

UNCLASSIFIED

INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

PROJECT PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

Shoubrah El Kheima Thermal Power Plant
Amendment
Project No. 263-0030*-

*Formerly numbered 263-0110

UNCLASSIFIED

BEST AVAILABLE COPY

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number

DOCUMENT CODE
3

2. COUNTRY/ENTITY

Egypt

3. PROJECT NUMBER

263-0030*

4. BUREAU/OFFICE

NE

5. PROJECT TITLE (maximum 40 characters)

Shoubrah El Kheima Thermal Power Plant

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
06 30 81

7. ESTIMATED DATE OF OBLIGATION

(Under "B" below, enter 1, 2, 3, or 4)

A. Initial FY 719

B. Quarter 4

C. Final FY 81

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	100,000		100,000	190,000		190,000
(Grant)	(100,000)	()	(100,000)	(190,000)	()	(190,000)
(Loan)	()	()	()	()	()	()
Other U.S. 1.						
Other U.S. 2.						
Host Country		78,100	78,100		105,000	105,000
Other Donor(s)	287,800		287,800	345,000		345,000
TOTALS	387,800	78,100	465,900	535,000	105,000	640,000

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF	740B	825		100,000		90,000		190,000	
(2)									
(3)									
(4)									
TOTALS				100,000		90,000		190,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To augment the electricity generating capacity of the Egyptian Electricity Authority to meet increasing energy requirements of consumers throughout Egypt.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
 10 82 13 87

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a page PP Amendment)

To assist in financing a portion of the foreign exchange costs of a third 300 MW generating unit at the Shoubrah El Kheima Thermal Power Station.

*Formerly numbered 263-0110

17. APPROVED BY

Signature

Title
Director, USAID/Cairo

Date Signed MM DD YY
6 9 81

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY
06 15 81

ACTION MEMORANDUM TO THE ADMINISTRATOR

Thru: ES
Thru: AA/PPC, Larry Smucker (Acting)
/s/ Tom
From: AA/NE, W. Antoinette Ford

Problem: Your authorization is required to obligate an additional \$90 million for the Shoubrah El Kheima Thermal Power Project (263-0030) in Egypt, bringing the total life-of-project cost to \$190 million.

Discussion: On July 19, 1979, A.I.D. authorized a Grant of \$100 million to the Government of Egypt (GOE) to finance a portion of the foreign exchange costs of engineering and constructing a thermal power plant at Shoubrah El Kheima in Cairo. The Project Agreement was signed on August 29, 1979. Joining A.I.D. in financing foreign exchange costs are the World Bank and five other multilateral and bilateral donors. The implementing agency is the Egyptian Electricity Authority (EEA), the entity of the Ministry of Electricity responsible for the bulk supply of power to the whole country.

At the time the grant was made, it was understood that the eventual capacity of the plant would be 900 megawatts (MW). This quantity of power was found to be needed over a reasonable time horizon and recommended in the feasibility study prepared by Sanderson and Porter, a U.S. consulting firm. The site selected also was suitable for a plant of this size. As the engineering design consultant, Overseas Bechtel Inc. (OBI), began working on plant design, it became apparent that construction of the complete plant with three identical 300 MW turbine generators ordered at the same time represented the least-cost approach and was necessary to assure that the power would be available when needed.

The World Bank has signed an agreement with EEA which increases its assistance to the project to permit the full development of the Shoubrah site. Including A.I.D.'s original \$100 million grant, EEA has commitments totalling \$430 million in foreign exchange against an estimated need of \$535 million. The additional A.I.D. grant of \$90 million will partially cover the deficit. The GOE is committed to covering any additional foreign exchange shortfall as well as local currency costs.

A.I.D. funds will be used to finance the cost of engineering services which include design, procurement assistance, construction management and construction supervision. OBI is already under contract which will be amended to include the third 300 MW unit and an increased role in design/construction management to substantially shorten construction time. In addition, A.I.D. funds will be used to finance the procurement of the three turbine generators, pumps and condensers from U.S. manufacturers. Invitations to Bid for all three items have

been issued, bids for the turbine generators have been received from G.E. and Westinghouse and evaluated by OBI and EEA, and A.I.D. approval is awaited to permit the award and execution of contracts.

The major issue affecting disbursement of the original grant and authorization of this grant amendment is the question of electricity and energy pricing. The existing Project Agreement contains a condition precedent to disbursement for equipment which requires EEA to present a plan which will assure that it achieves specified rates of return. To achieve these, changes in tariffs would be required. EEA and the GOE have argued that two World Bank-financed tariff studies now underway are prerequisites to such changes. A.I.D. has, however, pressed for interim changes such as rate increases equal to one or two percent per month until major changes are made in energy/electricity pricing.

During recent Washington meetings with President Sadat and Deputy Prime Minister Abdul Meguid, several discussions were held with senior U.S. and World Bank officials in which energy and electric power pricing was discussed and the GOE was urged to undertake expeditious changes. These discussions identified actions that the GOE has taken and plans to take in the near term. Thus far the following changes in energy/electricity power pricing have occurred, or are expected to occur:

1. Fuel prices to Law 43 companies and private joint ventures have increased from 7 1/2 Egyptian Pounds to 30 Egyptian Pounds with the intention of further raising these prices from 30 Pounds to 150 Pounds during the next five years.

2. An increase in electric power tariffs by 1 percent a month has been approved by the Ministerial Production Committee and is awaiting further approval by the Supreme Council some time in September.

3. Other price increases, according to GOE officials, will be based on the outcome of the Petroleum Production Pricing Study with respect to energy price increases and the High Voltage Electric Power Study with respect to electric power pricing. GOE officials have indicated that these changes are unlikely to come about before April 1982, following the return of the remaining portion of the Sinai to Egypt.

During discussions with Deputy Prime Minister Meguid at the time of the Sadat visit, we indicated that unless energy prices and/or electric power prices were increased, A.I.D. would have difficulty in financing additional expansions of electric power capacity (as opposed to rehabilitation, spare parts, etc.). We understand the World Bank is also considering a similar position although a firm decision has not been made. The Abu Kheir Gas Project is still under review, and this is the next project in the energy sector up for IBRD financing.

We believe that the best course of action would be to proceed with the obligation of the \$90 million for Shoubrah El Kheima and at the same time work closely with the World Bank to formulate a consolidated position which would be based on the outcome of the Petroleum Product Study and the High Voltage Energy Study. We should also continue to press for interim increases in electric power prices to be implemented as soon as possible. Furthermore, at the time of our negotiation of the Shoubrah Project Agreement Amendment, we should formally inform Deputy Prime Minister Meguid of the need to raise energy/electric power prices before A.I.D. finances future expansions of electric power capacity.

✓ The appropriate Congressional Committees have been notified of A.I.D.'s intent to obligate \$90 million in FY 1981 instead of the \$80 million as previously reported. The waiting period expired on August 11 without objections.

There are no recent developments which adversely affect Egypt's position respecting human rights under Section 502 B of the FAA, as amended.

Recommendations: That you approve the obligation of \$90 million in FY 1981 by signing the attached authorization.

Attachments:

1. Authorization (Tab A)
2. Project Paper (Tab B)

J. Bolton, GC: _____
 J. Erikson, AAA/PPC/PDPR _____

Clearances:

SATaubenblatt, NE/PD: (Draft) 
 GGower, NE/EI: (Draft)
 LReade, NE/TECH: (Draft)
 TCarter, GC/NE: 7 5 7
 PSellers, NE/DP: 805 8/19/81
 AWhite, DAA/NE: 

Drafted: DHMandel: dhm: 8/12/81

FIRST AMENDMENT

TO

PROJECT AUTHORIZATION

Name of Country: Arab Republic
of Egypt Name of Project: Shoubrah
El Kheima Thermal
Power Plant

Number of Project: 263-0030

Pursuant to Part II, Chapter 4, Section 532 of the Foreign Assistance Act of 1961, as amended, the Shoubrah El Kheima Thermal Power Plant Project for the Arab Republic of Egypt was authorized on July 19, 1979. That authorization is hereby amended as follows:

1. The amount of the Grant is revised to read: "not to exceed One Hundred Ninety Million United States Dollars (\$190,000,000)."

2. The second paragraph shall be amended by deleting "600" and substituting "900".

3. Conditions Precedent to Disbursement. Section b(2)(f) is hereby deleted in its entirety.

4. Covenants.

a. Sections c(4)(a) and (b) are hereby deleted in their entirety.

b. The following covenants shall be added:

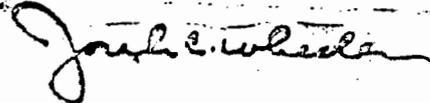
"9. The Cooperating Country shall ensure that the proceeds made available under the First Amendment to the Project Grant will be made available to the EEA as a grant contribution to its equity capital.

"10. The Cooperating Country covenants that the high and medium/low voltage tariff studies presently underway will form the basis for implementing major changes in electricity tariffs. To this end, the Cooperating Country will consult with A.I.D. as to the adequacy of the recommendations of such studies before implementation begins.

"11. The Cooperating Country shall ensure that any interim changes in fuel prices will be broadly distributed and not exclude EEA.

"12. Until the Parties agree that a comprehensive tariff structure can be implemented, the Cooperating Country shall ensure that a minimum yearly rate of return for EEA will be established in consultation with A.I.D. For the Year 1981, the Cooperating Country shall allow EEA to take the necessary action to achieve such a rate of return on net revalued assets as is acceptable to the World Bank under its assistance agreements for the Project."

5. Except as amended hereby, the Project Authorization dated July 19, 1979 shall remain in force.

13/ 

M. Peter McPherson

AUG 1981

Date

Clearances:

AA/NE:WAFord W/s/Toni Date AUG 18 1981

GC:JRBolton _____ Date _____

A-AA/PPC:LSmucker _____ Date _____

DAA/NE:ADWhite _____ Date _____

NE/PD:Staubenblatt SA Date 8/18

NE/EI:GKamens _____ Date _____

Drafter:GC/NE::X28826:8/13/81

EGYPT - SHOUBRAH EL KHEIMA THERMAL POWER PLANT

AMENDMENT

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H.	EEA Balance Sheet
I.	Notes on Financial Statements
J.	Sources and Applications of Funds
K.	Plant Site Map
L.	Implementation Schedule

CURRENCY EQUIVALENTS

Currency Unit = Egyptian Pound (LE)

Official Rate

LE 1 (or 1,000 milliemes) = US \$1.44
LE 1,000 = US \$1,440
LE 1,000,000 = US \$1.44 million

WEIGHTS AND MEASURES

1 Kilowatt (kW) = 1,000 Watts
1 Megawatt (MW) = 1,000 Kilowatts
1 Kilowatt hour (kWh) = 1,000 Watt hours
1 Gigawatt hour (GWh) = 1,000,000 kWh

EGYPT: SHOUBRAH EL KHEIMA THERMAL POWER PLANT

AMENDMENT

SUMMARY AND RECOMMENDATIONS

1. Grantee: The Arab Republic of Egypt. The grant application is attached as Annex A.
2. Grant Amount: U.S. \$90 million, increasing Grant No. 263-0030 (formerly numbered 263-0110) from \$100 million to \$190 million.
3. Implementing Agency: The Egyptian Electricity Authority (EEA), a separate entity within the Ministry of Electricity.
4. Terms to the Implementing Agency: A grant, to form part of the Egyptian Electricity Authority's equity capital.
5. Project Purpose: To augment the electricity generating capacity of the EEA to meet increasing energy requirements of consumers throughout Egypt.
6. Project Description: Engineering and construction of a new 900 MW thermal power plant to be located approximately five miles north of Cairo on the east bank of the Nile River, together with necessary transmission linkages and technical assistance.
7. Purpose of Grant Amendment: To provide financing for a part of the foreign exchange costs of the third 300 MW generating unit. The third unit would complete development of this site to its full planned capability of 900 MW. (The initial A.I.D. grant provided financing for a portion of the foreign exchange costs for two 300 MW units.)
8. Grant Application: The GOE has requested the additional \$90 million grant for this project in order to complete the foreign exchange financing required for the project. The application is attached as Annex A.
9. Mission Views: USAID/Cairo recommends that the requested grant be authorized.
10. Source of U.S. Funds: Fiscal Year 1981 Economic Support Fund.

11. Statutory Requirements: All statutory criteria have been satisfied; see Annex D.
12. Recommendation: Authorize an Amendment to Grant 263-0030 to increase it from \$100 million to \$190 million in accordance with the terms and conditions set forth in the draft Grant Authorization Amendment which is appended hereto as Annex B.
13. Project Committees:

USAID/Cairo

Project Officer:	Mark Silverman
Loan Officer:	Mark Silverman
Project Engineer:	Dean Moody
Legal Advisor:	L. Michael Hager
Economist:	Jerry Lapittus

AID/Washington

Chairperson, NE/PD:	David H. Mandel
Project Officer, NE/PD:	David H. Mandel
Engineer, NE/PD:	Erno M. Hanz
Counsel, GC/NE:	Judd Kessler
Environmentalist, NE/PD:	Stephen F. Lintner
Economist, NE/PD:	Leonard G. Rosenberg
Desk Officer, NE/EI:	Jonathan L. Sperling
Program Analyst, NE/DP:	Sidney A. Chernenkoff
Social Scientist, NE/TECH:	Peter Benedict

I. INTRODUCTION

1.01 On July 19, 1979, A.I.D. authorized a grant of \$100 million to the Government of Egypt to assist in financing the foreign exchange costs of engineering and constructing a 600 megawatt (MW) thermal power plant, expandable to 900 MW, to be located on a site at Shoubrah El Kheima in Cairo, Egypt. The agreement was signed on August 29, 1979. A detailed appraisal of the project is included in the Project Paper, "Egypt: Shoubrah El Kheima Thermal Power Plant, Project No. 263-0110, May 1979."

1.02 The World Bank Group and five other multilateral and bilateral donors are also providing financing for the project. They include the European Economic Community, the European Investment Bank, France, Japan and the African Development Bank.

1.03 The implementing agency for the project is the Egyptian Electricity Authority (EEA), a separate entity of the Ministry of Electricity responsible for the bulk supply of electricity to the whole country.

1.04 The project is an important part of the GOE's power sector development program to meet the future demand for electricity. Supply and demand studies executed under World Bank auspices forecast an annual load growth of about 10 percent over the next decade, and a serious deficit in power generation capability in the mid-1980's which will act as a brake on development.

1.05 EEA's development program is formulated with the help of the Wien Automatic System Planning (WASP) computer model. The model is designed to select the mix of new power plants which would minimize the sum of the present value of capital cost of all new plants and the operating cost of the entire system. Both costs are expressed in terms of their opportunity cost to the economy. The WASP program incorporating the Shoubrah project, i.e., construction of a 900 MW thermal power plant, was found to have the lowest present worth of total system costs.

1.06 The period since the signing of the A.I.D. agreement for the \$100 million grant has been devoted to the engineering and procurement phases of the project. Following a prequalification of potential consultants and with the concurrence of A.I.D. and the other co-financers, EEA selected the U.S. consulting firm of Overseas Bechtel, Inc. (OBI) to negotiate a contract for

engineering, procurement, - construction -management - and training services related to the project. The contract was signed in December 1979, and after amendment of some of its terms to satisfy A.I.D.'s requirements, it was approved by the Egyptian Council of State in May 1980.

1.07 OBI has reviewed the feasibility study prepared by Sanderson & Porter for a 900 MW thermal plant at the Shoubrah site and has confirmed that the plan is technically sound and feasible. OBI has also prepared a conceptual design of a 900 MW plant, consisting of three 300 MW units, each of similar design, and a procurement packaging plan for plant equipment and services, with due regard for the different source and origin requirements of the various co-financers of the project. In preparing its preliminary design, OBI made certain changes in the original plan in order to obtain the least-cost approach to constructing, operating and maintaining the plant. OBI's preliminary design report which was issued September 1980 has been accepted by EEA and the co-financers, including A.I.D.

1.08 The feasibility contractor and OBI projected a 68-month schedule to complete engineering, supply and construction of the first 300 MW unit. At a co-financers' meeting in Cairo in September 1980, OBI presented a proposal which would reduce the schedule for the first unit to 58 months (since reduced to 51 months at the request of EEA) as well as significantly reduce the capital cost of the project. The proposal would require OBI to assume a larger engineering role than presently defined in their contract with EEA. OBI would perform some critical path detailed design and take on additional procurement responsibilities for certain items of major equipment. This plan will permit earlier procurement of equipment which will in turn lead to earlier design of the critical civil works items in the power block. All of the actions taken under the fast-track implementation approach are supportive of reducing lead time of plant machinery, shortening the construction period of the plant and hence the project completion schedule.

1.09 OBI has estimated the total cost of the 900 MW plant to be approximately \$640 million, not including interest during construction. The cost estimate is based on the 51-month fast-track schedule, and the schedule in turn is based on the expanded engineering role discussed above. The co-financers have endorsed the fast-track approach, and EEA has given OBI a letter of intent to negotiate an amendment to OBI's contract to include the additional person-months of services required for the 51-month target for

completing the first generating unit. The 51-month target runs from October 1980, the start of the drafting of invitations for bid and technical specifications for the fast-track approach. Completion of units 2 and 3 would follow the first unit by nine months and six months, respectively.

1.10 Invitations for bid for several major equipment packages were released in March and April 1981, including the invitation for turbine generators, which will be purchased in the U.S. and financed by A.I.D., and the invitation for steam generators (boilers), which will be purchased from international sources with World Bank financing. Both packages are critical to the project schedule.

1.11 Egypt's need for additional generating capacity by 1986 requires that contractual arrangements for equipment and services for the 300 MW planned addition to the Shoubrah plant be concluded concurrently with equipment and services for the 600 MW plant. This would allow for sequential completion of all three 300 MW units, each within a short interval of the other. In addition, cost savings can be realized through minimization of engineering, mobilization and demobilization expenses, and contractors' overhead if there is no interruption in work.

1.12 The World Bank and the International Development Association (IDA) have signed agreements with EEA which increase their loans to EEA to assist in the development of the Shoubrah site to its full planned capability. Several of the other Shoubrah co-financers have also increased their financial commitments. However, based on this estimate, there is still a shortfall of approximately \$115 million in the foreign exchange required for the 900 MW plant. Of the estimated \$535 million needed in foreign exchange, only \$430 million is presently committed for the project, inclusive of the \$100 million A.I.D. grant obligated in August 1979. Local currency costs, estimated at approximately \$105 million, will be provided by the GOE. In order to assist in meeting the foreign exchange financing requirements of the plant, the GOE has requested that A.I.D. increase the grant for the Shoubrah El Kheima Thermal Power Plant Project from \$100 million to \$190 million. It should be noted that the GOE has provided assurance by letter that any potential shortfalls in foreign exchange financing will be provided by the Government of Egypt.

1.13 This paper discusses the changes from the original Project Paper dated May 1979, the present status of the project, the revised implementation plan and schedule, and, where pertinent, reappraises the technical, economic and financial analyses of the project.

II. THE PROJECT

A. Project Scope

2.01 The project is basically the same as described in the original Project Paper of May 1979, except that its scope now provides for complete engineering and construction of a 900 MW plant at the Shoubrah site rather than 900 MW planned and 600 MW constructed. Plant facilities will consist of three steam turbine generating units, each capable of delivering 300 MW net power under normal operating conditions to the Unified Power System; three outdoor design, natural gas fired, pressurized furnace steam generators with mazout (heavy fuel oil) as backup fuel; together with the necessary auxiliary equipment, including on site fuel storage and transmission facilities. The required additions to the transmission system are basically not altered by the change in the project's scope.

B. Fuel Supply

2.02 The primary fuel for the three 300 MW units will be natural gas instead of mazout as originally planned. This change is the result of a determination by the Government of Egypt (GOE) that utilizing mazout (heavy fuel oil) as a primary fuel for the Shoubrah plant cannot meet the environmental concerns of the Egyptian Government or the conditions precedent to disbursement under the \$100 million A.I.D. grant agreement with respect to air quality standards. See Annex E.

2.03 Natural gas requirements to fuel the three 300 MW units will amount to approximately 150 million cubic feet per day. Egypt has significant gas resources in both associated and non-associated form which, according to the World Bank, include proven recoverable reserves estimated to be about 7.1 trillion cubic feet. Non-associated gas on a commercially exploitable scale has been discovered at four gas fields in the Western Desert. The recoverable reserves are estimated to be 5.8 trillion cubic feet. The bulk of Egypt's associated gas comes from the oil fields in the Gulf of Suez, most of which is presently being flared. Recent oil discoveries have added further to the availability of gas, and the recoverable reserves of associated gas in the Gulf of Suez are currently estimated at 1.2 trillion cubic feet. The World Bank is financing a project which will gather, process, and transport this gas to Suez and Cairo. However, existing pipeline capacity is not

capable of handling the whole of Shoubrah El Kheima's fuel requirements. The Egyptian General Petroleum Corporation will eventually need to build additional pipeline capacity. The GOE has provided evidence to AID under the existing Grant that it will take action to allocate a supply of associated or non-associated natural gas for the Shoubrah El Kheima Thermal Power Plant in sufficient amount to support the plant's 900 MW capability, and will provide for the building of gas trunk lines to be completed in time to ensure that the Shoubrah plant will be able to receive the gas by the scheduled completion date of each of the generating units.

C. Technical Analysis

2.04 The technical analysis is omitted since it remains basically unchanged from the original Project Paper. The analysis described the plan for the three 300 MW units. The change in the primary fuel source does not affect plant design since the original plan provided for the use of either fuel oil or gas. The 900 MW plant will be designed to burn either gas or oil.

D. Project Cost Estimate

2.05 A preliminary project cost estimate was prepared by Overseas Bechtel, Inc. (OBI), the U.S. consulting firm employed under contract to EEA to provide engineering, procurement, construction management and training services related to the project. It is based on the fast-track schedule with a target of 51 months from the start of the drafting of technical specifications by OBI for the procurement of equipment packages (October 1980) to commercial operation of the first unit (January 1985) (para 1.08). Commercial operation of the second unit is scheduled for nine months later, and the third unit six months after the second unit.

2.06 Present day costs for the estimate are for July 1, 1980. A price escalation factor of 8% compounded annually has been applied to the base cost of the equipment while total physical contingency is based on 7.5% of escalated cost for equipment. The manual labor force is presumed to consist of a mix of local Egyptian labor and foreign labor, with a ratio of 60% Egyptian and 40% foreign. The composite manual labor cost is approximately \$4.50 per hour and includes payroll additives, relocation expenses, bonus, etc.

2.07 The Table below summarizes the project cost estimate. A more detailed analysis is presented in Annex F.

TABLE 1
SUMMARY COST ESTIMATE^{a/}
(3 X 300 MW)

		U.S. \$ Million		
		<u>Foreign</u>	<u>Local</u>	<u>Total</u>
a)	<u>Thermal Power Station</u>			
	Base cost	348.5	64.3	412.8
	Contingencies			
	Price	97.3	17.8	115.1
	Physical	26.0	13.6	39.6
	Sub-Total	471.8	95.7	567.5
b)	<u>Transmission</u> (4 km, 220-kv loop plus a reinforcement of existing facilities, base cost	11.7	1.7	13.4
	Contingencies			
	Price	3.0	.5	3.5
	Physical	.9	.4	1.3
	Sub-Total	15.6	2.6	18.2
c)	<u>Technical Assistance</u> Consulting engineering and management services; studies, research and training, base cost	37.2	5.2	42.4
	Contingencies			
	Price	5.8	.8	6.6
	Physical	4.6	.7	5.3
	Sub-Total	47.6	6.7	54.3
TOTAL ESTIMATED PROJECT COST		535.0	105.0	640.0
		=====	=====	=====

a/ Excluding interest during construction.
Base cost is at July 1, 1980 prices.
Price contingency at 8% of base cost compounded annually.
Physical contingency at 7-1/2% of escalated cost for equipment;
10% of base cost for technical services.

E. Project Financing Plan

2.08 The project will be financed from the following sources:

TABLE 2
PROJECT FINANCING PLAN
(3 X 300 MW)

.....U.S. \$ Million.....

	<u>Foreign</u>	<u>Local</u>	<u>Total</u>
A.I.D.	190.0	-	190.0
World Bank	145.0	-	145.0
IDA	37.0	-	37.0
European Economic Community	35.0	-	35.0
European Investment Bank	32.0	-	32.0
OECD (Japan)	23.0	-	23.0
French Subsidized Loan	6.5	-	6.5
French Private Credit	43.5	-	43.5
African Development Bank	8.0	-	8.0
Supplier Credits	15.0	-	15.0
Government of Egypt	-	105.0	105.0
Total	<u>535.0</u>	<u>105.0</u>	<u>640.0</u>
	=====	=====	=====

2.09 Except for the proposed \$90 million increase by A.I.D., EEA has obtained financing commitments from the bilateral and multilateral co-financers listed above. The \$190 million A.I.D. contribution requested for the project represents 35.5% of the total foreign exchange requirement of the project.

F. Allocation of A.I.D. Funds

2.10 The proposed \$90 million A.I.D. grant, together with the \$100 million grant obligated in August 1979, would be used to finance three major equipment packages for the three 300 MW units plus U.S. consulting engineering and management services. All equipment and services financed with A.I.D. funds will be restricted to procurement from the U.S. Because of source and origin restrictions imposed by the co-financers, including A.I.D., the equipment packages cannot be broken up for individual units or for partial financing of a package by more than one co-financer.

2.11 A.I.D. funds would be allocated for the following equipment and services:

Allocation of A.I.D. Funds
(In U.S. \$ Thousands)

	<u>Cost Estimate</u>
Turbine Generators	112,500
Condensers and Heaters	13,600
Pumps	14,500
Consulting Engineering and Management Services	38,400
Contingency	<u>11,000</u>
Total	<u>190,000</u> =====

G. Section 611(a) Requirements

2.12 It is the conclusion of the Project Committee that the requirements of Section 611(a) of the Foreign Assistance Act of 1961, as amended, have been satisfied. The project is based upon sound engineering and analysis originally performed by Sanderson & Porter, Inc. and reviewed and confirmed by Overseas Bechtel, Inc., the Consulting Engineer for the project. Overseas Bechtel has also prepared a reasonably firm cost estimate of the project. The Mission has reviewed the plans and cost estimate and finds them reasonable and accurate.

III. FINANCIAL ANALYSIS

A. General

3.01 EEA is an operational organization within the Ministry of Electricity and Energy. Although EEA planned to establish its own chart of accounts when it was formed, it still follows and is bound by the principles described in the Government's "Standardized Accounting System". Deficiencies in the accounting system were pointed out in the 1976 UNDP Power Sector Survey Report by Sanderson & Porter, Inc.

3.02 While some progress was made in removing certain deficiencies in the EEA accounting system during the implementation phase of a study conducted by Sanderson & Porter that ended in August 1979, much remains to be done to establish an appropriate accounting system in EEA and the distribution companies. This work, with special reference to the distribution companies, has now been contracted to NRECA International, the consultant financed by the World Bank.

3.03 Sanderson & Porter could not complete development of the Management Information System (MIS) concept by the time their study contract ended in 1979. NRECA is handling the work of modifying the existing accounting system and establishing an MIS for EEA and REA. This work will help to implement improvements in the accounting systems and the flow of information within the respective organizations.

3.04 The income statements and balance sheets of EEA for the years 1977-1986 are given in Annexes G and H. In 1977, EEA's second year of operation as an independent electricity authority, it earned a modest profit of LE 11.9 million. The results produced a rate of return of 10% on unrevalued assets. In 1978, EEA is estimated to have earned a return of 5.8% on the revalued assets. EEA's internal cash generation, which is a better measure of performance considering the valuation of its assets, was nil in 1977 and 7% of expansion requirements in 1978.

3.05 While these rates of return achieved appear to be reasonable, they have been obtained in a period when EEA has reaped the benefits of cheap Aswan hydro power, and subsidized fuel oil at LE 7.50 a ton (US \$11/ton) compared to the recent world market price of fuel oil of about \$180 a ton (July 1980). In addition,

salaries and wages were very low averaging about LE 350 per annum per employee (US \$550 equivalent), although this advantage is offset by considerable overstaffing.

3.06 With the growth in demand for electric energy to be met in the next five to six years from fossil fueled plants, the possibility of the GOE reducing fuel subsidies to EEA and government wide wage increases put into effect, the future outlook is for higher electricity rates.

3.07 EEA's debt/equity ratio improved from 74/26 at 1976-end to 72/28 at 1977-end based on its historical balance sheet figures. With the revaluation of assets as of December 31, 1977, resulting in the creation of a revaluation reserve, the debt/equity ratio improved to 63/37 at the end of 1978. It should be noted, however, that long-term debt has not been valued to reflect current rates each year on the basis of current exchange rates. EEA has recently agreed with the World Bank though to revalue its debt each year on the basis of current exchange rates. The bulk (90%) of EEA's existing long-term debt is owed to the GOE and is repayable over 12 years at an annual interest rate of 5%. The remainder comprises USSR loans for the Aswan project and short-term suppliers' credits.

3.08 EEA's debt service coverage (times annual debt service is covered by internal cash generation) in 1977 was only about 0.7 due mainly to the abnormally high repayments made on its loans to the GOE. It improved to 1.1 in 1978 and further improved to a satisfactory 1.3 in 1979. The current ratio which was 1.3 at 1977-end fell to 1.0 at 1978-end, reflecting a tight liquidity position, but improved significantly to 1.9 at the close of 1979.

B. Sources and Application of Funds

3.09 The forecast of sources and applications of funds of EEA for the period 1979-87 is given in Annex J. A condensed version for the period of this project, 1981-86 is given below.

TABLE 3
Source and Application of Funds, 1981-1986

	Amount (Thousands)		% of Capital Expenditures
	LE	US \$	
<u>Capital Expenditure Requirements (Including Interest During Construction)</u>			
The Project	473,555	681,920	10
Other Construction	4,272,146	6,151,890	90
Total	4,745,701	6,833,810	100
<u>Sources of Funds</u>			
Internal Cash Generation	1,669,238	2,403,703	
Less: Debt Service	(703,407)	(1,012,906)	
	965,831	1,390,797	20
Less: Working Capital Increase	(768,029)	(1,105,962)	(16)
Net Internal Cash Generation	197,802	284,835	4
<u>Grants</u>			
USAID - For Project	131,944	190,000	3
Other	5,514	7,940	-
Canada/Japan/Netherlands	34,455	49,615	1
GOE	860,005	1,238,407	18
Total Grants	1,031,918	1,485,962	22
<u>Borrowings</u>			
<u>Foreign- For Project;</u>			
IBRD/IDA	126,389	182,000	3
EEC	24,306	35,000	1
EIB	22,222	32,000	1
Japan	15,972	23,000	-
France	4,514	6,500	-
French Private Credit	30,208	43,500	1
African Dev. Bank	5,556	8,000	-
Foreign for other Construct.	2,401,666	3,458,400	51
Total Foreign	2,630,833	3,788,400	56
Local Loans	885,148	1,274,613	18
Total Borrowings	3,515,981	5,063,013	74
Total Sources	4,745,701	6,833,810	100
	=====	=====	===

3.10 As the above Table indicates, EEA's investment program for 1981-86 will require about LE 4,746 million (US \$6,834 million) which is expected to be financed from net internal cash generation, from donor grants, and from borrowings. After allowing for debt service but before providing for working capital increases, the internal cash generation would be about 20%, which is adequate. Although the size of the borrowings of LE 3,516 million (US \$5,063 million) calls into question the realism of the investment program given the resources available, the program itself is not unrealistic. It represents 20% of the GOE's total investment program, which is an acceptable share for power sector investments in a developing country.

3.11 Financing arrangements for the Shoubrah project are reasonably assured. EEA has commitments from various donors for foreign borrowings totalling \$330 million which does not include the existing AID grant. USAID has received evidence from the EEA that the local currency fund required for the project has been established and that local currency funds for the expanded 900 MW project will be budgeted by the Egyptian Government in accordance with Egyptian law. EEA has assured USAID that all funds needed to cover local cost requirements of the expanded project will be available when needed.

IV. ELECTRICITY TARRIFS/ENERGY PRICING

A. General Background

4.01 The price system in Egypt continues to be characterized by a great deal of centralized control. The Government subsidizes the prices of petroleum products and electricity tariffs. The subsidy is economic rather than financial in nature with the exception of some financial subsidy which is extended to a few large industrial consumers of electricity. The economic subsidy is the difference between the domestic prices and the average revenue foregone by diverting oil and petroleum products from the export market to the domestic market.

4.02 The Government has kept the overall price of energy low relative to the rest of the domestic prices to foster industrial growth through publicly owned enterprises. At present close to 58% of all petroleum products is consumed by industry and the power sector and about 82% of the electricity generated is consumed either by industry or Government-related activities. The low prices for energy continue to hinder the ability of the various entities in the energy sector to generate sufficient revenue to finance the capital investment necessary to meet future needs. This pricing structure obviously does not reflect the relative scarcity of energy and leads to non-optimal use of the resource.

4.03 Moving domestic prices of energy resources to the international level should be the goal of any national pricing policy. This, however, is a long term objective which is primarily determined by the ability of Egypt's economy to structurally adjust and absorb the new higher prices. This adjustment is particularly difficult in the Egyptian economy with extensive systems of subsidies and price controls which make the assessment of the impact of increases in the price of widely used good, such as energy difficult to determine. As such, changes in the prices of energy should be implemented through a series of short-term adjustments to avoid sudden shocks that could disturb all other prices throughout the economy.

4.04 In this regard and under the auspices of the World Bank, a pricing study for petroleum products and another study for the formulation of electricity tariffs are underway with support of senior GOE officials. The studies aim at proposing changes in both the prices of petroleum products and the tariffs of electricity that

would result in the improvement of the overall pricing of energy in Egypt while having the least possible adverse impact on the economy. In support of such efforts the GOE has agreed to implement regulations to be proposed by EEA in line with energy audits in major industrial installations being carried out by EEA as part of a load research and management study financed by the World Bank which would help to determine suitable plant and process modernization programs leading to lower specific energy consumption through improved utilization efficiency.

B. Electricity Tariffs

4.05 Industrial and Commercial Consumers. It is well known that tariffs in Egypt continue to be subsidized like most other goods and services in the economy. The subsidy is two-fold: on economic subsidy and a financial subsidy. Consumers of electricity enjoy an economic subsidy through the low price paid by EEA for inputs (oil and natural gas). This subsidy is in turn passed on to the electricity consumers.

4.06 In addition to the economic subsidy, a financial subsidy is extended to large industrial consumers such as the Kima fertilizer plant and the Aluminum complex which accounted for 26% of EEA's total sales in 1979. The tariffs are regulated by old agreements based on EEA's cost structure which does not relate to the present cost structure. For example, at the time the contract with the Kima fertilizer plant was signed there was surplus hydro power, which is no longer the case.

4.07 It should be noted, however, that EEA has initiated certain measures with the Government in an attempt to increase the tariffs to be collected from both the fertilizer plant and the aluminum complex. In 1980, EEA succeeded in raising the tariffs for incremental sales to the aluminum industry from the existing contract rate of 2.58 milliemes to approximately 4.25 milliemes/KWh, an average increase of greater than 55% for total additional revenues of LE 900,000. EEA has also sent a proposal to the Government to approve which would raise the tariffs to be collected from these two large industrial consumers to meet its present cost of supply of 5.07 milliemes/KWh. If this proposal is accepted, increased revenues of more than LE 8.3 million could be added to EEA's revenue statement for the year 1980. In this area, great room for tariff adjustments exist which would not prejudice long-term structure reform since the prices to these large users are so low relative to EEA's cost of supply.

4.08 In an effort to improve electricity tariffs, the World Bank, which is one of the cofinanciers of the Shoubrah project, is financing the two tariff studies mentioned earlier in this paper. The studies, now underway, will form an important basis for determining long range tariff structures. Results of these studies will provide GOE management with plan of action which, if implemented, will greatly assist in providing increased revenue to EEA to meet future needs. In addition, a staff trained in collecting data, administering a tariff department and managing a tariff program will be in place to assist EEA management to institutionalize tariff policy within the appropriate government offices.

4.09 The high voltage study draft was completed by the consultant in April 1981 and is presently under review by EEA officials. It is understood that comments presented to the consultant by EEA indicate that additional data is needed to finalize the study. EEA has, however, committed to present to the World Bank a draft plan and implementation schedule to increase high voltage tariffs based on the recommendations of the study by the end of 1981.

4.10 Residential and Small Commercial Consumers. The tariff study to cover the medium and low voltage consumers has been initiated and expected completion is January 1982. EEA has agreed to submit recommendations from the study to the Government and the World Bank by April 1982 and to implement such recommendations by July 1982.

4.11 As an interim measure, the Government introduced a new tariff structure in January 1980 for the domestic and small commercial consumers. The new structure is essentially an increasing block rate (higher tariffs for higher consumption). It provides a minimum level of electricity needed for lighting estimated to be about 80kWh/month at a subsidized rate. The subsidy is more than recovered from the large domestic and small commercial consumers. The new structure was expected to generate about LE 8.0 million of additional revenue in 1980. It is regarded as a step in the right direction as it will induce conservation in the use of electricity for consumption above 150kWh/a month, a badly needed measure in light of the increasing demand for air conditioning in the principal cities.

4.12 Other Consumers. Effective July 1979, the Government introduced special tariffs based on international fuel prices for

certain specific industries having collaboration arrangements with foreign firms selling goods in the export market. It is anticipated that when the 120 firms or so in question begin to make payments under this system, significant revenue increase for EEA can be expected.

4.13 On the basis that the GOE wished to establish EEA as a financially viable entity with a level of earnings which will provide for some of its future expansion needs from internal sources, AID and the World Bank included covenants and conditions within their respective power agreements to require EEA to earn specific rates of return on net fixed assets in operation. Under the \$100 million AID Grant Agreement and World Bank loan agreement for Shoubrah El Kheima, EEA agreed to submit a plan of action which if implemented would ensure that a financial rate of return on net fixed assets of 5% in 1980, 6% in 1981, 8% in 1982 and 9% in 1983 and thereafter would be achieved. In its most recent power agreement with the GOE, the World Bank agreed on a somewhat different formulation from that contained in earlier agreements and that agreed to by AID. Under this formula the annual rate of return on EEA assets would be set to be not less than 5% until 1983 with the underlying assumption that any increases in fuel prices to EEA would be passed on as tariff increases. Both the World Bank and AID have agreed that setting narrow financial objectives for EEA in isolation without regard to the system of subsidies and controlled prices that pervades the economy is unrealistic. The strategy is to recognize the constraints and avoid immediate abrupt and drastic price adjustments which would be socially and economically disruptive and to help move the economy to a better system of management and of pricing policies. It has also been recognized that the appropriate time for major tariff action should be after EEA and the GOE have had time to review the recommendations of the tariff and petroleum studies underway.

4.14 To this end, discussions have been underway between AID, the World Bank and the Egyptian Government to set revised targets for the financial rate of return while attempting to obtain action from the Government on interim tariff adjustments which would not compromise any decisions that may be indicated by the studies. As such, the gradualistic approach would also lessen the economic impact of subsequent future changes.

4.15 The GOE has under discussion at present certain measures which will accomplish the following when implemented:

- a) Gradually increase petroleum product prices to producers and consumers.
- b) Gradually increase price of electricity to consumers (24% increase over two-year period).

These measures have been discussed with both AID and the World Bank as the GOE's step forward towards energy price increases. While they represent only initial step to redress some of the distortions on the economy, such measures would undoubtedly help to reduce the gap between electricity prices and fuel costs.

C. Recommendation

4.16 USAID believes that the problem faced in the financial rate of return should be placed in the context of AID overall concerns about Egypt's energy cost price distortions and resolved in that context. Thus both the long term energy pricing issue and short term project related issue must be analyzed to see what tradeoffs exist when defining possible courses of action. In particular the financial rate of return should not be the dominant concern. Rather the objective in the long term should be to gain acceptance of a staged implementation of across the board energy price increases which will not cause disruptions in the economy. For this reason we believe that it is appropriate to accept a relaxation of the rate of return CP to the present Shoubrah agreement. In the short run we should attempt to obtain commitment (along with the World Bank) from the Government to initiate movement on energy prices. AID should attempt to obtain specific understandings from the GOE relative to interim rates of return and planning actions in order to establish a joint World Bank/AID energy pricing position with the Government. It should be understood, however, that these actions will require continued effort by both the donors and the GOE as such should not be viewed in the context of any single project.

4.17 The narrowness of the financial rate of return issue is simple to illustrate. If Egypt were to increase the price of fuel to the EEA in an attempt to reflect movement toward international prices of energy, then EEA's rate of return on assets will be significantly lower than at present. If the EEA was allowed to carry through to the consumers the full adjustment of the increased fuel prices into tariff increases, EEA's rate of return would not increase at all. Should both of these events take place however, the reduction in the gap between electricity prices and fuel costs could be significant.

4.18 To this end, AID will seek to obtain from senior GOE officials agreement on initiation of actions which would improve energy pricing in Egypt. However, in recognition of the existing situation for the purpose of timely project implementation and in the interest of support to this most critical infrastructure activity, AID will consider deferring for the time being the application of the financial rate of return requirements presently listed in the Grant Agreement which will be contingent upon reaching interim agreements reflected in the draft Covenants listed under Section IX of this paper.

V. ECONOMIC ANALYSIS

A. General

5.01 The primary benefit of this project is the economic value of the electricity that will be generated by the Shoubrah station. The amount of usable electricity that will be produced and delivered to users, per year is 6300 GWh. The true economic value of a kWh of electric power should be based on an estimate of customers' willingness to pay, based in turn on the shape of direct demand curves for the products of commercial and industrial users. For Egypt, such an analysis is not possible given the subsidies and controls that permeate all sectors of the economy. For electricity, tariff structures are formulated by the Ministry of Electricity and EEA under guidelines established by the GOE and subject to government concurrence. Tariffs for larger customers, such as aluminum, iron and steel and fertilizer are negotiated on an individual basis; and special rates are charged for other purposes, such as irrigation. Rates therefore, are based on the Government's desires to subsidize the users. It should be pointed out that EEA has initiated measures to increase tariff rates of the aluminum and fertilizer complexes. To date they have had limited success in modifying existing tariff rates.

B. Economic Rate of Return

5.02 The rate of return calculation included in the May 1979 Project Paper for the Shoubrah Project was based on the full planned capability of the plant -- 900 MW. The rate of return was determined to be about 8%, using \$661 million as the capital cost estimate of the Project (current estimate is \$640 million) and the opportunity cost of fuel at the time of appraisal of LE 55/ton (present border price is about LE 110/ton). The incremental electricity sales attributable to Shoubrah were valued at the average tariffs prevailing in 1978.

5.03 A recalculation of the rate of return has not been made, since any rate of return calculation understates the true return on the project, principally because electricity is undervalued in the analysis. The value of electricity to the economy cannot be quantified, and as a result the tariffs were used as a proxy for the value of the project output. In the analysis the tariffs, and in turn a major proportion of the benefits, are based on domestic prices for the resources while most of the costs associated with the

project are based on international prices, i.e., wages and price of fuel, etc. Since the domestic prices are set by the Government below international prices, the value of the benefits attributed to the project is depressed relative to economic costs.

VI. SOCIAL ANALYSIS

6.01 The May 1979 Project Paper contains a detailed social analysis, the validity of which is not affected by the addition of a third unit to the plant. The analysis speaks of the employment effects during the construction of the plant, noting that the inclusion of the third unit would raise employment of construction workers from 1000 to 1500. Likewise, the analysis comments on the employment effect of the plant when it is in operation with two and with three units. Finally, the social analysis notes that the most significant effect of the project will result from the long term impact of adequate electricity on the Egyptian economy as a whole. Elsewhere in the Project Paper and this amendment, the role of the third unit and the plant in providing an adequate total supply of electricity is discussed in detail.

VII. ENVIRONMENTAL ANALYSIS

7.01 As indicated in the May 1979 Project Paper, an environmental assessment was prepared by the feasibility study contractor, Sanderson & Porter and was submitted as an appendix to the feasibility study report.

7.02 The major concern relative to plant operations on the environment dealt with air quality and the burning of mazout to fuel the plant. Since that time extensive discussions have been held with the U.S. consultant, IBRD, and GOE in an effort to give particular attention to cost effective methods which would help reduce air pollution from the plant. The GOE has determined that burning mazout as a primary fuel will not meet either GOE or AID environmental concerns and thus all three units will be fueled by clean burning natural gas.

7.03 In addition, as part of the project and in an attempt to develop EEA capacity to adequately monitor background air quality at the site and in its immediate vicinity, an environmental monitoring system will be established. The environmental system will include three air quality monitoring stations, meteorological tower, associated equipment and operator training. This program will assist EEA, under adverse atmospheric conditions, to temporarily modify, restrict or curtail plant operations in order not to exceed established air quality standards.

VIII. PROJECT IMPLEMENTATION

A. Implementing Agency

8.01 The EEA will continue to have prime responsibility for overall management of the project and for providing direction to the Consulting Engineer, Overseas Bechtel, Inc. (OBI). EEA has assigned a special project team with authority to make day-to-day decisions and approvals. The team is made up of a Project Manager, Project Engineer, Procurement Specialist, Financial Manager and Legal Advisor, and the members now work full time on the Shoubrah El Kheima Power Project.

B. Implementation Plan

8.02 . Consulting Engineer. OBI is under contract to EEA to provide professional services consisting of preliminary engineering and engineering review, procurement assistance, monitoring of construction, project management (to include management of initial operations) and training related services. Their present tasks include preparation of the preliminary design of the plant (already completed) and performance specifications and tender documents for the equipment that is to be procured for the plant. The results of the preliminary design analysis and calculations are included in the IFBs that are used to procure the equipment, which are adequate for competitive bidding by all qualified manufacturers and suppliers. Detailed engineering design is to be provided by the selected contractors.

8.03 After receipt of bids, OBI will prepare evaluations which consider all the technical and contractual requirements of the tender documents and assist EEA in evaluation and selection of the contractors while providing independent recommendations for award. OBI will administer the various contracts and monitor expediting functions and surveillance/inspection of contractor shop activities. They will assist EEA by performing construction management services, a function which will help to coordinate and provide adequate monitoring of site construction activities in order to ensure the continuous efficient progress of the work. As consultant, OBI will provide startup services and arrange for training of EEA personnel utilizing both on-the-job and classroom procedures related to this training effort. During the period of initial plant operations, OBI will provide the services of operational personnel.

C. Implementation Procedure

8.04 Contracting for plant equipment and construction services is complicated by the fact that the project is being financed by seven co-financers, each with different regulations and procurement procedures. OBI has developed a multipackaging contracting plan for the procurement of plant equipment, construction and startup services. Packages for plant equipment will require contractors to design, furnish, deliver and install the equipment in accordance with the specifications and the terms and conditions of their contracts. Each contractor is fully responsible for performing the work in accordance with the schedule, and for providing an engineer to supervise the execution of the plans and the contractor's work.

8.05 The following are the major contracting packages:

Turbine Generators

Steam Generators

Civil Works

Power Block
Shoreline Development
Piling
Concrete Chimney
General Services
Rebar Supply

Mechanical Supply

Condensers and Heaters
Pumps
Water Treatment
Cranes
Piping

Electricals and Instrumentation

Transformers
Switchgear
Panels and Controls

Mechanical Pipe

Electrical and Instrumentation

Switchyard and Transmission

Tanks

Gas Turbine Generator

Wrap-up Insurance

Demolition

General Services

D. Implementation Schedule

8.06 Fast-track Approach. The Consulting Engineer (OBI) has recommended and EEA has accepted, a fast-track approach to project implementation, reducing the projected schedule from a 68-month period for commercial operation of the first unit, to a 51-month schedule. The most significant advantage of this approach is the schedule reduction and the associated savings in escalation costs. It has been estimated that escalation can be reduced from approximately 34 percent of the project cost to 26 percent under this new approach.

8.07 The proposal involves a larger engineering role for OBI than is now provided for in their contract with EEA. Under this new approach, OBI will assume some critical path design and additional procurement responsibilities to enable EEA to reduce schedule and material costs. They would then specify and help EEA to procure critical mechanical equipment separately as opposed to include such equipment in major contract packages. Detailed engineering in power block design, mechanical systems, electrical/instrumentation by OBI will speed up the exchange of critical information which would have awaited contractor definition later on in the project schedule. Thus civil construction time will be shortened and unit in operation far in advance of original expectations. Instead of each contractor being responsible for installing equipment provided, erection and installation of most mechanical and electrical equipment will be accomplished by a mechanical and an electrical contractor.

8.08 EEA and the co-financiers have accepted OBI's proposal to shorten the project schedule and help to provide needed power earlier on. EEA has issued a Letter of Intent to OBI to negotiate an amendment to OBI's contract to provide for engineering and management services relative to Unit 3. EEA also intends to modify OBI's contract to include the additional scope required to implement the fast-track approach to project implementation. This amendment

is currently under discussion between EEA and its consultant OBI and it is expected that negotiations will soon be completed.

8.09 Implementation Schedule. The early stages of the project are critical to the overall schedule. There are some critical areas in the schedule which must be concentrated on and expedited in order to support the schedule. The most critical area centers on the award of the turbine generators and the steam generators. Delays in these procurements will not only affect the project completion date, but will increase the likelihood that project costs will rise as a result of added escalation. OBI has estimated that a one-month slip in the center of gravity of expenditures will increase the project escalation by approximately \$4 million.

8.10 The IFBs for the steam generators and the turbine generators were released in March and pre-bid meetings were held in Cairo, in early April. Bids are due by the middle of June. The steam generators are being procured from international sources with World Bank financing. Financing for this package is assured. The turbine generators are being procured from a U.S. source and are proposed for A.I.D. financing. Proceeds from the original \$100 million A.I.D. Grant are not adequate to cover the total contract, and additional funds from the proposed \$90 million grant will be needed as early as September 1981.

8.11 IFBs for the condensers and pumps which form the balance of the turbine island were released in late May and it is expected that bids will be due in early July. This equipment is being procured from a U.S. source and is proposed for A.I.D. funding, out of the additional funds contained in the new grant.

8.12 The project implementation schedule as set forth in the Table below is based upon the consultant's latest fast-track implementation schedule. Principal or milestone dates of this schedule include:

TABLE 4

Implementation Schedule

Demolition/Site Preparation Contract Awarded	March 1981
Turbine Generator Tendered	March 1981
Steam Generator Tendered	March 1981
Condensers Tendered	May 1981
Pumps Tendered	May 1981

Turbine Generator Contract Awarded	September 1981
Steam Generator Contract Awarded	September 1981
Pumps Contract Awarded	September 1981
Condensers Contract Awarded	September 1981
Civil Works Contract Awarded	October 1981
Mechanical & Piping Contract Awarded	May 1982
Electrical & Instrumentation Contract Awarded	August 1982
Switchyard and Transmission Contract Awarded	August 1982
Initial Operation Unit No. 1	November 1984
Commercial Operation Unit No. 2	August 1985
Commercial Operation Unit No. 3	February 1986

E. Terminal Dates

8.13 Conditions Precedent. The terminal date for meeting the Conditions Precedent to First Disbursement, from the additional funds, will be 90 days from the date of Grant signing, being the date when funds will be needed to finance project equipment contracts.

8.14 Project Assistance Completion Date. The project assistance completion date (PACD) will be June 30, 1986.

8.15 Disbursement. The terminal date for disbursements will be June 30, 1987, twelve months after the PACD to allow for final payments after the warranty period has been completed.

F. Control and Monitoring

8.16 Throughout the life of the project, the U.S. consultant will monitor the project, bringing all routine problems, together with recommended solutions, to the attention of EEA and USAID in the form of the monthly progress report. In addition, monthly implementation review sessions will be held between the U.S. consultant, EEA and USAID staff to closely monitor project implementation. More serious problems, those requiring immediate action, will be monitored by a USAID Project Officer and Electrical Engineer, through frequent and timely periodic visits to the project site, meetings with EEA principals and site personnel, co-financiers, and others. Regular quarterly reviews of progress will also be conducted by the USAID Missions' top management staff. Substantive meetings on project problems will be held with EEA senior management staff and responsible representatives of other lenders/donors, when applicable.

G. Evaluation

8.17 USAID will conduct annual evaluations of this project beginning twelve months after award of the power block civil works construction contract, or approximately October 1982. These evaluations will be primarily based on routine monitoring procedures, including monthly reports, disbursement records, and normal site visit reports.

8.18 Upon completion of construction/erection and initiation of commercial operation of the third 300 MW unit, a more comprehensive, detailed evaluation will be performed which will summarize how actual project performance parameters compare to those projected or estimated, i.e., was the project completed in accordance with the technical criteria and plans originally formulated, was the project completed within the projected schedule, was the project completed within the estimated budgets. Where significant discrepancies are apparent between the actual and planned parameters, the evaluation shall attempt to establish the reasons for such differences, and to set forth those lessons to be learned from this project which may be applicable to subsequent projects.

8.19 One year after completion of construction and initial commercial operation, a second comprehensive project evaluation will be conducted to assess the management, performance and maintenance functions relative to the plant. This evaluation will include evaluation of the annual kilowatt production of the plant with respect to the load demands existing during the operational year, the actual staffing of the plant's organizational structure by EEA during the year, the costs of operation and maintenance compared with similar projected or expected costs, etc. As necessary, and as resources permit, this final evaluation of this project will be conducted by an independent A.I.D. task force, composed of individuals not previously involved in project management, or by an independent consulting firm.

IX. RECOMMENDATIONS; CONDITIONS AND COVENANTS

A. Recommendations

9.01 Subject to the conditions and covenants below, we recommend that AID authorize an amendment to Grant 263-0030 to increase it from \$100 million to \$190 million to provide additional financing for a part of the foreign exchange costs of the third 300 MW generating unit at Shoubrah El Kheima power plant in Cairo, and that the Grant be passed on by the GOE to the Egyptian Electricity Authority (EEA) as a grant contribution to EEA's equity capital.

B. Conditions Precedent to Disbursement

9.02 A. Prior to disbursement or to the issuance by AID of documentation pursuant to which disbursement will be made from additional funds available under this amendment, the GOE shall furnish in form and substance satisfactory to AID:

An opinion of the Minister of Justice of the Arab Republic of Egypt that this first amendment to the Agreement has been duly authorized and/or ratified by, and executed on behalf of the Grantee and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms.

B. The Grant Amendment will delete the rate of return condition precedent.

C. Covenants

9.03 A. The GOE will be required to covenant as follows:

1. The Grantee agrees that the proceeds made available under this first amendment to the Grant Agreement will be made available to the EEA as a grant contribution to its equity capital.
2. The high and medium/low voltage tariff studies presently underway will form the basis for implementing major changes in electricity tariffs. AID will be provided copies of the studies and will consult with the GOE as to the adequacy of recommendations before implementation begins.

3. Any interim changes in fuel prices will be broadly distributed and not excluded EEA.
4. Until the Parties agree that a comprehensive tariff structure can be implemented, the Grantee shall ensure that a minimum yearly rate of return for EEA will be established in consultation with AID. For the year 1981, the Grantee agrees to allow EEA to take the necessary action to achieve such a rate of return on net revalued assets as is acceptable to the World Bank under its assistance agreements for this project.
 - B. The Grant Amendment will delete the Sections 5.7 and 5.8 rate of return covenants.

ACTION
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Department of State

INCOMING
TELEGRAM

PAGE 01
ACTION AID-35

CAIRO 14267 151608Z

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ACTION OFFICE NEPD-04
INFO NEDP-02 CH6-01 NETC-04 NEE1-03 PPCE-01 PPEM-01 PDPR-01
PPPB-03 GC-01 PPEA-01 GCFL-01 GCNE-01 STA-10 IDCA-01
FM-02 SCI-01 AADS-01 CMGT-02 CTR-02 DSEY-01 DSFN-01
ENGR-02 CH8-01 ES-01 CIA-05 DOE-01 OPIC-10 RELO-01
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AIDAC

E. O. 12065: N/A
SUBJECT: SHOUBRAH EL KHEIMA POWER AID GRANT 263-0030

REF: CAIRO 13891

1. REGARDING PP ANNEX A, GRANT APPLICATION, FOLLOWING IS TEXT OF LETTER DATED 11 JUNE 1981 TO USAID DIRECTOR FROM FOUAD ISKANDAR, FIRST UNDERSECRETARY OF STATE, MINISTRY OF ECONOMY. QUOTE: REFERENCE IS MADE TO U. S. AID GRANT 263-0030 SIGNED ON AUGUST 29, 1979 BETWEEN OUR TWO GOVERNMENTS IN AN AMOUNT OF \$100 MILLION FOR THE SHOUBRAH EL KHEIMA THERMAL POWER PLANT.

AS YOU ARE AWARE, THE GOVERNMENT OF EGYPT IN CONSULTATION WITH THE PROJECT CO-FINANCIERS HAS DECIDED TO EXPAND THE 600MW PLANT TO 900MW IN ORDER TO MEET THE CRITICAL DEMANDS OF EXPANDED INDUSTRIAL ACTIVITY AND DOMESTIC LOAD GROWTH.

THE U. S. CONSULTING ENGINEER, OVERSEAS BECHTEL INC. HAS COMPLETED THE PRELIMINARY DESIGN REPORT WHICH INCLUDED A REASONABLY FIRM COST ESTIMATE. TOTAL PROJECT COSTS ARE NOW ESTIMATED TO BE \$640 MILLION OF WHICH \$535 MILLION ARE FOR THE FOREIGN EXCHANGE COSTS. WE ARE HEREBY REQUESTING THE AGENCY FOR INTERNATIONAL DEVELOPMENT TO PROVIDE ADDITIONAL GRANT FUNDS IN THE AMOUNT OF \$90 MILLION TO COVER THE PRESENT FOREIGN EXCHANGE NEEDED TO COMPLETE FINANCING FOR THIS IMPORTANT PROJECT. ANY POTENTIAL SHORTFALLS IN FOREIGN EXCHANGE FINANCING AND ALL LOCAL CURRENCY FUNDS REQUIRED FOR THE PROJECT WILL BE PROVIDED BY THE GOVERNMENT OF EGYPT. UNQUOTE.

2. COPY OF ABOVE APPLICATION WILL BE HANDCARRIED BY SILVERMAN 6/22/81.

3. PLEASE ADVISE SCHEDULE PRC REVIEW. WENDT

UNCLASSIFIED

ANNEX B

DRAFT FIRST AMENDMENT TO PROJECT AUTHORIZATION

Name of Country: Arab Republic of
Egypt

Name of Project: Shoubrah El Kheima
Thermal Power Plant

Number of Project: 263-0030

Pursuant to Part II, Chapter 4, Section 532 of the Foreign Assistance Act of 1961, as amended, the Shoubrah El Kheima Thermal Power Plant Project for the Arab Republic of Egypt was authorized on July 19, 1979. That authorization is hereby amended as follows:

1. The amount of the Grant is revised to read: "not to exceed One Hundred Ninety Million United States Dollars (\$190,000,000)."
2. The second paragraph shall be amended by deleting "600" and substituting in its place "900".
3. Conditions Precedent to Disbursement. Section b(2)(f) is hereby... deleted in its entirety.
4. Covenants.
 - a. Sections c(4)(a) and (b) are hereby deleted in their entirety.
 - b. The following additional covenants shall be added as follows:
 - "9. The Cooperating Country shall ensure that the proceeds made available under the First Amendment to the Project Grant will be made available to the EEA as a grant contribution to its equity capital.
 - "10. The Cooperating Country covenants that the high and medium/low voltage tariff studies presently underway will form the basis for implementing major changes in electricity tariffs. To this end, the Cooperating Country will consult with A.I.D. as to the adequacy of the recommendations of such studies before implementation begins.
 - "11. The Cooperating Country shall ensure that any interim changes in fuel prices will be broadly distributed and not exclude EEA.

"12. Until the Parties agree that a comprehensive tariff structure can be implemented, the Cooperating Country shall ensure that a minimum yearly rate of return for EEA will be established in consultation with A.I.D. For the year 1981, the Cooperating Country shall allow EEA to take the necessary action to achieve such a rate of return on net revalued assets as is acceptable to the World Bank under its assistance agreements for the project.

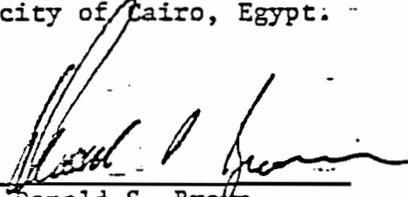
5. Except as amended hereby, the Project Authorization dated July 19, 1979 shall remain in force.

Administrator

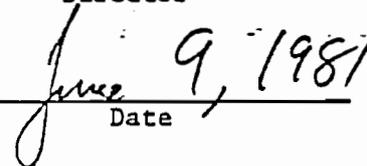
Date

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

I, Donald S. Brown, the Director of the Agency for International Development in Egypt, having taken into account, among other things, the maintenance and utilization of projects in Egypt previously financed or assisted by the United States, do hereby certify that in my judgment Egypt has both the financial capability and human resources capability effectively to maintain and utilize the capital assistance to be provided for the 900 MW Thermal Power Plant at Shoubrah El Kheima in the city of Cairo, Egypt.



Donald S. Brown
Director



Date

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NO. Annex D 1-5

5C (2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual funding sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? Yes
HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT? Yes

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FY 80 App. Act Unnumbered; FAA Sec. 634A; Sec. 653(b);

(a) Describe how authorizing and appropriations Committees of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?

a) Congressional notification will be submitted.

b) The intended obligation is within the level of funds appropriated for Egypt for FY 81.

2. FAA Sec. 611(a) (1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

a) Yes, firm financial plans have been developed as part of the Project Paper.

b) Yes.

3. FAA Sec. 611(a) (2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

None required.

4. FAA Sec. 611(b); FY 79 App. Act Sec. 101; FY 80 App. Act Sec. (501.) If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?

N/A

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? Yes.

6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. No.

7. FAA Sec. 601(a). Information and conclusions whether project 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. The project is intended to enhance Egypt's electricity generating capacity, enabling sale of adequate power to any and all industrial, commercial and domestic consumers. It will therefore directly affect (e) and indirectly affect (a) & (b).

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise). All goods and services to be procured under the Grant will be US source and origin. US private industry will also be eligible to compete with international firms for project goods and services being funded by IBRD and other untied funds.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps 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 original project Grant Agreement so provided and the GOE has certified that all local currency funds required will be provided by GOE.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

Yes, however no local cost financing to be provided under project.

11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

12. FY 79 App. Act, Sec. 608; FY 80 App. Act Sec. (521.) If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance-Project Criteria

a. FAA Sec. 102(b): 111; 113; 281a.
Extent to which activity will
(a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts

N/A

of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107.

Is assistance being made available:

(include only applicable paragraph which corresponds to source of funds used.

N/A

If more than one fund source is used for project, include relevant paragraph for each fund source.)

(1) [103] for agriculture, rural development or nutrition; if so (a) extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, full account shall be taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made; (b) extent to which assistance is used in coordination with programs carried out under Sec. 104 to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value, improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people; and (c) extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food

N/A

reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

(2) [104] for population planning under sec. 104(b) or health under sec. 104(c); if so, (a.) extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

N/A

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; and (b.) - extent to which assistance provides advanced education and training of people in developing countries in such disciplines -- as are required for planning and implementation of public and private development activities.

N/A

(4) [106] - for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is: (i) (a) concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and (b) facilitative of geological and geophysical survey work to locate potential oil, natural gas, and coal reserves and to encourage exploration for potential oil, natural gas, and coal reserves.

N/A

- (ii) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations; N/A
- (iii) research into, and evaluation of, economic development processes and techniques; N/A
- (iv) reconstruction after natural or manmade disaster; N/A
- (v) for special development problems, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance; N/A
- (vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development. N/A
- c. [107] is appropriate effort placed on use of appropriate technology? (relatively smaller, cost-saving, labor using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor.) N/A
- d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least developed" country)? N/A
- e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? N/A
- f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's N/A

intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth? N/A

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest. N/A

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an 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? N/A

3. Project Criteria Solely for Economic Support Fund

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102? a) Will enhance ability of GOE to sustain economic growth and recovery which will have positive political results. To the extent rural areas will be served, policy direction of Section 101 will be reflected.
b) No.

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?

5C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

Yes. Goods and services will be procured under AID established procedures, which include opportunities for small business.

2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?

Yes.

3. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will commodities be insured in the United States against marine risk with a company or companies authorized to do marine insurance business in the U.S.

Yes.

4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?

There will be no such procurement.

5. FAA Sec. 603 Compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.

Yes.

6. FAA Sec. 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items?

Consideration will be given to use of excess property when practical.

7. FAA Sec. 621. If technical assistance is financed, to the fullest extent practicable will such assistance, goods and professional and other services from private enterprise, be furnished on a

Yes.

contract basis? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? Yes.

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available? Yes.

9. FY 79 App. Act, Sec. 105; FY 80 App. Act Sec. [505.] - Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States? Contracts will so provide.

B. Construction

1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest? Yes.

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes.

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? Yes, but FAA Section 620(k) provides exception for Egypt for FY 1980-81.

C. Other Restriction

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? N/A

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

N/A

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

The contracts will so provide.

4. FAA Sec. 636(i). Is financing not permitted to be used, without waiver, for purchase, sale, longterm lease, exchange or guaranty of motor vehicles manufactured outside the U.S.?

Yes.

5., Will arrangements preclude use of financing:

a. FAA Sec. 104(f). To pay for performance of abortions as a method of family planning or to, motivate or coerce persons to practice abortions; to pay for performance of involuntary sterilization as a method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization?

Yes.

b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?

Yes.

c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

Yes.

d. FAA Sec. 662. For CIA activities?

Yes.

e. FY 79 App. Act, Sec. 104; FY 80 App. Act Sec. [504.] To pay pensions, etc., for military personnel?

Yes.

f. FY 79 App. Act, Sec. 106; FY 80 App. Act. Sec. [506.] To pay U.N. assessments?

Yes.

g. FY 79 App. Act, Sec. 107; FY 80 App. Act. Sec. [507.] To carry out provisions of FAA section 209(d)? (Transfer of FAA funds to multilateral organizations for lending.) Yes.

h. FY 79 App. Act, Sec. 112; FY 80 App. Act Sec. [511.] To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? Yes.

i. FY 79 App. Act, Sec. 601; FY 80 App. Act Sec. [515.] To be used for publicity or propaganda purposes within U.S. not authorized by Congress? Yes.



MINISTRY OF ECONOMY
AND ECONOMIC COOPERATION

Economic Cooperation

Mr. Donald S. Brown
Director, USAID
American Embassy
C A I R O

ANNEX E

Cairo 29 April, 1980

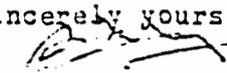
Dear Mr. Brown,

The Government of Egypt has reviewed the Section 4.1 (e) Condition Precedent to first disbursement of the Shoubrah El Kheima project Agreement concerning the design criteria for environmental pollution control. In this regard, we have concluded that a plant utilizing mazout as a primary or secondary fuel can not meet the environmental concerns of either the Egyptian or American governments. Therefore we have decided to use more efficient and environmentally cleaner natural gas as the source of fuel for the plant.

Following recent discussions between the Egyptian General Petroleum Corporation (EGPC), Ministry of Health, Ministry of Electricity and the International Bank for Reconstruction and Development, agreement was reached that natural gas will be burned as the primary source fuel the 900 MW power plant, EGPC has assured to the Ministry of Electricity that sufficient quantity of natural gas will be available to face the needs of 3 x 300 units beginning in 1985.

In summary, the Shoubrah El Kheima power project will not violate Egyptian law since it will function on the basis of natural gas for all three units. Since the Egyptian standards for air pollution are more stringent than the guidelines of the World Bank, we ask you to accept this assurance as satisfaction of the Section 4.1 (e) Condition Precedent to first disbursement under the Shoubrah El Kheima project agreement.

Sincerely yours,


ABDEL AZIZ ZAHWY

Under Secretary of State
for Economic Cooperation

EGYPTIAN ELECTRICITY AUTHORITY
SIKUDRAH EL-KHEIMA UNITS 1, 2 & 3
TREND BASE ESTIMATE

December, 1980

CONTRACT PACKAGE SUMMARY
(Cost in \$1,000's)

<u>Contract Package</u>		<u>Material</u>	<u>Labor</u>	<u>Present Day 7/1/80 Cost</u>	<u>Escalation Cost</u>	<u>Total Escalated Cost</u>
CC-01	Project Wrap Up Insurance	3,900	0	3,900	1,600	7,500
CP01.1	Geotechnical Services	160	80	220	10	230
CP01.2	Land and Hydrographic Surveying	30	20	50	--	50
CP02.1	Environmental Monitoring Program	270	110	380	50	430
CP03.1	Solvents and Demolition	500	1,750	2,250	160	2,410
CP03.3	General Services	12,900	2,000	14,900	3,600	18,500
CP04.1	Turbine Generator	81,100	4,400	85,500	27,000	112,500
CP05.1	Steam Generator	74,300	13,400	87,700	24,000	111,700
CP06.1	Civil Works - Power Block	10,000	18,500	28,500	6,680	35,180
CP06.2	Shoreline Development	4,100	3,000	7,100	1,600	10,700
CP06.3	Structural Piling	2,200	1,300	3,500	400	3,900
CP06.4	Concrete Chimney	4,600	3,200	7,800	2,300	10,100
CP07.1	Electrical & Instrumentation	11,400	11,600	23,000	7,900	32,900
CP08.1	Mechanical & Piping	24,800	24,400	49,200	13,600	64,800
CP09.1	Switchyard & Transmission	20,100	6,000	26,100	6,800	32,900
CP10.1	Misc Bldg & Administration Bldg	2,200	3,000	5,200	2,000	7,200
CP11.1	Tanks	2,700	3,900	6,600	2,100	8,700
CP12.1	Painting	1,600	2,800	4,400	2,000	6,400
Subtotal - Contract Packages		239,040	103,460	364,500	103,800	468,300
PO-01	Reinforcing Steel	2,300	0	2,300	300	2,600
PO-02	Condenser, Accessories & Hangers	10,900	0	10,900	2,700	13,600
PO-03	Pumps	11,700	0	11,700	2,800	14,500
PO-05	Water Treatment	6,800	0	6,800	1,200	8,000
PO-06	Cranes	2,500	0	2,500	500	3,000
PO-07	Piping	6,100	0	6,100	1,600	7,700
PO-08	Transformers	7,000	0	7,000	1,900	8,900
PO-09	Switchgear	3,900	0	3,900	1,000	4,900
PO-10	Panels & Controls	6,300	0	6,300	1,900	8,200
PO-11	Gas Turbine Generator	4,200	0	4,200	900	5,100
Subtotal Purchase Orders		61,700	0	61,700	14,800	76,500
Total Contracts Cost		320,740	103,460	426,200	118,600	544,800
Contingency and Others						95,200
Total Project Cost						\$ 640,000

ANNEX F

EGYPTIAN ELECTRICITY AUTHORITY

Balance Sheets as of December 31, 1977-1987
(Thousands of L.E.)

	Actual 1977	-----Estimated-----									
		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
ASSETS											
Fixed Assets in Service	491,115	791,186	1,051,615	1,324,262	1,777,743	2,529,004	3,250,321	3,909,738	4,795,567	5,660,604	7,368,046
Less: Accumulated Depreciation	(162,872)	(251,361)	(311,410)	(370,626)	(456,005)	(550,084)	(669,771)	(810,688)	(995,819)	(1,212,550)	(1,660,077)
Net Fixed Assets in Service	<u>328,243</u>	<u>539,825</u>	<u>740,205</u>	<u>953,636</u>	<u>1,321,738</u>	<u>1,978,920</u>	<u>2,580,550</u>	<u>3,099,050</u>	<u>3,799,748</u>	<u>4,448,054</u>	<u>5,707,969</u>
Work in Progress	146,094	262,967	223,584	334,763	403,317	534,436	813,045	1,293,676	1,553,269	1,966,521	1,771,828
Investments	4,126	4,126	-	-	-	-	-	-	-	-	-
Long-Term Receivables	407	407	-	-	-	-	-	-	-	-	-
Current Assets											
Cash	7,558	5,098	7,589	9,140	2,200	10,344	11,477	7,118	13,513	13,500	10,000
Accounts Receivable	124,191	130,000	43,760	39,390	55,550	84,090	115,120	137,460	163,110	190,420	240,570
Inventories	86,024	125,251	245,768	232,091	241,276	242,300	329,530	468,480	639,330	1,044,404	961,304
Total Current Assets	<u>217,773</u>	<u>260,359</u>	<u>297,117</u>	<u>280,621</u>	<u>299,026</u>	<u>336,734</u>	<u>556,127</u>	<u>613,058</u>	<u>816,953</u>	<u>1,258,424</u>	<u>1,211,874</u>
TOTAL ASSETS	<u>697,443</u>	<u>1,067,674</u>	<u>1,260,906</u>	<u>1,561,020</u>	<u>2,104,081</u>	<u>2,850,090</u>	<u>3,849,722</u>	<u>4,997,784</u>	<u>6,167,970</u>	<u>7,671,059</u>	<u>8,806,471</u>
LIABILITIES											
Capital and Reserves											
Capital	76,990	76,990	76,990	76,990	76,990	76,990	76,990	76,990	76,990	76,990	76,990
Reserves	61,690	62,390	71,805	81,162	160,186	447,090	715,170	998,323	1,047,281	1,050,580	1,050,580
Legal Reserves	9,932	9,932	9,932	9,932	9,932	9,932	9,932	9,932	9,932	9,932	9,932
Revaluation Reserve	-	137,387	208,643	205,624	370,732	476,471	614,995	787,092	908,810	1,228,131	1,503,915
Retained Earnings	6,457 ¹	29,525	55,742	69,060	105,402	168,408	242,806	370,173	602,023	895,741	1,192,081
	<u>155,169</u>	<u>316,224</u>	<u>423,112</u>	<u>523,576</u>	<u>723,242</u>	<u>1,170,091</u>	<u>1,659,093</u>	<u>2,243,308</u>	<u>2,725,036</u>	<u>3,261,374</u>	<u>3,800,460</u>
Long-Term Debt											
Total Long-Term Debt	390,723	530,117	720,905	828,638	1,127,657	1,445,393	1,843,051	2,330,748	3,014,571	3,972,609	4,602,188
Less: Debt Due Within One Year	(29,617)	(37,617)	(50,990)	(60,037)	(67,453)	(67,498)	(69,674)	(76,461)	(93,307)	(116,801)	(135,000)
Net Long-Term Debt	<u>361,106</u>	<u>492,500</u>	<u>670,915</u>	<u>768,601</u>	<u>1,060,204</u>	<u>1,377,895</u>	<u>1,773,377</u>	<u>2,254,287</u>	<u>2,921,264</u>	<u>3,855,808</u>	<u>4,467,188</u>
Current Liabilities											
Long-Term Debt Due Within One Year	29,637	37,637	50,990	60,037	67,453	67,498	69,674	76,461	93,307	116,801	135,000
Accounts Payable & Deferred Liabilities	136,833	213,851	100,100	199,287	242,429	213,561	331,087	407,707	410,789	417,854	432,903
Consumers Deposits	6,810	7,402	8,709	9,519	10,753	12,245	14,091	15,949	17,574	19,142	20,082
Total Current Liabilities	<u>173,280</u>	<u>259,970</u>	<u>159,799</u>	<u>268,843</u>	<u>320,635</u>	<u>293,306</u>	<u>415,652</u>	<u>500,117</u>	<u>521,670</u>	<u>553,797</u>	<u>587,985</u>
TOTAL LIABILITIES	<u>697,443</u>	<u>1,067,674</u>	<u>1,260,906</u>	<u>1,561,020</u>	<u>2,104,081</u>	<u>2,850,090</u>	<u>3,849,722</u>	<u>4,997,784</u>	<u>6,167,970</u>	<u>7,671,059</u>	<u>8,806,471</u>
Ratio											
Debt/Equity Ratio	72/28	63/37	63/37	61/39	61/39	55/45	53/47	51/49	53/47	55/45	55/45
Current Ratio	1.3	1.0	1.9	1.0	0.9	1.1	1.1	1.2	1.6	2.3	2.1

¹ After assumed transfer of L.E. 9.009 million to the Ministry of Finance.

EGYPTIAN ELECTRICITY AUTHORITYNotes and Assumptions for Financial ForecastsA. General

Formation of Distribution Companies - The distribution companies started operations on January 1, 1979 under the overall control of EEA. The loan documents stipulate financial covenants for the sector as a whole, i.e., for EEA and the distribution companies combined. Therefore the financial forecasts in Annexes 4.2, 4.3 and 4.5 are consolidated forecasts of EEA and the distribution companies. The Minister of Electricity proposes to place five of the seven distribution companies, i.e., those excluding the Cairo and Alexandria companies under REA instead of EEA from a date to be determined. If this change takes place, appropriate changes in the covenants would be made.

B. Income Statement

1. Sales of Electricity are based on information furnished by EEA as modified in the Bank. The forecasts assume annual kWh sales growth of 4.3% in 1979, 22.6% in 1980, 13.0% in 1981, 13.9% in 1982, 15.1% in 1983, 13.2% in 1984, 10.2% in 1985, 8.9% in 1986 and 9.1% in 1987. The average revenue per kWh sold for 1980 is based on: (a) the average revenue per kWh applicable to 1979; and (b) a tariff increase for domestic consumers from January 1, 1980 resulting in an increase in revenues of about LE 8.0 million p.a. Further tariff increases are assumed as shown in Annex 4.2 so as to maintain the 5% return in 1981-1983 and to secure returns of 6% in 1984, 8% in 1985 and 9% thereafter.
2. Connection and Maintenance Charges are assumed to increase by the same percentages as annual kWh sales of electricity.
3. Other Operating Revenues are assumed to increase by the same percentages as annual kWh sales of electricity.
4. Fuel and Lubricants are based on estimates of generation from steam units and combustion turbines using fuel prices and heat rate as follows:

(a) Fuel Prices(i) For 1979 and 1980

Treated diesel fuel used by EEA - LE 35.00/ton (combustion turbines)
 Fuel Oil - LE 7.50/ton (steam turbines)
 Natural Gas - LE 7.50/ton equivalent as per EEA's existing contract.

(ii) From 1981 Onwards

The forecasts assume a 200% increase in fuel prices during 1981-1983 to be reached in three equal installments effective January 1 of each of these years.

(b) Heat Rates

Combustion turbines - 15,000 Btu = 1 kWh
 Steam turbines - 12,000 Btu = 1 kWh (1979 and thereafter)

5. Salaries and Wages are based on EEA's 1978 salaries and wages escalated by 15% each year through 1987. No specific increases in staff are assumed since EEA is overstaffed now and its present staff will be adequate through 1987.

6. Purchase of Materials and Services and Other Operating Expenses are assumed to increase roughly in proportion to the increase in net fixed assets in service.

7. Depreciation is computed at an average annual rate of 3%/a of the gross fixed assets in service at the beginning of the year.

8. Non-Operating Income is based on the average of actual non-operating income and expense for the years 1973 through 1978.

9. Interest is calculated at the rate of 5%/a on all loans from the Ministry of Finance. Interest on all existing foreign loans is based on EEA's actual calculations. All new borrowing from the Ministry of Finance is assumed to be at an average interest rate of 5%/a and future foreign borrowing except the identified loans, e.g., IBRD, EIB, etc., for which the specific rates would apply, is assumed to be at 8% (for presently committed generating plants) and 8-1/2% (future expansion facilities). Suppliers' Credits for the Project amounting to LE 303.6 million have been assumed for a period of 10 years including 2 years' grace with a rate of interest of 7.5%. Interest has been added to construction costs at 6.5% in 1978-79, 7.5% in 1980-82 and 8.5% in 1983-87.

B. Balance Sheet

10. Gross Fixed Assets in Service are valued at historical cost through 1977. They have been revalued as of the beginning of 1978 using the con-

sultants' valuation of LE 601 million for gross fixed assets and LE 199 million for accumulated depreciation. Thereafter, they have been revalued as of the end of each year beginning with 1978 assuming an average annual price increase as given in Annex 4.1.

11. Inventories - The estimates assume disposal of some surplus stock in 1980. Thereafter inventories are estimated to increase roughly in line with the increase in net fixed assets in service.
12. Accounts Receivables - The forecasts assume receivables to be the equivalent of three months' sales, the limit prescribed in the loan documents, as of the end of 1980 and thereafter.
13. Reserves are increased each year by proposed contributions from the Ministry of Housing and Reconstruction, Ministry of Finance and proposed grants by donors such as USAID, CIDA, OECF and the Netherlands.
14. Accounts Payable and Deferred Liabilities are estimated each year roughly on the basis of annual capital expenditures and cash operating expenses.
15. Consumers' Deposits are assumed to increase in line with the increases in kWh sales of electricity.

D. Sources and Applications of Funds

16. Contributions from the Ministry of Housing and Reconstruction and Ministry of Finance are based on EEA's 5-Year Plan estimates.
17. USAID Grants
18. Borrowings - All foreign borrowings are converted to Egyptian pounds using the parallel market rate of exchange of LE 1 = US\$1.44. EEA's planned borrowing program has been adjusted to meet the needs of the construction program as revised by the Bank and taking into account EEA's internal cash generation and expected grants.
19. Construction Requirements are based on EEA's estimates as revised by the Bank and escalated using the following percentages for price contingencies corresponding to expected conditions in Egypt:

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983-1985</u>	<u>1986-1987</u>
Equipment and Civil Works	12.0	10.5	9.0	3.0	7.0	6.0
20. Amortization of Long-Term Debt - Ministry of Finance loans are assumed repayable over 12 years after 3 years' grace. Amortization of other existing foreign loans is based on EEA's calculations.

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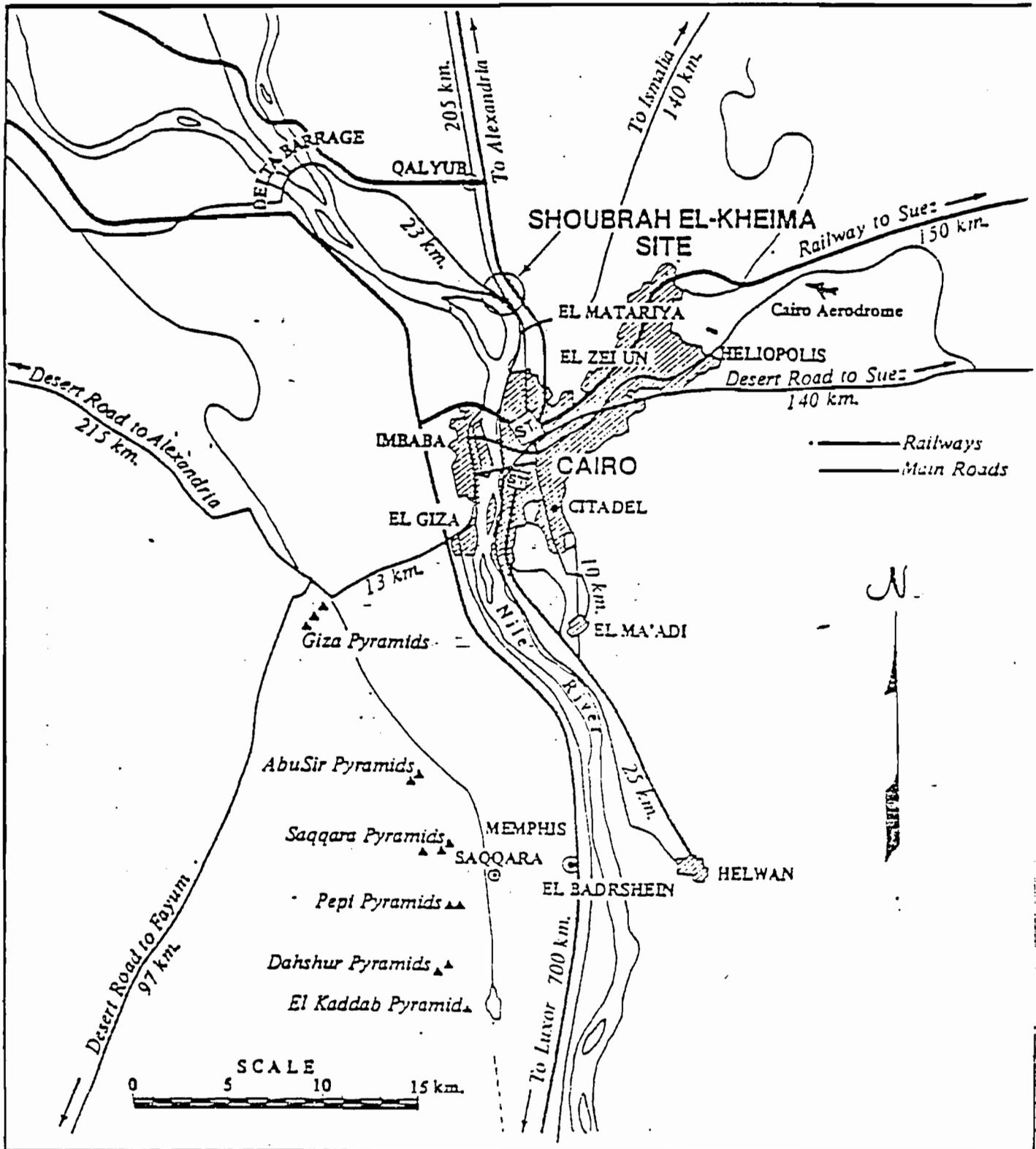
EGYPTIAN ELECTRICITY AUTHORITY

Sources and Applications of Funds for 1979-1986
(Thousands of LE)

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Sources of Funds</u>								
<u>Internal Cash Generation</u>								
Gross Income	38,361	41,325	59,312	85,660	117,950	175,835	284,129	382,380
Depreciation	<u>26,869</u>	<u>33,339</u>	<u>43,303</u>	<u>57,599</u>	<u>81,181</u>	<u>104,042</u>	<u>124,916</u>	<u>152,931</u>
Total Internal Cash Generation	<u>65,230</u>	<u>74,664</u>	<u>102,615</u>	<u>143,259</u>	<u>199,131</u>	<u>279,877</u>	<u>409,045</u>	<u>535,311</u>
<u>Grants</u>								
USAID - For Project	-	-	20,104	45,085	35,340	20,555	10,860	-
- Other	5,158	8,040	3,200	2,314	-	-	-	-
Canada/Japan/Netherlands	-	267	4,670	7,677	4,934	11,847	2,028	3,299
GOE	<u>4,257</u>	<u>1,050</u>	<u>61,050</u>	<u>251,828</u>	<u>247,806</u>	<u>263,321</u>	<u>36,000</u>	-
Total Grants	<u>9,415</u>	<u>9,357</u>	<u>89,024</u>	<u>306,904</u>	<u>288,080</u>	<u>295,723</u>	<u>48,888</u>	<u>3,299</u>
<u>Borrowings</u>								
Foreign Loans -								
For Project IDRD/IDA	-	-	15,972	48,334	49,556	13,572	-	-
Others	-	-	-	22,597	2,958	44,882	12,313	20,028
For Other Construction	183,548	150,643	258,054	291,735	394,442	462,806	477,727	516,902
Local Loans	<u>52,957</u>	-	<u>75,030</u>	<u>2,523</u>	-	<u>22,856</u>	<u>270,244</u>	<u>514,495</u>
Total Borrowing	<u>236,505</u>	<u>150,643</u>	<u>349,056</u>	<u>365,189</u>	<u>445,956</u>	<u>544,071</u>	<u>760,284</u>	<u>1,051,425</u>
Liquidation of Investments & Long-Term Receivables	4,533	-	-	-	-	-	-	-
Total Sources	<u>315,683</u>	<u>234,664</u>	<u>540,695</u>	<u>815,352</u>	<u>933,167</u>	<u>1,119,671</u>	<u>1,218,217</u>	<u>1,590,035</u>
<u>Application of Funds</u>								
Construction Requirements (Incl. Interest During Construction)								
- Project	-	-	54,207	101,619	113,458	123,160	41,014	45,639
- Other Construction	<u>116,610</u>	<u>274,458</u>	<u>428,644</u>	<u>558,042</u>	<u>707,938</u>	<u>796,616</u>	<u>847,150</u>	<u>927,714</u>
Total Construction Requirements	<u>116,610</u>	<u>274,458</u>	<u>482,851</u>	<u>659,661</u>	<u>821,396</u>	<u>919,776</u>	<u>888,164</u>	<u>973,353</u>

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Debt Service</u>								
Amortization	37,637	50,990	60,037	67,453	67,498	69,674	71,253	58,099
Interest Expense	<u>12,144</u>	<u>25,709</u>	<u>23,778</u>	<u>22,654</u>	<u>43,552</u>	<u>48,468</u>	<u>52,279</u>	<u>88,662</u>
Total Debt Service	<u>49,781</u>	<u>76,669</u>	<u>83,815</u>	<u>90,107</u>	<u>111,050</u>	<u>118,142</u>	<u>123,532</u>	<u>176,761</u>
Net Change in Working Capital (Excl. Long-Term Debt Due Within One year)	149,292	(116,493)	(25,971)	65,584	721	81,753	206,521	439,921
Total Applications	<u>315,683</u>	<u>234,664</u>	<u>540,695</u>	<u>815,352</u>	<u>933,167</u>	<u>1,119,671</u>	<u>1,218,217</u>	<u>1,590,035</u>
Times Annual Debt Service Covered by Internal Cash Generation	1.3	1.0	1.2	1.6	1.8	2.4	3.3	3.0

Figure 2
PLANT SITE IN RELATION TO CAIRO



BEST AVAILABLE DOCUMENT

