAID personnel will approve all requests for opening letters of commitments and will assure that funds are disbursed only for goods and services needed for project.

2. FAA Section 102. Information on measures taken to utilize United States Government excess personal property in lieu of the procurement of new items.

Not applicable.

3. FAA Section 102. Information whether the country permits, or fails to take adequate measures to prevent, the damage or destruction by mob action of United States property.

The Government of Brazil does not permit, and takes adequate measures to prevent, the damage or destruction by mob action of U.S. property.

4. FAA Section 201 (d). Information and conclusion on legality (under laws of country and United States) and reasonableness of lending and relending terms of the loan.

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The proposed loan is consistent with the laws of Brazil and the United States and the terms are considered reasonable by both the Borrower and A.I.D.

5. FAA Section 251 (a). Manner in which loan will promote country's economic development and contribute to the welfare of its people.

The loan will promote Brazil's economic development and contribute to the welfare of its people.

6. FAA Section 251 (b) (1). Extent to which country is adhering to the principles of the Act of Bogotá and Charter of Punta del Este and is showing a responsiveness to the vital economic, political, and social concerns of its people, and extent to which country has demonstrated a clear determination to take effective self-help measures.

Account has been taken of Brazil's adherence to the principles of the Act of Bogotá and the Charter of Punta del Este, and the GOB's responsiveness to the vital economic, political and social concerns of its people. A full report of Brazil's efforts to comply with both the Act of Bogotá and the Charter of Punta del Este is set forth in the 1967 Country Program submission.

7. FAA Section 251 (b) (2). Information and conclusion on activity's economic and technical soundness.

This activity has been found economically and technically sound.

8. FAA Section 251 (b) (3). Information and conclusion on activity's relationship to and consistency with other development activities, and its contribution to realizable long range objectives.

The project is consistent with other development activities and contributes directly to the long-range development of a larger, more competent, and more efficient power industry in Brazil.

9. FAA Section 251 (b) (4). Information and conclusion on possible effects on United States economy, with special reference to areas of substantial labor surplus.

It has been determined that this project shall have no foreseeable adverse effects on any area of the United States economy.

10. FAA Section 251 (b) (5). Information and conclusion on the degree to which the country is making progress toward respect for the rule of law, freedom of expression and of the press, and recognition of the importance of individual freedom, initiative and private enterprise.

The recent inauguration of an elected government marks a return to full constitutionality in Brazilian government. A new constitution has been adopted by the Congress and all the extra-constitutional Institutional Acts have terminated. A number of laws and programs have been instituted in recent years at all levels of government to improve the climate for private enterprise. Press and National Security laws enacted by the previous Brazilian government are more restrictive than previous legislation; it remains to be seen how these laws will be applied by the new Government.

11. FAA Section 251 (b) (6). Information and conclusion on the degree to which the country is taking steps to improve its climate for private investment.

Brazil has provided a very broad range of incentives for private investment, domestic and foreign. The national, state, and municipal levels of government offer tax incentives,

tariff concessions and low cost financing for investment in priority sectors and development regions.

12. FAA Section 251 (b) (7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

By providing Brazil with badly needed technical personnel, the loan meets this objective.

13. FAA Section 251 (b) (8). Information and conclusion on the extent to which the activity will contribute to the economic and political integration of Latin America.

The loan does not have integration objectives.

14. FAA Section 251 (b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.

Other international lenders have been solicited and have expressed no interest in this project. Borrower is a publicly owned power utility and therefore it is unlikely that private U.S. capital would be interested or their participation encouraged.

15. FAA Section 251 (b). Information and conclusion on capacity of the country to repay the loan.

The "2-Step" agreement will offer the GOB 40 years to repay the debt on concessional terms which are well within the country's debt servicing capacity.

16. FAA Section 251 (b). Information and conclusion on country's efforts to repatriate capital invested in other countries by its own citizens.

Brazil's efforts to stabilize the value of the cruzeiro through measures to counter inflation should contribute to the return of capital invested in other countries by its citizens.

17. FAA Section 251 (b). Information and conclusion on reasonable prospects of repayment.

The loan will be repaid by the Government of Brazil. Terms are within Brazil's capacity for repayment.

18. FAA Section 251 (e). Information and conclusion on availability of an application together with sufficient information and assurances to indicate reasonably that funds will be used in an economically and technically sound manner.

An application for this loan has been received. Sufficient information and assurances have been provided to indicate that the funds will be used in an economically and technically sound manner.

19. FAA Section 251 (g). Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.

The loan will not directly promote the cooperative movement in Latin America.

20. FAA Section 251 (h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its review of national development activities.

The loan is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its review of national development activities.

21. FAA Section 252 (a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.

All proceeds of this loan will be used for U.S. procurement from private sources.

22. FAA Section 281. Extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the developing countries, through the encouragement of democratic private and local governmental institutions.

The loan will assist an agency of the GOB at the national level.

23. FAA Section 601 (a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

With the exception of point (e) above, this loan will not directly effect any of the above. Point (e) will be effected favorably.

24. FAA Section 601 (b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

All proceeds of loan would be used for U.S. procurement from private sources.

25. FAA Section 601 (d). Conclusion and supporting information on compliance with the Congressional policy that engineering and professional services of U.S. firms and their affiliates are to be used in connection with capital projects to the maximum extent consistent with the national interest.

Training to be financed by the proceeds of this loan will be conducted in the U.S. by an American University and private industry.

26. FAA Section 602. Information and conclusions whether loan will permit American small business to participate equitably in the furnishing of goods and services financed by it.

To the extent that American small business provides the required services, it will be notified and invited to participate.

27. FAA Section 602. (a) App. Section 108. Compliance with restriction of commodity procurement to U.S. except as otherwise determined by the President and subject to statutory reporting requirements.

All goods and services purchased under this loan will be of U.S. origin.

28. FAA Section 604 (b). Compliance with bulk commodity procurement restriction to prices no higher than the market price prevailing in the U.S. at the time of purchase.

Not applicable.

29. FAA Section 604 (d). Compliance with requirement that marine insurance be purchased on commodities if the host country discriminates, and that such insurance be placed in the U.S.

Will comply.

30. FAA Section 604 (e). Compliance with requirement that funds not be used for procurement of any agricultural commodity or product thereof outside the United States when the domestic price of such commodity is less than parity.

Not applicable.

31. FAA Section 611 (a) (1). Information and conclusion on availability of engineering, financial, and other plans necessary to carry out the assistance and of a reasonably firm estimate of the cost of the assistance to the United States.

Necessary technical and financial plans have been completed, and a reasonably firm estimate of the cost to the United States of the activity to be financed has been attained.

32. FAA Section 611 (a) (2). Necessary legislative action required within recipient country and basis for reasonable anticipation such action will be completed in time to permit orderly accomplishment of purposes of loan.

Legislative action is not required.

33. FAA Section 611 (b); App. Section 101. If water or water-related land resource construction project or program, information and conclusion on benefit-cost computation.

Not applicable.

34. FAA Section 611 (c). Compliance with requirement that contracts for construction be let on competitive basis to maximum extent practicable.

Not applicable.

35. FAA Section 612 (b) and 636 (h). Appropriate steps that have been taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The loan is for U.S. dollar costs. Local costs are being borne by the Borrower.

36. FAA Section 619. Compliance with requirements that assistance to newly independent countries be furnished through multilateral organizations or plans to maximum extent appropriate.

Not applicable. Brazil is not a newly independent country.

37. FAA Section 620 (a); App. Section 107 (a) and (b). Compliance with prohibitions against assistance to Cuba and any country (a) which furnishes assistance to Cuba or failed to take appropriate steps by February 14, 1964, to prevent ships or aircraft under its registry from carrying equipment, materials or supplies from or to Cuba; or (b) which sells, furnishes, or permits any ships under its registry from carrying items of primary strategic significance, or items of economic assistance to Cuba.

No assistance will be furnished under this loan to the present Government of Cuba, nor does Brazil furnish assistance to the present Government of Cuba. Brazil has taken appropriate steps to prevent ships or aircraft under its registry from engaging in any Cuba trade.

38. FAA Section 620 (b). If assistance to the government of a country, existence of determination it is not controlled by the international Communist movement.

The Secretary of State has determined that Brazil is not controlled by the international Communist movement.

39. FAA Section 620 (c). If assistance to the government of a country, existence of indebtedness to a U.S. citizen for goods or services furnished or ordered where such citizen has exhausted available legal remedies or where the debt is not denied or contested by such government or the indebtedness arises under an unconditional guaranty given by such government.

Brazil is not known to be indebted to any U.S. citizen for goods or services furnished or ordered where such a citizen has exhausted available legal remedies or where the debt is not denied or contested by the Borrower or the indebtedness arises under an unconditional guaranty of payment by the Borrower.

40. FAA Section 620 (d). Is assistance for any productive enterprise which will compete in the U.S. with U.S. enterprise, existence of agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan.

Not applicable.

41. FAA Section 620 (e) (1). If assistance to the government of a country, extent to which it (including government agencies or subdivisions) has, after January 1, 1962, taken steps to repudiate or nullify contracts or taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking appropriate steps to discharge its obligations.

Neither the Government of Brazil nor any governmental agency or subdivision thereof, has on or after January 1, 1962, nationalized, expropriated, or seized ownership or control of property of any U.S. citizen or firm, taken steps to repudiate or nullify contracts with such citizens

or firms, or impose or enforce discriminatory taxation or other exactions of restrictive conditions, or taken other actions having the effect of nationalizing, expropriating or otherwise seizing ownership or control of property owned by U.S. citizens or firms, as specified in this section of the Act, without taking appropriate steps to discharge its obligations, as specified in this section of the Act.

42. FAA Section 620 (f); App. Section 109. Compliance with prohibitions against assistance to any communist country.

Assistance provided under this loan will not be furnished to any communist country.

43. FAA Section 620 (g). Compliance with prohibition against use of assistance to compensate owners for expropriated or nationalized property.

Assistance provided by this loan will not be used to compensate for expropriated or nationalized property.

44. FAA Section 620 (h). Compliance with regulations and procedures adopted to insure against use of assistance in a manner which, contrary to the best interests of the U.S., promotes or assists the foreign aid projects or activities of the communist-bloc countries.

Assistance provided by this loan will not be used in a manner which, contrary to the best interests of the U.S., promotes or assists the foreign aid projects or activities of the communist-bloc countries.

45. FAA Section 620 (i). Existence of determination that the country is engaging in or preparing for aggressive military efforts.

The President has not determined that Brazil is engaging in or preparing for aggressive military efforts.

46. FAA Section 620 (j). Information on representation of the country at any international conference when that representation includes the planning of activities involving insurrection or subversion against the U.S. or countries receiving U.S. assistance.

There has been no Brazilian Government representation nor any private Brazilian representation with Brazilian Government sanction at any international conference in which that representation includes the planning of activities involving insurrection or subversion against the U.S. or countries receiving U.S. assistance.

47. FAA Section 620 (k). If construction of productive enterprise where aggregate value of assistance to be furnished by U.S. will exceed \$100 million, identification of statutory authority.

Not applicable.

48. FAA Section 620 (l). Consideration which has been given to denying assistance to the Government of a country which after December 31, 1966 has failed to institute the investment guaranty program for the specific risks of inconvertibility and expropriation or confiscation.

Brazil has signed and instituted such an agreement.

49. FAA Section 620 (n); App. Sections 107 (b) and 116.

Compliance with prohibition against assistance to countries which traffic or permit trafficking with North Viet-Nam.

Brazil does not traffic or knowingly permit trafficking with North Viet-Nam.

50. FAA Section 620 (o). If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters, information on the consideration which has been given to excluding the country from assistance.

Brazil has not seized or imposed any penalty or sanction against any U.S. fishing vessel in international waters.

51. FAA Section 620 (g). Existence of default under any Foreign Assistance Act loan to the country.

No such default exists.

52. FAA Section 621. Information and conclusion on how the loan in providing technical assistance will utilize to the fullest extent practicable goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

All services provided under the Loan will be procured from private enterprise.

53. App. Section 102. Compliance with requirement that payments in excess of \$25,000 for architectural and engineering services on any project be reported to Congress.

Not applicable.

54. App. Section 104. Compliance with bar against funds to pay pensions, etc., for military personnel.

Funds obligated by the loan will not be used to pay pensions, annuities, etc.

55. App. Section 106. If country attempts to create distinctions because of their race or religion among Americans in granting personal or

commercial access or other rights otherwise available to U.S. citizens generally, application which will be made in negotiations of contrary principles as expressed by Congress.

No attempts by Brazil to create distinctions because of race or religion among Americans in granting personal or commercial access or other rights otherwise available to U.S. citizens generally are known. If Brazil attempts to create such distinctions, application will be made in negotiations of contrary principles as expressed by Congress.

56. App. Section 111. Compliance with existing requirements for security clearance of personnel.

Not applicable.

57. App. Section 112. Compliance with requirement for approval of contractors and contract terms for capital projects.

Firms which provide services financed by the loan for the project, and the terms of their contracts, shall be approved by A.I.D.

58. App. Section 114. Compliance with bar against use of funds to pay assessments, etc., of U.N. member.

Loan funds will not be used to make any payment to U.N. members.

59. App. Section 115. Compliance with regulations on employment of U.S. and local personnel for funds obligated after April 30, 1964 (Regulation 7).

Compliance will be required to the extent that Regulation 7 is applicable.

60. App. Section 401. Compliance with bar against use of funds for publicity or propaganda purposes within U.S. not heretofore authorized by Congress.

Loan funds will not be used for publicity or propaganda purposes within the United States.

PROJECT CURRICULUM

A - Courses to be given at the Catholic University of
Rio de Janeiro, Brazil (one semester)

Differential Equations
Advanced Calculus I and II
Matrices
Functions of a Complex Variable I
Laplace Transforms
Statistics
Programming for Digital Computers
Electric Circuit Analysis I
Circuit Analysis II and III
Power Systems Engineering
Electrodynamics
Electromechanical Energy Conversion I and II
Electrical Engineering Laboratory II and III
Vector Analysis

B - Courses to be given at the Illinois Institute of
Technology, Chicago, Ill. (two semesters)

EE-436 Feed-back Control Systems
EE-502 Application of Matrix and Tensor Analysis
to Networks
EE-501 Analysis of Linear Systems
EE-531 Linear Feed-back Systems Theory
EE-554 Power System Relaying
EE-557/558 Power System Analysis
EE-559 D.C. Power Transmission
EE-561 Power System Stability
EE-562 Economy Loading
EE-563 Modern Theory of A.C. Machines
EE-567 Lightning Protection of Power Systems
EE-593 Seminar in Power System Engineering
- BE-427 Applied Economics for System Planning
and Operation
Series Compensation on EHV
Switching Surges

PROJECT TIMING SCHEDULE

	1967												1968								
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
1. Select Candidates	■																				
2. Classes at Catholic University			■	■	■	■	■	■	■												
3. Fall Semester at IIT									■	■	■	■									
4. Spring Semester at IIT													■	■	■	■	■	■			
5. On-the-job Training in the U.S.																			■	■	
6. Return to Work in Brazil																					■

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ANNUAL PROJECT BUDGET AND EXPLANATION OF COSTS

<u>Item Description</u>	<u>Estimate of Cost per Year</u>	
	<u>A.I.D. Loan</u> US\$	<u>ELEPROBRAS</u> NCr\$
Catholic University Fees 1/		20,000
Education Materials (10 x NCr\$500)		5,000
Round-Trip Transportation to U.S. for 10 Students, Family, and Baggage		60,000
Supervision by Brazilian Course Coordinator 2/		24,000
Brazilian Course Coordinator Tra- vel Expenses 3/		4,000
Housing and per diem Allowance (10 x 16 x 60 + 10 x 14 x 300) 4/	51,600	
University Tuition (10 x 1700)	17,000	
Books, Materials, and Supplies (10 x 200.)	2,000	
Special Courses at IIT 5/	4,000	
Travel within the U.S. (10 x \$500)	5,000	
Utility Training Fee (10 x \$20 x 50)	10,000	
Supervision of Course in U.S. 6/	4,000	
IIT Course Coordinator Consult- ing Fee and Travel Expense to Brazil 7/	2,000	
Brazilian Course Coordinator Living Allowance in the U.S. 8/	1,000	
Accident and Medical Insurance	4,000	
Incidentals and Contingencies	8,400	7,000
Cost for One Year Program (Training)	\$109,000	NCr\$120,000
Cost for Five Year Program	\$717,000	NCr\$600,000

1/ This is a lump sum to cover the cost of professors, staff overhead, etc., and is independent (within reason) of the

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number of students involved.

- 2/ A Brazilian has been hired to supervise this course on a full-time basis. This individual will check on the project's overall progress in both Brazil and the U.S., handle particular problems that arise in Brazil, and be the Brazilian contact point with the program in the U.S.
- 3/ This allows the Brazilian Course Coordinator (mentioned above) to make two (2) trips per year to the States to check on the IIT course and on the project's progress.
- 4/ Arrangements are being made with IIT to locate participants on the IIT campus in university-owned facilities.
- 5/ This item is to cover the special training needs of participants which are not met by the selected course curriculum. Included are such items as private tutoring, special seminars, and short training courses in computers.
- 6/ FURNAS has a representative on a retainer basis in the U.S. whom they will employ on a part-time basis to supervise this course. Duties will involve making travel arrangements, handling liaison with IIT, and resolving individual problems as they arise.
- 7/ The Course Coordinator at IIT (presently Professor Lewis) will travel once a year to Brazil to check on the course at the Catholic University and review overall progress.
- 8/ As mentioned above, the Brazilian Course Coordinator will travel to the U.S. twice a year to conduct an on-the-spot review of the IIT program and handle special problems as needed. Each trip will last approximately one month.



ALLIANCE FOR PROGRESS

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT

Washington, D. C. 20523

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LOAN AUTHORIZATION

Provided from: Alliance for Progress Loan Funds
BRAZIL: Eletrobras Power Training and Technical Assistance
Project

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title VI, Alliance for Progress of said Act to Centrais Eletricas Brasileiras S.A. (ELETROBRAS) ("Borrower") of not to exceed seven hundred seventeen thousand United States dollars (of \$717,000) to assist in financing the dollar costs (a) the training in the United States of a number of Brazilian power engineers and management officials in extra high voltage and interconnected systems techniques, and (b) technical assistance to Borrower and its subsidiaries in the areas of power rate structure and power pool operation.

The loan shall be subject to the following terms and conditions:

1. Interest and Terms of Repayment

- (a) Borrower shall repay the loan to the Agency for International Development ("A.I.D.") in United States dollars within twenty (20) years from the date of the first disbursement under the loan, including a grace period of not to exceed five (5) years. Borrower shall pay to A.I.D. in United States dollars on the disbursed balance of the loan interest at the rate of six (6) percent per annum.
- (b) Prior to and as a condition precedent to the first disbursement under the loan, the Government of Brazil ("Government") and Borrower shall agree to a procedure whereby the Borrower shall fulfill its dollar obligations under the loan by paying to Government in the currency of Brazil, the equivalent, at the times called for in the Loan Agreement, of the United States dollar amounts payable under paragraph 1(a) above, determined at the rate of exchange prevailing on the dates of disbursement, and whereby the Government shall become the primary obligor, guarantying payment of interest and repayment of principal under the loan, and shall pay to A.I.D. in United States dollars, determined as of a time and in a manner calculated to obtain repayment of all amounts paid to Government by Borrower:

- (i) Interest on the disbursed balance of the loan at the rate of one (1) percent per annum during a grace period of not to exceed ten (10) years ("Government grace period"), and two and one-half ($2\frac{1}{2}$) percent per annum thereafter;
- (ii) Principal within forty (40) years, including the Government grace period.

2. Other Terms and Conditions

- (a) Materials and services financed under the loan shall have their origin in and be procured from the United States.
- (b) Prior to the first disbursement under the loan for training services in the United States, Borrower shall submit, in form and substance satisfactory to A.I.D.:
 - (i) A detailed plan for the administration and supervision of the training project in Brazil, including, without limitation, the terms of the financial arrangements to be entered into with trainees and participating Brazilian universities.
 - (ii) Evidence that the training program/^{to be}conducted in Brazil has been implemented.
- (c) The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

Deputy U. S. Coordinator

Date