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PROJECT COMPLETION REPORT

SYRIA

REGIONAL ELECTRIFICATION PROJECT
(LOAN 1531-SYR)

December 27, 1985

Europe, Middle East and North Africa Regional Office

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PREFACE

The Project, supported by Loan 1531-SYR for US$40.0 million made to the Public Establishment of Electricity (PEE), consisted of about 5,000 km of 20-kV and 380/220-V distribution lines and related equipment, about 70 MVA of distribution transformer capacity and technical assistance, to serve approximately 900,000 people in 1,200 villages in the country. The closing date of the loan was December 31, 1983. Final disbursement was made in September 1984 raising the total disbursements to US$32.3 million, and the unutilized amount of US$7.7 million was cancelled, US$7.0 million in April 1984 and US$0.7 million in February 1985. This Project Completion Report (PCR) was prepared by the Europe, Middle East and North Africa Regional Office based on the Bank's appraisal report, supervision reports and other documents in the Bank's files, on the findings of a project completion mission which visited Syria in March 1985 and a preliminary completion report prepared by PEE and discussed with the Bank mission in March 1985.

The PCR summarizes the main points of interest. The loan was the third of a series of Bank loans to PEE which began in 1974.

In accordance with the revised procedures for project performance audit reporting, this PCR was read by the Operations Evaluation Department (OED) but the project was not audited by OED staff.

Following standard procedures, OED has sent copies of the draft report to the Government and the Borrower for comments. However, no comments have been received from them.

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BASIC DATA SHEET

KEY PROJECT DATA

	Appraisal Expectations	Actual
Total Project Cost (US$ Millions)	157.1	141.1
Overrun (%)		(10.2)
Loan Amount (US$ Millions)	40.0	40.0
Disbursed	40.0	32.3
Cancelled	-	7.0
Date Principal Components Completed	12/31/1981	04/30/85
Proportion Completed by Above Date (%)	100	4.4 - (12/81)
Proportion of Time Overrun (%)		110
Economic Rate of Return (%)	8.5	Negative
Financial Performance	Seriously Deficient	
Institutional Performance		Deficient

CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS
(US$ Millions)

As of June 30:	1979	1980	1981	1982	1983	1984	1985
(i) Appraisal Estimate	15.0	31.0	40.0	40.0	40.0	40.0	40.0
(ii) Actual	-	-	-	-	7.1	32.0	32.3
(ii) as % of (i)					18	80	81

OTHER PROJECT DATA

	Original Plan	Actual
First Mention in Files or Timetable		11/74
Government's Application		12/76
Negotiations		01-02/78
Board Approval		03/14/78
Loan Agreement Date		05,03/78
Effectiveness Date	011/03/78	07/01/80
Closing Date	06/30/82	12/31/83
Borrower		Public Establishment of Electricity (PEE)
Executing Agency		PEE
Fiscal Year of Borrower	January 1 - December 31	
Follow-on Project Name		None
Loan Number		-
Loan Amount		-
Loan Agreement Date		-

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MISSION DATA

	Month/Year	No. of Weeks	No. of Persons	Manweeks[a/]	Date of Reports
Appraisal					
- Preparation I	10/76	1.0	1	0.5	11/76
- Preparation II	11/76	1.0	1	1.0	11/76
- Preparation III	03-04/77	1.0	1	1.0	04/77
- Appraisal	05/77	4.0	4	10.5	07/77
				13.0	
Supervision I	06/78	1.0	3	1.0	06/78
Supervision II	02/79	1.0	2	0.5	03/79
Supervision III	05/80	2.0	2	1.0	06/80
Supervision IV	12/80-1/81	1.5	2	1.0	01/81
Supervision V	02/82	2.0	2	1.5	03/82
Supervision VI	02-03/83	2.0	2	1.0	04/83
Supervision VII	11/83	1.0	2	2.0	03/84
Completion I	01-02/85	0.5	1	0.5	02/85
Completion II	03/85	1.0	2	2.0	
		12.0		10.5	

COUNTRY EXCHANGE RATES

Name of Currency - Syrian Pound
Abbreviation - LS

Year:			
	Appraisal Year Average (1978)	US$1.0	= LS 3.95
	Intervening Years' Average	US$1.0	= LS 3.95
	Completion Year Average (1984)	US$1.0	= LS 3.95

a/ Only time spent on supervision of subject Project is included.

June 1985
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HIGHLIGHTS

The Project aimed at the electrification of 1,200 villages in the country, and as finally executed, consisted of 3,472 km of 20-kV lines, 4,900 km of 380/220-V distribution lines, 2,726 distribution transformers with a capacity 127.5 MVA and technical assistance. The Bank financed the foreign costs of the 20-kV system and distribution transformers and a cofinancier the foreign costs of the 380/220-V lines and the technical assistance component. Despite a substantial increase in the Project scope (66% increase in the length of 20-kV lines, 68% increase in the length of 280/220-V lines, 160% increase in the number of transformers and 82% increase in their capacity), the final Project cost was only 90% of the appraisal estimate, the reduction being entirely in foreign costs. The reduction in costs was mainly due to the efficiency of procurement under ICB and substantial voluntary contribution of villagers for the erection of 380/220-V lines (para. 3.06). As against the original estimated completion date of December 31, 1981, the Project was expected to be completed only by April 1985, a delay of 40 months (para. 3.01). The objective of the Project's physical facilities, namely, to extend electricity service from the national grid to about 900,000 inhabitants of 1,200 villages across the country was achieved but the Project did not achieve its institution-building objectives (para. 2.11).

The financial performance of PEE was far below expectations because the Government did not approve adequate tariff increases; except in 1980, the return was negative as against 9% required under the covenant. The nadir was in 1984 when the operating revenues were only 61% of the operating expenses (para. 5.04). In early 1982, as requested by the government, the Bank had proposed alternative performance targets, which were more attuned to the Government's social and other objectives but so far, there has not been an adequate response from the Government (para. 5.05). The economic rate of return on the Project could not be recalculated since costs exceed benefits in every year of the Project (para. 7.02).

During the early part of the Project period, the Bank's supervision efforts on this Project, as well as on projects in other sectors, declined because of the cooling of the dialogue between Syria and the Bank. There was also within the Bank a sense of futility of the whole effort of trying to move PEE towards reasonable institutional goals (para. 8.01).

The following points are of special interest:

(a) Poor technical features of the system and other factors such as pilferage and deficiencies in meter reading, billing and accounting contributed to a substantial increase in system losses (para. 4.03); and

(b) though there were serious delays in procurement in the initial stages of the Project, there was remarkable improvement in PEE's procurement action towards the end of the Project period as it got a clearer understanding of the Bank's procurement guidelines (para. 3.10).

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I. INTRODUCTION

1.01 Prior to PEE's creation in 1965, the power sector in Syria was fragmented in various isolated systems, private and municipal. Since its creation, PEE has been responsible for generation, transmission and distribution of electric power throughout the country. However, mainly because PEE has concentrated on the technical problems of operating procedures and of integrating the numerous separate systems and plants into one system, the power sector organization is substantially regional and fragmented. The sector stands in need of vital institutional reforms aimed at improving PEE's organization, including administration, accounting and planning and at achieving an economical and reliable service.

Bank's Participation in the Power Subsector

1.02 In order to assist PEE in trying to improve the organization of the subsector and to assure an economical and reliable service to the public, the Bank made two loans to PEE before the subject loan, Loan 986-SYR dated May 1974 (and June 1975) for US$33.6 million for the First Mehardeh Project and Loan 1144-SYR dated July 1975 for US$72 million for the Second Mehardeh Project. The Project Completion Report prepared by the Region concluded that the physical facilities under the Project were completed satisfactorily, and to the extent that these loans helped PEE to establish efficient power generation and transmission facilities at a critical time to meet the ever-increasing demand, they were a success. However, in most other aspects they were a signal failure. Project Performance Audit Report No. 5290 covering the above two projects was circulated to the Executive Directors on October 15, 1984.

II. PROJECT PREPARATION AND APPRAISAL

2.01 The second power loan to Syria (Loan 1144-SYR) included the financing of a feasiblity study for a nation-wide rural electrification program. The expatriate firm of consultants selected for the feasibility study started work in August 1976. On reviewing the preliminary report of the consultants, the Government and PEE decided that the best way to implement the national rural electrification program was to divide the program by sub-systems according to voltage levels, one agency financing the 20-kV primary distribution system including distribution transformers and another funding the 380/220-V secondary sub-system. Accordingly, the Government of Syria, on behalf of PEE, requested the Bank in December 1976 to finance a regional electrification project which would constitute the first stage of the 10-year national electrification plan aimed at extending electricity service to all villages with 100 or more inhabitants. The major issues during appraisal through the

stage of negotiations were the following: (a) PEE's proposed 1977-1982 power investment program appeared somewhat oversized compared to the forecast demand; (b) financing of the power sector program required very large Government contributions and large tariff increases each year; and (c) the 9% rate of return covenanted under the previous Bank loans to be achieved beginning in 1978 would not be met (only 1.6% was estimated to have been achieved in 1976).

2.02 At the negotiations which were held during January 24-February 3, 1978, the following changes were agreed:

(a) Fuel Pricing Policy: It was agreed to delete the requirement under which the Government was to implement a comprehensive fuel pricing policy based on the recommendations of the tariff study prepared by the consultants appointed under an earlier loan, since: (a) additional sector studies were considered necessary to better guide the Government decision; and (b) the rationalization of electricity tariffs which constituted an important part of the pricing policies within the energy sector would be adequately covered in the loan documents.

(b) Tariffs: In the Bank's letter of September 1977 and again during pre-negotiations in December 1977, PEE had been requested to furnish at the latest during loan negotiations a plan and a timetable for tariff actions to achieve the rate of return of 9% required under Loan 1144-SYR starting in 1978. At negotiations, the Government informed the Bank that while it was not averse to the principle of increasing tariffs in due course, it was not ready at that time to commit itself to any specific increase in 1978. Following an analysis of the financial implications of the Government's position both at the level of the sector and at the level of the Government's budget, it was agreed that PEE's attainment of a 9% rate of return calculated on the basis of its revenues from electricity tariffs would be deferred until 1981. Until then, the shortfall in PEE's revenues would be made up by a Government subsidy. During 1978, the Government would make a cash contribution to PEE equal to the full difference of PEE's revenues from the 1977 tariffs and the amount that PEE would have obtained had it raised its tariffs to a level necessary to obtain a 9% return on its net fixed assets in operations. In 1979 the cash contribution would not exceed 70% of the difference between revenues that would have been generated if the 1977 tariffs still applied, and revenues that would have been obtained had PEE applied tariffs sufficient to generate a 9% return on properly revalued net fixed assets in operation. In 1980 the cash contribution would not exceed 40% and in 1981 PEE would be required to set tariffs at a level sufficient to generate a 9% return without recourse to any subsidy. Moreover, it was agreed that PEE would prepare a satisfactory progressive rate structure for household electricity consumption by defining the first block of consumption that should benefit from the lowest rates. PEE's proposal would be completed by September 30, 1978, and implemented no later than January 1, 1979. PEE also agreed to prepare, before September 30 each year, a review, satisfactory to the Government, made on the

basis of realistic forecasts which would demonstrate the adequacy of its electricity tariffs to enable it to meet its rate of return covenant in the succeeding year. It was also pointedly made clear by the Bank that if adjustment of PEE's tariffs could not be made as agreed, a default situation would be created which would require the Bank to resort to remedies under the proposed and previous loans. One important reason for the Bank's agreeing to the above was recognition of the fact that the net fixed asset base of PEE would rise very steeply between 1978 and 1981 while forecast sales were developing at a pace slower than anticipated. The Bank also considered that the Project, being essentially a rural electrification (distribution) project, would contribute to correcting the imbalance between generating and distributing capacity.

(c) Revaluation: It was agreed that starting from January 1, 1979 PEE's net fixed assets would be revalued and that the Bank's proposals for revaluing assets would be included in the terms of reference of the accounting consultants proposed to be appointed for this purpose.

(d) Accounting System: The date for PEE to modernize its accounting system would be postponed from March 31, 1978 to June 30, 1978 due to delay in appointing consultants.

(e) Accounts Receivable: PEE would reduce its accounts receivable to not more than three months' sales of electricity from December 31, 1978 instead of from June 30, 1979 and PEE would thereafter maintain receivables at not more than three months' sales of electricity.

(f) Cross-Effectiveness with Cofinancier's Loan: It was agreed that the Bank's loan would be declared effective only after the Government and PEE had met all the conditions precedent to the first disbursement under the Cofinancier's loan.

(g) Reduction in PEE's Investment Program: PEE's 1977-1982 power investment program would be reduced by US$221 million equivalent by deleting generation plants X and Y costing US$144.3 million equivalent, some 230-kV lines estimated at US$8.10 million equivalent and some 230-kV substations estimated at US$45.6 million equivalent. In addition, there would be a one-year slippage in various 66-kV lines and 66/20-kV substations costing US$23.0 million equivalent.

Loan Effectiveness

2.03 The loan was signed on May 3, 1978 with the following effectiveness conditions:

(a) Engagement of engineering consultants;

(b) engagement of accounting and management consultants and taking of all initial steps towards the introduction of a new accounting system recommended in a previous study by the accounting consultants;

(c) establishment and adequate staffing of a project unit; and

(d) fulfillment of the conditions precedent to the first disbursement under the Cofinancier's loan.

The engineering consultants were appointed on May 31, 1979. On May 15, 1980, PEE also appointed an expatriate firm as accounting and management consultants and initial steps were taken towards the introduction of a new accounting system. Similarly, the Bank's supervision of April/May 1980 also verified that a Project unit had been established with adequate staffing. Further, the Cofinancier notified the Bank in writing that the conditions precedent to the first disbursement under the Cofinancier's loan had been fulfilled; the Bank's supervision mission of April/May 1980 had also verified that disbursements were being made from the Cofinancier's loan. However, the Bank was reluctant to declare the loan effective because the Borrower (PEE) was in default on the revenue covenant. Meanwhile, six extensions in the effectiveness date of the loan had been made, the last from March 1980 to June 30, 1980. Towards the close of June 1980, the Government advised the Bank of its decision to increase tariffs by an average of about 50% from July 1, 1980 and that the Ministry of Electricity was taking steps to implement the increases. Based on this advice, the Bank declared the loan effective as of July 1, 1980, about 20 months later than estimated at appraisal.

2.04 Attachment 1 sets forth the major covenants of the Loan and Guarantee Agreements and the extent of compliance with them.

Project Description

2.05 The Project was the first stage (years 1978-1981) of Syria's 10-year National Electrification Plan (1978-1987) and had as its objective the electrification of 1,200 villages in 11 of the country's 14 mohafazat (administrative districts). It consisted of:

(a) the acquisition and installation of about 5,000 km of 20-kV and 380/220-V distribution lines;

(b) the acquisition and installation of 70 MVA of distribution transformer capacity; and

(c) technical assistance for engineering services for (a) and (b) above and for strengthening PEE's capabilities in manpower planning and development.

Funding for the foreign cost of 20-kV distribution lines, distribution transformers and technical assistance for strengthening PEE's capabilities in manpower planning and development was provided by the Bank. The Cofinancier provided funding for the foreign cost of 380/220-V distribution lines and the engineering services for the Project. PEE funded the local costs of the Project.

Changes in the Project Scope

2.06 There were significant changes in the scope of the Project as finally executed. The 20-month delay in loan effectiveness resulted in a new list of villages to be electrified and the procurement of additional material and

equipment (para. 2.07). Likewise, the method of installation and erection was changed resulting in the procurement of construction tools and equipment costing US$6.4 million that had not been envisaged earlier (para. 2.08). A third change involved the supervision of the Project towards the end of project implementation. When the services of the engineering consultants were terminated in December 1983, PEE took over the supervision of the Project (para. 2.09). Still another change was the cancellation of the training of PEE's staff to strengthen its capabilities in manpower planning and development (para. 2.10). The completed Project consisted of the electrification of a new list of 1,200 villages requiring:

(a) the acquisition and installation of 8,372 km of 20-kV and 380/220-Volt distribution lines, a two-thirds increase over the appraisal estimate;

(b) the acquisition and installation of 127.5 MVA of distribution transformer capacity, an 82% increase over the appraisal estimate; and

(c) technical assistance for engineering services for (a) and (b) above.

List of Villages to be electrified

2.07 Because the Project was started late, PEE had, by the commencement of the Project, completed the electrification of the villages in two Mohafazat in the southern part of Syria, and therefore, a new list of 1,200 villages (from the other 9 Mohafazat) was selected, in agreement with the Bank, from the list in the Consultants' Project Report on which the Project was based. In the course of implementation of the Project, PEE found that additional material and equipment had to be procured over and above what had been estimated. First, because the Project comprised a new list of villages. PEE had electrified the villages closer to the electrical grid using its own resources and longer lengths of 20-kV and 380/220-V distribution lines were required for the electrification of villages from the new list. Secondly, the Consultants' Project Report had included the electrification of only the main villages and not of the satellite areas. However, as the villages were being electrified, PEE had to electrify the satellite areas as well, which required additional lengths of distribution lines.

Method of Installation and Erection

2.08 The Loan Agreement included an allocation of US$12.4 million for installation and erection work to be contracted according to the Bank procurement guidelines. PEE had already electrified about 390 villages outside the Project, following procedures other than international competitive bidding (ICB) such as force account and awarding contracts to parastatal firms and local private bidders. Based on PEE's experience in electrifying the above villages, and given the wide geographical dispersion of project facilities and the labor intensive nature of the work, the Bank agreed in the course of Project implementation that ICB was not a feasible proposition and therefore did not insist on it. Instead, PEE requested that part of the funds allocated for installation and erection be utilized for buying distribution

line constuction tools and equipment which would help speed up Project implementation. The Bank agreed and accordingly, in July 1983 reallocated the sum of US$12.4 million provided for installation and erection, US$6.4 million for the procurement of construction tools and equipment and US$6.0 million for procurement of additional material and equipment (para. 2.07) required for the Project.

Engineering and Supervision of the Project

2.09 As a condition of Loan effectiveness, PEE was required to engage the services of a Consultant (to be funded by the Cofinancier) for engineering and supervision, and engineering designs for the Project. Accordingly, PEE engaged a firm of expatriate consultants for this purpose on September 13, 1979. By about mid-1983 the funds for financing the consulants' services were fast getting exhausted and since the Project had still a long way to go, PEE requested the Cofinancier to provide additional funding for extending the services of the consultants through May 1984. However, the Cofinancier informed PEE in June 1983 that no more funds would be provided for the purpose and that the expiration date of February 28, 1984 would also not be extended. Accordingly, when the funds ran out the services of the consultants were terminated as of December 19, 1983 (i.e., about about two weeks before the closing date of the Bank loan and 16 months before the physical completion of the Project). Thereafter, PEE took over the supervision of the Project until its completion. This was acceptable since, by that time, the duties consisted largely of supervising erection, in which PEE staff had sufficient experience. However, there were two unfinished items of work for which the consultants were responsible. One was the socioeconomic study of the Project villages, which would have given information on the amount of electricity used by households and businesses in the electrified villages and the contribution of the Project to the socioeconomic development in the Project areas. The other was the installation of a computerized system for project monitoring which included materials management and project accounting. Without the consultants, PEE could not completely implement the system.

Training of PEE's Staff in Manpower Planning

2.10 At PEE's request, the Project included about US$260,000 for the services of a manpower development advisor. PEE, however, did not appoint the advisor and therefore, nothing was done to achieve the institutional objective of strengthening PEE's capabilities in drawing up long-range plans for personnel selection, training and development.

Project Objectives

2.11 The objective of the physical facilities of the Project was to extend electric service from the national grid to about 900,000 inhabitants of the rural regions across the country with a view to increasing agro-industrial activity and improving the quality of life in rural Syria. The Project succeeded in achieving this objective. However, the Project did not achieve its other objective which was to build on the Bank's institution-building efforts initiated under the earlier loans.

III. IMPLEMENTATION OF THE PROJECT

3.01 The Project was expected to be completed by April 1985. The delay of about 40 months compared to the appraisal estimates arose on account of the following:

- about 20 months due to the delay in loan effectiveness (para. 2.03);
- about 12 months due to the late opening of bids; and
- about 8 months due to the late award of contracts and delays in construction.

3.02 There was a delay of about 12 months due to delays in finalizing bid specifications and documents and in inviting bids. Even though the contract with the engineering consultants was signed on September 13, 1979, the consultants could commence work only in December 1979 after the issuance of a Letter of Commitment by the Cofinancier on October 30, 1979. The consultants took about a year to: (i) prepare Distribution Design and Construction Manuals; (ii) finalize detailed technical specifications for the materials; and (iii) issue the bid documents after obtaining the Bank's "No Objection". Bids for the various packages were invited in January/March 1981 and opened in April/July 1981, a delay of about 12 months compared to the appraisal estimates.

3.03 There was a further delay of about 13 months in the award of contracts, which was effectively reduced to 8 months by:

(a) the use of distribution line material available in PEE's stores; and

(b) the use of distribution line construction tools and equipment (para. 2.07).

PEE's procurement problems are detailed in paras. 3.10-3.14. For the reasons mentioned in para. 2.07, additional material had to be procured for the electrification of the 1,200 villages according to the revised list. PEE, in agreement with the Bank, procured the additional material for the components funded by the Bank in accordance with ICB (20-kV lines and distribution transformers). However, in the case of 380/220 V distribution line material funded by the Cofinancier, PEE was unable to reach agreement with the Cofinancier on the procurement of the additional distribution line material required for completion of the Project (except for the wood poles). The Cofinancier froze the funds in June 1983 and, even though funds (about US$8.0 million) were available, did not agree to accept any new commitments (only US$26.7 million out of US$34.7 million was committed). PEE therefore utilized distribution line material available in its own stores for completing the Project.

3.04 Similarly the Cofinancier did not agree to finance the extension of the engineering consultants' services through completion of the Project. Therefore, after termination of the consultants' services in December 1983, PEE's staff took over the supervision of the Project (para. 2.09).

Project Costs

3.05 The expatriate firm of consultants appointed to supervise and administer the project was unable to set up a satisfactory system of project accounting and budget control due to delays in implementation of the computerized system envisaged for the project and the services of the consultants being terminated before the completion of the project. The deficiency in the maintenance of project accounts was brought to the attention of Government and PEE by the Bank's supervision missions but PEE could not keep the accounts up to date. Computation of actual project costs has, therefore, been rather difficult. This is to be viewed in the context of PEE's accounting work being badly in arrears (para. 5.06). In order to have reliable project cost figures, the Bank requested PEE to furnish audited project accounts. The summary cost figures used in this report are those advised by PEE after completion of such audit. However, the Bank has yet to receive the Project accounts certified by the auditors.

3.06 A comparison of the estimated and the actual costs of the Project is given in Annex 2 and a similar comparison of the physical project components is given in Annex 3. The actual total cost was only about 90% of the appraisal estimate, the reduction being entirely in foreign cost. The actual cost of 20-kV distribution lines was 68% more than the appraisal estimate mainly because of a 66% increase in the length of the lines. However, in the case of distribution transformers, for an 82% increase in MVA capacity over the appraisal estimate, the costs increased by only 25%. The reason for this is the lower foreign cost of the distribution transformers procured through ICB compared to the appraisal estimate (installed cost of US$34,730 per MVA vs. an estimated US$49,857). In the case of 380/220-V distribution lines, the length increased by 68% over the appraisal estimate while costs went down by 31%. Since the procurement of materials was through tied funds of the cofinancier, the appraisal report had generally assumed 20-30% higher costs for the material compared to similar procurement under ICB. Further, as mentioned in Annex 2, the cost of substantial voluntary contribution of villagers for the erection of 380/220-V lines was not included in the actual costs and could amount to about LS 25 million or even more. Even so, the actual costs given by PEE for the 380/220-V distribution lines seem to be on the low side, although these figures have been accepted in audit. It is possible that additional material used from PEE's own resources has not been fully accounted for.

Disbursements

3.07 Annex 4 compares the actual disbursements with the appraisal estimate. Due to delays in Loan effectiveness and procurement action, the actual disbursements lagged behind estimates by about 4 years. Due to its complicated procedures and regulations, PEE had difficulties in opening Letters of Credit in time, resulting in delays in delivery of material and consequently in disbursments. The closing date of the loan was December 31, 1983 but the books were kept open until September 1984 to permit PEE to complete disbursements against contracts awarded before the Loan Closing Date. The final disbursements actually came to US$32.3 million. An amount of US$7.0 million, estimated to be the amount likely to remain unutilized, was cancelled in April 1984 and the amount of US$0.7 million finally remaining unutilized was also cancelled in February 1985.

Performance of Consultants and Contractors

3.08 The consultants did not always prepare for PEE progress reports according to the loan requirments. They did not also complete all the tasks included in their contract such as establishment of a system for the monitoring of project activities, computerization of materials management and accounting system for the project, and data collection and analysis for the socioeconomic study of the project villages. This situation arose partly because of: (a) the termination of the consultants' contract in December 1983 before the completion of the project; and (b) PEE's decentralized organizational set-up at the Mohafazat level, which made it difficult for the consultants and even PEE's Director of Rural Electrification Program to collect the required data and coordinate activities in the different regions regarding computerization of materials management and accounting systems. In procurement, the consultants initially had difficulties in understanding the Bank's procurement guidelines but their performance improved as they gained more experience (paras. 3.10-3.14). In technical matters, the consultants achieved their objectives of standardizing the designs and checking of the low-voltage distribution line designs before giving approval for commencement of construction work.

3.09 Despite occasional delays in payment affecting their work schedules, the performance of suppliers of material and equipment was satisfactory.

Procurement

3.10 As stated in para 3.03 there was initially a delay of about 13 months in the award of the main contracts. PEE's difficulties in this respect were mostly due to:

(a) lack of clarity in bid documents (especially regarding the basis of bid evaluation);
(b) misunderstanding or misinterpretation of the guidelines; and
(c) the multi-tiered bureaucratic system for bid evaluation and award of contracts.

These features are highlighted in the following examples. The remarkable improvement in PEE's procurement action towards the end of the Project period as it gained a clearer understanding of the Bank's procurement guidelines is illustrated in the award of contracts for distribution tools and equipment within two to three months of bid opening.

Distribution Transformers

3.11 An example of the lack of clarity in bid documents about the basis of evaluation was the case of distribution transformers. The bid documents had not stipulated the criteria for evaluation of transformer losses for bid comparison whereas PEE actually evaluated the offers taking into account the losses. On the Bank's advice fresh bids had to be obtained after revising the specifications to include the method of evaluation of losses. As a result, the award of contract was delayed by about 14 months.

Wood Poles

3.12 An example of the misundertanding/misinterpretation of the Bank guidelines was the procurement of wood poles regarding which a difference of opinion arose between PEE and the Bank. Expatriate firm A offered poles as per bid specifications and expatriate firm B gave a main offer for poles as specified in the bid specifications and an alternative offer which was not according to the specifications. According to the evaluation report, the offer of firm A was lower than the main offer of firm B but was higher than its alternative offer. The Bank disagreed with PEE's recommendation of accepting the alternative offer of firm B and informed PEE that in case PEE desired to modify the bid specifications, it should give equal opportunity to all the bidders and invite fresh offers. After much exchange of views PEE agreed with the Bank's view and the contract was awarded to firm A. Much of the time elapsed between bid opening and contract award (about 18 months) would have been saved had PEE and the consultants fully understood the Bank guidelines.

Line Hardware

3.13 The delay in the award of contracts for line hardware is an example of not only lack of clarity in bidding documents but also the slow decision-making in a multi-tier bureaucratic set-up. The bid documents did not ask bidders to indicate freight and insurance costs separately for each item, and therefore many bidders quoted lump-sum amounts for all the 27 items. The various committees of PEE took about 12 months (involving three validity period extensions) from the date of bid opening to decide on about half of the 27 items in the bid. For the remaining items, fresh offers had to be obtained resulting in a further delay of about 12 months in award of contracts.

3.14 There were similar delays in the procurement of 380/220-V line material funded by the Cofinancier. Because of these delays and the subsequent freezing of funds by the Cofinancier, PEE could utilize only US$26.7 million out of the sum of US$34.7 originally provided for the Project by the Cofinancier.

IV. OPERATING PERFORMANCE

4.01 Based on the limited experience during the short time they have been in operation, it would appear that the facilities constructed under the Project are operating satisfactorily within the constraints under which the system operates. Emergency outages and major breakdowns of system supply are increasingly frequent but this is an indication of PEE's larger problems, such as shortage of generating capacity and lack of trained personnel and not specifically of the quality of the project facilities in question.

4.02 Annex 5 compares PEE's actual sales of electricity with the appraisal estimates for the period 1978-1982. It also gives the actual sales for the years 1983-1984 for which no appraisal estimates were prepared. The actual

sales were very close to the appraisal estimates for the period 1978-1982, the variations being within plus or minus 5% of the appraisal estimates. This result was the effect of higher sales to domestic and commercial customers and to small industries counterbalanced by decreases in sales to heavy industries and to Government organizations. The actual sales to the domestic and commercial customers were consistently higher than the appraisal estimate, the variation progressively increasing from 16% in 1978 to 48% in 1982. The sales to small industries also increased significantly during 1979-1982. No separate statistics are available in respect of sales generated by the subject Project.

Energy Losses

4.03 One feature of PEE's operations is particularly disturbing and that is the high level of its energy losses. These losses, including station supply (which probably does not exceed 5% of generation) steadily rose from about 20% in the early seventies to 26.4% in 1980, 28.8% in 1981 and 32.8% in 1982, and then fell slightly to 30.8% in 1983 and 29.4% in 1984. While about 20% may be considered acceptable for Syria's extensive system (still badly regulated with respect to reactive current), the remaining losses would be mainly technical losses arising from poor technical features of the system, and administrative losses arising from thefts and factors such as faulty meters and unreliable meter reading, billing and accounting. The Bank supervision missions had brought the matter to the notice of the Minister of Electricity and the Director General of PEE with a view to having immediate corrective measures taken to bring down the losses to a reasonable level of around 20% by say, the end of 1984. Subsequently, PEE set up a committee to study the matter and simultaneously also initiated various measures to reduce energy losses, e.g. strengthening lines, installing capacitors, checking and recalibrating faulty meters etc. Though the losses came down a little in 1984 from the high level of 1982, high energy losses continue to be a feature of PEE's operations.

V. FINANCIAL PERFORMANCE

Reorganization of Accounts

5.01 In 1973 before the Bank commenced its participation in the power subsector, PEE's accounting system required major reorganization, partly because of its reliance on the Ministry of Finance for all non-routine financial operations but also because the accounting organization was fragmented and records were kept in a number of centers (Damascus, Homs, Aleppo, Latakia, etc.) where the levels of accounting skills varied widely and whose procedures and accounting principles were not always consistent. Returns were being sent only annually to the head office in Damascus and the consolidated accounts were therefore produced late. Clearly, the overall general accounting and preparation of consolidation accounts were unsatisfactory.

5.02 An expatriate firm of consultants was appointed under a contract dated March 31, 1975 under Loan 986-SYR of May 1974 to study the accounting problems and to recommend a suitable utility type accounting system. A system

expected to satisfy the requirements of the Ministry of Finance was proposed by the consultants, and PEE and the Bank also agreed on the proposed accounting system. However, no action was taken by PEE to implement the recommended system. A second expatriate firm of consultants was appointed in 1980 under the subject loan to assist in the reorganization of PEE, to review the accounting systems recommended by the first firm, suggest changes if needed and to help train administrative and accounting staff. The firm submitted its recommendations around March 1983, and again, since the contract did not cover implementation of the recommended systems and procedures, PEE was faced with the task of carrying out the implementation. Since PEE was not able to complete the implementation phase by itself, it asked the firm in March 1983, as suggested by the Bank, to give its quotation for implementing the systems and procedures. However, the firm did not respond, apparently because of its experience under the earlier contract. Thus, two expatriate consulting firms, one in 1977 and the other in 1980-1983, made various recommendations for reorganization and improved accounting systems and procedures, but practically nothing has been done by PEE by way of implementation. It is doubtful whether PEE would be in a position to implement the recommendations without outside help.

Revenue Covenant

5.03 PEE's minimum tariffs are regulated by a law requiring tariffs to cover in addition to operational cost, a reserve for construction of 3% of gross revenues, and a return of 4% on invested capital. These requirements, however, can be diluted or waived by the Cabinet. In order to ensure adequate cash generation by PEE for financing its expansion requirements the agreement under Loan 1144-SYR of July 1975 required PEE to earn from January 1, 1978 a return of not less than 9% on average net fixed assets in operation. In order that inflation may not result in depressing the level of self-financing, it was also provided that the return be computed on revalued assets. The management consultants appointed under the earlier loan were required to formulate a standing procedure which would provide for a revaluation of PEE's assets on an annual basis as may be necessary. The covenant was also extended to the subject loan with the proviso that certain Government subsidies could be taken into account for computing the return through 1980 and that PEE's fixed assets would be revalued from January 1, 1979 (para. 2.02).

Performance Under the Covenant

5.04 As can be seen from PEE's Income Statements in Annex 6, PEE's performance has been far below appraisal expectations through the entire project period. In all the years except 1980, the operating revenues were even less than the operating expenses; the nadir was in 1984 when they were only 61% of the operating expenses. Even in 1980, despite the 50% tariff increase from July 1, PEE earned a return of only 3.8% on unrevalued assets; the return would have been negative on revalued assets. It would also be seen that PEE failed to generate any funds internally for financing expansion during the project period, as against 27% estimated at appraisal. In fact, it has had to borrow more and more to service its debt. Although under the law, power tariffs are to be so fixed as to generate a specific return on invested capital after meeting all operating costs, Government's actions in regard to tariff-setting have not been such as to meet this legal requirement. Perhaps

this is a reflection of the Government's view that in a centrally planned economy like Syria's, public sector enterprises such as PEE should operate in the context of the overall national economic and pricing policies of the Government and not necessarily as commercially viable enterprises.

5.05 Shortly after the tariff increase of July 1980 it became clear that the Government did not agree with the Bank on the financial goals for the sector. In fact in late 1980, the Syrian authorities proposed that the Bank review with them the possibility of introducing an alternative covenant for measuring PEE's financial performance more attuned to the Government's philosophy, its social objectives and its income distribution policy. This issue became part of the intensive dialogue which developed between the Government and the Bank on economic issues in 1981-82. During this period, PEE's poor performance on institutional matters was one of the factors in the Bank's decision to decline to participate in the South Syrian Thermal Power Project. In April 1982, the Bank agreed that it could conduct a review of the revenue covenant as desired by the Government but that as a minimum there should be:

(a) proper recapitalization of PEE (whose accumulated losses now exceed its capital) by conversion of PEE's long-term debt to the Government into permanent capital;

(b) tariff action to generate sufficient revenues to achieve short-term cost recovery (recovery of operating expenses plus fixed assets depreciation or debt service, whichever is greater); and

(c) Government's agreement in principle with the Bank for annual tariff revisions that would eventually achieve the long-term objective of efficiency pricing.

Despite the matter being regularly followed up by the Bank, the Government's position on the minimum requirements indicated by the Bank is still not known. In April 1983, in view of the lack of progress on this matter the Bank specifically considered the question of suspending disbursements. However, on country grounds and considering the substantial progress being made by PEE in areas within its control such as procurement and electrification, reduction of energy losses, efforts to appoint consultants to implement the new accounting system etc., it was decided not to suspend disbursements but to continue the Bank's efforts to secure tariff action. The Borrower was advised that unless tariffs were substantially increased to enable PEE to break even, the Bank would not extend the closing date. No action was taken to raise tariffs and the loan closing date of December 31, 1983 was maintained. In 1985, a tariff increase of an average 75% from January 1985 was necessary for PEE to break even in its operations but a tariff increase of only 7% was implemented effective January 1985.

PEE's Accounts and Audit Reports

5.06 PEE's accounting work is badly in arrears. Under the existing loan covenants, its accounts for a year are required to be sent to the Bank within four months of the close of the year. Yet, despite constant efforts on the part of the Bank to get PEE to submit the accounts, the accounts and audit

reports for 1981, 1982, 1983 and 1984 have not been sent to the Bank so far. For 1980, only the accounts in Arabic have been sent to us, but not in English. The status of overdue accounts is as follows:

1981 - accounts prepared by PEE are under audit. Audit is expected to be completed by end-September 1985.

1982 - PEE has completed the accounts. Audit will be completed by December 31, 1985.

1983 - The accounts which were due by end-April 1984 are expected to be completed by June 30, 1985 and audit by March 31, 1986.

1984 - The accounts are expected to be completed by December 31, 1985 and audit by June 1986.

PEE is aware that accounts prepared so late are worthless as a management tool. The above-mentioned serious delay in accounting work and in the submission of the audited accounts to the Bank is within the knowledge of the Minister and the Director General of PEE. For many years, PEE has been constantly faced with a heavy backlog of accounts in arrears. Unless its accounting system is revamped and its staffing situation improves significantly, there seems to be little escape for PEE from the present depressing state of affairs.

5.07 A question also arises regarding the acceptability of the auditing arrangements, i.e., the audit conducted by the Central Agency for the Control of Public Finances. The Bank would have to await the receipt of the Audit Reports before commenting on this aspect.

Debt Service Coverage

5.08 Under the subject loan, PEE agreed to obtain the Bank's prior consent to any borrowing it plans to undertake whenever its internal cash generation is not sufficient to cover its debt service at least 1.5 times in any future year. In 1978 and 1979 the debt service coverage was less than two-thirds and in 1980 despite the revenues generated by the 50% average increase in tariffs of July 1980 it was still an unsatisfactory 0.89. In 1981, the coverage fell to 0.32. Since then it became even worse and in 1982, 1983 and 1984, PEE has had a negative cash flow before debt service. Nevertheless, PEE kept on making long-term borrowings throughout the period without obtaining the Bank's prior approval. Therefore, the purpose of PEE and the Bank keeping under review PEE's assumption of debt liabilities, as was the intention behind the debt service covenant, was frustrated.

5.09 The consequence of the debt service coverage being less than one during 1978-1984 except 1980 has been that PEE has had to keep on borrowing more and more merely to meet its debt service obligations from year to year. This unhealthy condition has arisen because of the low level of PEE's revenues as a result of low tariffs and a large investment program necessitating ever-increasing borrowings.

VI. INSTITUTIONAL PERFORMANCE

6.01 PEE's performance has been deficient in practically all respects, except in the purely technical area. Power generation, transmission and distribution facilities have been constructed, though with considerable delay, and the energy flows to the consumers, but this is not at a high level of efficiency or reliability. There are frequent interruptions in supply and energy losses are at a high 29.4% (1984). PEE is far from being a strong organization that manages its affairs, maintains its financial position, plans its future expansion and carries on its operations, in accordance with sound business, financial and public utility practices and under the supervision of experienced and competent management, assisted by qualified and competent staff.

6.02 PEE's main problems are:

(i) poor organization and bureaucratic procedures;

(ii) widespread shortage of experienced and qualified staff arising from inadequate remuneration of staff causing a steady exodus of experienced staff to the Gulf area, a situation exacerbated by the long period of compulsory military service;

(iii) inadequate accounting system;

(iv) poor communications within the organization arising partly from widely dispersed offices;

(v) lack of delegation of responsibilities;

(vi) lack of autonomy: PEE forms a part of the Ministry of Electricity and suffers from ad hoc Governmental decisions which do not permit sound planning and a well defined and regularly updated least cost development program; and

(vii) poor finances: during the period through 1984, rates were increased only once in July 1980 (by an inadequate 50 percent; this was largely offset by a subsequent increase in fuel prices). The next increase - a small 7% - was in January 1985.

6.03 Management, organizational, administrative and accounting recommendations made by consultants have yet to be implemented (para. 5.02). The recommendations of a tariff study, completed under Loan 986-SYR of May 1974, with the objective of modernizing PEE's tariff structure, were never implemented.

VII. ECONOMIC RE-EVALUATION

7.01 At the time of appraisal, the economic return on the project was estimated to be 8.5%. In carrying out a re-evaluation, several adjustments were made to the original method used. First, the actual 1984 average electricity price was projected to remain constant in real terms as a measure of the consumers' willingness to pay, although it is not in accordance with

the Government's recent practice. The original evaluation assumed a 14% real increase in tariff rates above the 1977 level of LS 0.21/kWh. The 1984 price is equal to only LS 0.157/kWh in terms of 1977 prices. Second, the re-evaluation omits from benefits an estimate of savings in diesel fuel used in previously isolated villages since the available data indicate that the savings are negligible. Third, the re-evaluation calculates the marginal cost of generation using the method currently recommended by the Bank 1/ based on the costs of combustion turbines in place of the average incremental cost method used in the original appraisal. Existing combustion turbines have recently been used more intensively than in the past, and new units will probably need to be built to meet higher than expected demands. Fourth, the reappraisal takes account of the fact that rural consumers take much of their electricity during peak periods. As a result, fuel costs in the reappraisal are based largely on the relatively high price of diesel oil, whereas in the appraisal they reflect the relatively low price of heavy fuel oil.

7.02 Annex 7 gives the assumptions used in the economic re-evaluation. No calculation of the rate of return was possible since costs exceed benefits in every year of the Project. This result, however, should be regarded only as an assessment of the adequacy of tariffs. It is not a useful measure of the economic merit of the Project as it understates the real benefits by not quantifying certain social benefits (e.g., the benefit derived from extending the productive day of people) and understating the consumer's willingness to pay since it is based on existing low tariffs.

VIII. BANK'S PERFORMANCE

8.01 The achievements under the project have not been commensurate with the Bank's efforts. The Bank certainly identified the right issues at appraisal and provided appropriate covenants even allowing transitional arrangements for the achievement of the required rate of return. Although supervision continued throughout the period, an increasing attitude of resignation seems to have developed on the part of Bank staff, perhaps out of a perceived sense of futility of the whole effort of moving PEE towards reasonable institutional goals. A contributory factor was a cooling of the dialogue between the country and the Bank that seems to have developed from the early eighties regarding the overall strategy for the country's development. As a result of this, the Bank decided to reduce its overall supervision effort in the country resulting in the supervision of the subject project also becoming rather desultory occasionally during the project period. There was also during the early part of the project period a lack of continuity of Bank staff for supervision work.

1/ World Bank Energy Department Paper No. 18, "Guidelines for Marginal Cost Analysis of Power systems" (June 1984), page 5.

IX. CONCLUSIONS

9.01 To the extent that the subject loan helped PEE to electrify most of the villages included in the project, the loan could be deemed to have been a success. But this is taking a very narrow view of the lending operation, because in most other respects the operation has been a complete failure (see Annex 1 for PEE's lack of compliance with the loan covenants). PEE continues to be plagued by a serious lack of competent and experienced staff. Its organization and procedures are badly in need of streamlining. Its tariffs are not based on the cost of supply. Its finances have deteriorated steadily over time, until in 1984 its operating revenues covered only about 61% of its operating expenses. Its audited accounts for four years beginning with 1981 have yet to be submitted to the Bank. Those for the past two years (1983 and 1984) have not even been prepared and so in a way, PEE is operating practically in the dark in the financial area. This state of affairs essentially has its roots in a lack of commitment to make PEE a viable and efficient utility, which in turn has led to lack of essential action on various fronts. Action to implement the recommendations of various studies initiated under the previous loans and the subject loan would have led to significant improvement in the operations of PEE and in its health.

Lessons to be Learned

9.02 The loan typifies the malaise that could arise in a lending operation when there is no commitment to project objectives. In this case, the laws of Syria require power tariffs to be fixed to generate a return on capital invested after meeting operating costs. This was confirmed during negotiations and the legal documents reflect the agreement reached between the Bank on the one hand, and the Borrower and the Government on the other, on project goals after an unusually frank exchange of views and after the Bank had made it explicitly clear that in the event of non-performance by the Borrower, the Bank would have to resort to the legal remedies available to it. It was, therefore, reasonable for the Bank to assume that this agreement by the Government and the Borrower indeed reflected a genuine commitment on their part to the project objectives. In the event, the Government and the Borrower did not live up to their commitments and requested the substitution of the rate of return covenant by other targets (paras. 5.04 and 5.05), but were unable to agree on the definition of such targets. The most important lesson to be learned from this lending operation is that in the absence of a genuine identity of goals between the Bank on the one hand, and the Government and the Borrower on the other, and a firm commitment to secure these goals, no lending operation will have any chance of meeting its objectives. A second lesson is the success that can be achieved in procurement despite overwhelming institutional and procedural problems if the concerned staff of the Borrower could be coached to reach a clearer understanding of the Bank's procurement guidelines. The award of contracts for distribution tools and equipment within two to three months of bid opening is a clear example of such success (para. 3.10).

SYRIA

PROJECT COMPLETION REPORT

REGIONAL ELECTRIFICATION PROJECT - LOAN 1531-SYR

Status of Compliance with Loan Covenants

Loan No.	Loan/Guarantee Agreements	Covenant	Present Status and Extent of Compliance
1) 1531-SYR	L.A. 5.02	Annual financial statements, audit reports: To be furnished to Bank within 4 months after year-end.	Not complied with. Audited accounts for 1981-1984 are yet to be received. Accounts for 1981 and 1982 have been prepared but those for 1983 and 1984 are yet to be prepared. Audit of the 1981 and 1982 accounts is expected to be completed by September 1985 and December 1985 respectively.
2) 1531-SYR	L.A. 3.02 4.07 5.01 G.A. 3.02	Appointment of management consultants, revision of organizational structure, implementation of improved accounting system: To be completed not later than December 31, 1978.	The management consultants appointed in 1980 submitted their final report in early 1983 but practically nothing has been done by PEE by way of implementation. In the absence of implementation, the consulting work carried out so far has been of no real benefit.
3) 1531-SYR	L.A. 4.03	Insurance: (a) Borrower to maintain adequate insurance, based on (b) review carried out with assistance of qualified consultants; results to be submitted to Bank by June 30, 1979.	Under the Syrian Government regulations, insurance for publicly held assets should be with the Government insurance company. This being so, PEE has held that a review of insurance arrangements by consultants would serve no useful purpose and has therefore not appointed any consultants for this purpose.

Loan No.	Loan/Guarantee Agreements	Covenant	Present Status
4) 1531-SYR	L.A. 5.04 G.A. 3.02	Tariff: (a) To be sufficient to yield an annual return of 9% (on revalued fixed assets), (b) adequacy to be reviewed and demonstrated to Bank before September 30 each year.	After a 50% tariff increase in July 1980, there were no further tariff increases through December 1984 and PEE had significant losses before interest in 1982, 1983 and 1984. Tariffs were raised an average of 7% effective January 1985 whereas a tariff increase of the order of 75% was necessary for PEE just to break even in its operations in 1985.
5) 1531-SYR	L.A. 5.04	(a) Transfer to PEE of ownership of electricity generating & transmission assets of Euphrates Dam. (b) Inclusion of these assets in rate of return calculation mentioned under (4) above	Transfer of ownership considered inopportune at the present time by Minister of Electricity.
6) 1531-SYR	L.A. 5.06 G.A. 3.02	Collection of receivables: Accounts receivable to be reduced to the equivalent 3 months' sales by Dec. 31, 1978.	Receivables at Dec. 31, 1979 amounted to more than 10 months' sales. Figures of receivables presented to mission as of December 1982 show them to be within the agreed limit.

June 1985

ANNEX 2

SYRIA

PROJECT COMPLETION REPORT: LOAN 1531-SYR

Comparison of Estimated and Actual Cost of Project
(Exchange rate US$1.00 = LS3.95 SL)
(LS Millions)

Description	Appraisal Estimate			Actual			Actual Cost as % of Appraisal Estimate
	Local	Foreign	Total	Local	Foreign	Total	
A. 20-kV Distribution Lines	51.4	52.4	103.8	68.8	105.3	174.1	168
B. Distribution Transformers	13.3	21.6	34.9	31.0	12.8	43.8	125
C. 380/220-V Distribution System and Related Equipment	255.5	201.3	456.8	220.6 1/	95.5	316.1	69
D. Engineering and Administration	6.8	16.7	23.5	6.6	16.9	23.5	100
E. Technical Assistance	0.5	1.0	1.5	--- 2/	---	---	0
TOTAL	327.5	293.0	620.5	327.0	230.5	557.5	90

Notes:

1/ Includes LS 108.8 million for service connections but does not include cost of people's voluntary contribution in the form of free unskilled labour for transport of materials and erection for which no actual records have been kept but which could amount to about LS 25.0 million.

2/ PEE did not utilize the funds allocated for technical assistance.

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ANNEX 3

SYRIA

PROJECT COMPLETION REPORT: LOAN 1531-SYR

Comparison of Estimated and Actual Quantities of Physical Components

	Unit	Appraisal	Actual	% Variation over Appraisal Quantity
1. No. of Villages Electrified	No.	1200	1200	0
2. Population of Villages Electrified	No.	900,000	842,186	-6
3. Length of 20-kV lines	Km	2085	3472	+66
4. Length of 380-220-V lines	Km	2910	4900	+68
5. Distribution Transformers	Nos.	1049	2726	+160
	MVA	70	127.5	+82
6. Cost/km -- 20-kV lines	LS	49,784	50,144	
7. Cost/km -- 380/220-V lines	LS	156,976	64,510	
8. Cost/MVA - Distribution Transformer	LS	49,857	34,720	

ANNEX 4

SYRIA

PROJECT COMPLETION REPORT
REGIONAL ELECTRIFICATION PROJECT
LOAN 1531-SYR

Schedule of Disbursements
(US$ Million Equivalent)

IBRD Fiscal Yr. & Quarter (1)	Actual Disbursements (2)	Appraisal Estimate (3)	Actual as % of Appraisal Estimate (4)
1979			
September 30, 1978		-	
December 31, 1978		-	
March 31, 1979		11	
June 30, 1979		15	
1980			
September 30, 1979		19	
December 31, 1979		23	
March 31, 1980		27	
June 30, 1980		31	
1981			
September 30, 1980		35	
December 31, 1980		38	
March 31, 1981		40	
June 30, 1981			
1982			
September 30, 1981			
December 31, 1981			
March 31, 1982			
June 30, 1982			
1983			
September 30, 1982			
December 31, 1982	0.3		1
March 31, 1983	3.7		9
June 30, 1983	7.1		18
1984			
September 30, 1983	12.5		31
December 31, 1983	17.9		45
March 31, 1984	27.1		68
June 30, 1984	32.0		80
1985			
September 30, 1984	32.3		81

/1 The loan closing date was December 31, 1983, when only US$17.9 million out of US$40 million was disbursed. The books were, however, kept open till September 10, 1984 to permit further disbursements against contracts approved by the Bank and total disbursements of US$32.3 million were made by that date. Effective April 1984 an amount of US$7.0 million had been cancelled and the sum of US$0.7 million finally remaining unutilized was also cancelled in February 1985.

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PROJECT COMPLETION REPORT

REGIONAL ELECTRIFICATION PROJECT - LOAN 1531-SYR

PEE's Sales (GWh) - Actual vs. Estimate

	1978			1979			1980			1981			1982			1983		1984	
	Appraisal Estimates	Actual	Change %	Appraisal Estimates	Actual	Change %	Appraisal Estimates	Actual	Change %	Appraisal Estimates	Actual	Change %	Appraisal Estimates	Actual	Change %	Appraisal Estimates	Actual	Appraisal Estimates	Actual
Sales of Electricity																			
Domestic and Commercial	644	745	16	766	955	25	831	1,078	30	907	1,231	36	993	1,471	48		1,632		1,995
Small Industries	456	464	2	498	609	22	545	703	29	599	711	19	658	839	28		977		1,059
Heavy Industries	533	407	(24)	792	594	(25)	932	722	(23)	1,104	897	(19)	1,284	1,006	(22)		1,234		1,221
Others (mainly Government)	270	235	(13)	393	398	1	602	303	(50)	723	329	(54)	885	555	(37)		526		636
Total	1,903	1,851	(3)	2,449	2,556	4	2,910	2,806	(4)	3,333	3,168	(5)	3,823	3,871	(1)		4,369		4,911

ANNEX 5

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PROJECT COMPLETION REPORT

REGIONAL ELECTRIFICATION PROJECT - LOAN 1531-SYR

Income Statements for the Years Ending December 31, 1978-1984 - Appraisal Estimates vs. Actuals/Present Estimates
(LS Millions)

	1978		1979		1980		1981		1982		1983/d	1984/d
	Appraisal	Actuals	Appraisal	Actuals	Appraisal	Actuals	Appraisal	Present/e Estimate	Appraisal	Present/e Estimate	Present/e Estimate	Present/e Estimate
Sales (GWh)	1903	1851	2449	2556	2910	2806	3333	3168	3823	3871	4369	4911
Ave. Rev./kWh (Piastres)	14.1	13.9	15.7	14.1	18.8	17.6	23.3	22.6	23.8	23.0	24.6	24.6
Operating Revenue												
Rev. from Elect. Sales	267.5	257.5	384.9/c	361.4	548.5/c	495.0	777.6/c	718.0	911.1/c	892.0	1077.0	1208.0
Other Revs.	12.5	93.5	12.5	63.0	13.0	82.0	13.0	116.0	13.5	147.0	129.6	190.0
Total Operating Revs.	280.0	351.0	397.4	424.4	561.5	577.0	790.6	834.0	924.6	1039.0	1206.6	1398.0
Operating Expenses												
Personnel	100.0	135.0	120.0	135.0	130.0	214.0	140.0	308.0	150.0	346.5	355.5	373.0
Fuel	6.4	37.0	11.0	78.0	15.3	99.0	23.1	306.0	30.5	632.7	834.8	1556.1
Purchased Power	-	76.0	-	72.0	-	73.0	-	69.0	-	82.0	65.0	55.0
Materials a/	12.0	34.0	12.0	46.0	12.5	61.0	13.5	70.0	14.4	82.0	59.9	50.9
Mosques & Churches (Free Supply)	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.5	1.5
Maintenance & Repairs & Other Expenses a/	6.2	27.0	6.7	38.0	7.0	42.0	7.4	45.0	7.8	43.3	52.9	58.2
Depreciation b/	102.4	49.0	141.3	58.0	176.3	63.0	211.3	81.0	254.9	155.0	174.9	205.8
Total Operating Exp.	228.2	359.2	292.2	428.2	342.3	553.2	396.6	880.3	458.9	1342.8	1544.5	2300.5
Net Operating Income	51.8	(8.2)	105.2	(3.8)	219.2	23.8	394.0	(46.3)	465.7	(303.8)	(337.9)	(902.5)
Rate of Return on Ave. Net Fixed Assets - %	3.3	Negative	3.9	Negative	5.9	3.8	9.0	Negative	9.0	Negative	Negative	Negative

a/ Classification of expenses may be on different bases in the appraisal estimate, actuals and present estimate.

b/ Actuals and present estimate of depreciation are based on the historical cost of fixed assets excluding Thawra assets. Depreciation on the Thawra assets is presumed to be covered by the price of purchased power of LS 0.03/kWh.

c/ Assumed tariff increases in 1979, 1980, 1981 and 1982.

d/ Appraisal Estimates were only for the period through 1982.

e/ PEE's estimate. Audited accounts of PEE are available only through 1980.

June 11, 1985

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PROJECT COMPLETION REPORT

REGIONAL ELECTRIFICATION PROJECT - LOAN 1531-SYR

Economic Analysis of the Project

An economic analysis was carried out in which the benefits of the rural electrification project were compared to the costs. The benefits were defined as the quantity of electricity sold times the average sales price, assuming that the 1984 prices remains constant in real terms. The costs include: marginal generation capacity costs, incremental transmission capacity costs, fuel costs, and operations and maintenance costs.

Benefits

In the absence of data on the number of connections and quantity of electricity sold attributable to the project, the following assumptions were used:

- 1,200 villages electrified
- 120 connections per village
- 100 kWh/month/connection (15 kWh/month in first year, 40 in second year, 70 in third year, 100 in fourth year and after).

Average sales prices (LS 0.226 in 1981, LS 0.23 in 1982, LS 0.246 in 1983, 1984 and after) were deflated to 1977 values using a price index equal

to the weighted average of the price indices for foreign and local inflation, with the weights being the present values of foreign and local costs of electricity supply.

Costs

Marginal capacity costs of generation were calculated on the assumption that demands attributable to the rural electrification project would occur mostly during peak periods and require the construction of combustion turbines using solar oil as fuel. An investment cost of $408/kW in 1981 prices including interest during construction was assumed for combustion turbine capacity. Requirements for capacity assume: 35% load factor, 20% reserve margin and 32% losses in generation, transmission and distribution. All generation capacity was assumed to come into service in 1981.

Capacity costs of transmission were estimated using the average incremental cost calculated as the ratio of new transmission expenditures for 1981-1984 to the increase in national electricity sales over the same period.

Capacity costs of distribution are the project costs.

Fuel costs were calculated assuming 80% solar oil, used by the combustion turbines during peak periods, and 20% heavy fuel oil, used in steam turbine units during off-peak periods. Heat rates are 3,100 kcal/kWh for the

combustion turbines and 2,300 kcal/kWh for the steam turbines. International selling prices assumed are $275 per tonne for solar oil and $202 per tonne for heavy fuel oil in 1984 prices.

Operations and maintenance costs were estimated assuming a ratio of 2% of capital costs per year.

All costs were deflated to 1977 prices using the following indices (January 1, 1977 = 100)

Year	Foreign	Local
1979	1.42	1.28
1980	1.54	1.53
1981	1.47	1.81
1982	1.44	2.07
1983	1.37	2.20
1984	1.33	2.42

Foreign costs were converted to Syrian pounds using the official exchange rate of US$1.00 = LS 3.95.

Results

Detailed estimates are shown in the Attachment. Since fuel costs alone exceed the benefits, no estimate was made of the internal rate of return, which would be negative 1/.

1/ The cost per kWh of imported solar oil was LS 0.33 (US$0.08) in 1984 compared to the average selling price of electricity of LS 0.246.

June 11, 1985
(2738P)

SYRIA

PROJECT COMPLETION REPORT

REGIONAL ELECTRIFICATION PROJECT - LOAN 1531-SYR

COSTS AND BENEFITS OF THE PROJECT

YEAR	PROJECT COSTS		GENERATION INVESTMENT COST		TRANSMISSION INVESTMENT COST		FUEL COSTS	OPERATIONS COST	TOTAL COST	TOTAL BENEFITS	NET BENEFITS
	LOCAL INVESTMENT COSTS	FOREIGN INVESTMENT COSTS	FOREIGN COSTS	LOCAL COSTS	FOREIGN COSTS	LOCAL COSTS					
	(THOUSAND SYRIAN POUNDS, 1977 PRICES)										
1980		2,800							2,800	0	(2,800)
1981	14,400	5,200	78,299	15,898	34,492	11,357	375	51	148,715	165	(148,550)
1982	70,000	39,500					2,797	336	123,989	1,238	(122,752)
1983	96,800	126,100					7,994	1,021	231,915	4,380	(227,535)
1984	101,700	56,900					17,251	2,017	177,868	9,542	(168,326)
1985	44,100						29,327	3,429	76,855	16,219	(60,637)
1986							39,814	4,655	44,469	22,019	(22,450)
1987							42,711	5,426	48,137	23,621	(24,516)
1988							49,306	5,765	55,071	27,268	(27,802)
1989							49,306	5,765	55,071	27,268	(27,802)
1990							49,306	5,765	55,071	27,268	(27,802)
1991							49,306	5,765	55,071	27,268	(27,802)
1992							49,306	5,765	55,071	27,268	(27,802)
1993							49,306	5,765	55,071	27,268	(27,802)
1994							49,306	5,765	55,071	27,268	(27,802)
1995							49,306	5,765	55,071	27,268	(27,802)
1996							49,306	5,765	55,071	27,268	(27,802)
1997							49,306	5,765	55,071	27,268	(27,802)
1998							49,306	5,765	55,071	27,268	(27,802)
1999							49,306	5,765	55,071	27,268	(27,802)
2000							49,306	5,765	55,071	27,268	(27,802)
2001							49,306	5,765	55,071	27,268	(27,802)
2002							49,306	5,765	55,071	27,268	(27,802)
2003							49,306	5,765	55,071	27,268	(27,802)
2004							49,306	5,765	55,071	27,268	(27,802)
2005							49,306	5,765	55,071	27,268	(27,802)
2006							49,306	5,765	55,071	27,268	(27,802)
2007							49,306	5,765	55,071	27,268	(27,802)
2008							49,306	5,765	55,071	27,268	(27,802)
2009							49,306	5,765	55,071	27,268	(27,802)
2010							49,306	5,765	55,071	27,268	(27,802)
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