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Date: December 29, 1993

To: Distribution: See Below

Attached for your information and action is the Final Report issued regarding the preparation of the Faisalabad Area Electricity Board for Corporatization (FAEB). This report has been prepared in accordance with CWP-2.33.0 which was approved by the MWP and WAPDA. Please note that this report recommends a phased approach leading to corporatization. Several cost centers are to be established and operate for some period until management determines that the FAEB is ready to be corporatized.

The first action anticipated upon acceptance of this report is the formation of "Transition Team" of WAPDA and FAEB personnel assisted by outside consultants and/or an independently assigned member of the team to implement the plan. This step is considered essential since both WAPDA and WPPO must be earnestly involved and an independent overview will mitigate the inherent problems that will develop.

please advise if further discussions are required.

Sincerely,

for Ronald H. Leasburg
PSPP Chief of Party

attachment: Faisalabad Area Electricity Board Transition Report

cc: Mr. M. Salman Farooqi, Secretary, MWP
Mr. Javed Akhter, Member Power, WAPDA
Mr. Daud Beg, Additional Secretary, Ministry of Water & Power
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File: CWP 2.33.0

FINAL REPORT

CONTRACT NUMBER
391-0494-C-00-0540-00

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
PRIVATE SECTOR POWER PROJECT

FAISALABAD AREA ELECTRICITY BOARD
TRANSITION REPORT

CONTROL WORK PLAN 2.33.0

by:

International Resources Group, Ltd.

DECEMBER 1993

International Resources Group Ltd.

Ronald H. Leasburg, Chief of Party PSPP

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FAISALABAD AREA ELECTRICITY BOARD
TRANSITION REPORT

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EXECUTIVE SUMMARY

A. Introduction

This report has been undertaken in accordance with Control Work Plan (CWP) 2.33. The purpose of the study is "to prepare Faisalabad Area Electricity Board (FAEB) for corporatisation as an independent commercial entity" and "assist in implementing the proposal as approved by the Authority". The International Resources Group (IRG) team spent several weeks in Faisalabad interviewing key managers, examining the equipment, evaluating the operations and reviewing the finances. No single issue was identified that would preclude the eventual corporatisation of FAEB. However, FAEB currently operates an electrical distribution system without any financial authority, little management or planning authority and limited engineering responsibilities. FAEB management correctly noted that it cannot be held accountable without some basic budgetary authority, without the ability to hire and fire and without the ability to procure needed equipment. The current situation is a direct result of WAPDA's failure to implement the "Introduction of Supply and Distribution of Power Scheme 1981". This plan was designed to allow the Area Electricity Boards (AEBs) to assume responsibility and accountability for their performance. Decisions about personnel hiring and firing would have been made by the Area Board Chairman. WAPDA would have retained the responsibility for large capital expenditures, major project engineering and centralized procurement. Area Board Chairmen would have had the incentive to operate the area electric distribution system more efficiently, to provide better service to customers, to organize more effectively and to operate more independently. In the intervening thirteen years, the AEBs could have demonstrated their management and technical capabilities. Clearly the failure to implement the 1981 scheme has resulted in the current inability of the AEBs to move efficiently into a corporatised operation.

FAEB staff and Grid System operations (GSO, WAPDA) personnel have sufficient expertise to operate an autonomous electric distribution system. Despite severe shortages in equipment such as trucks, replacement parts, long delays in the approval process and no budgetary authority, electricity is delivered and sold.

Organization of the distribution system is divided into two major categories, Staff and Operations (called Circles), with the electricity distribution taking place at the Circle level. There are four circles each of which is directed by a Superintendent Engineer. Each Circle is divided into Divisions and Sub-

divisions. These are managed by Executive Engineers (XENs) and Sub-division Officers (SDOs). At these levels, the FAEB operates well despite the aforementioned problems.

The team recognizes that the transition from an operational organization to a corporatised entity will be complex and slow. Organisational, technical and legal changes will be needed within WAPDA and the FAEB. The eventual corporatisation of FAEB will have significant impact on WAPDA's management and business structure. To facilitate these processes, the consultants recommended the creation of a negotiating group composed of WAPDA, the FAEB and the Privatisation Commission to negotiate the transfer of WAPDA's assets to the FAEB. The following progressive phases are seen in FAEB's transition. Each step must be approved by the Authority.

PHASE ONE	FAEB operates as an electric distribution department. Planning studies for corporatisation are undertaken. This is the current situation.
PHASE TWO	FAEB is established as a "Cost Center[1]" with budgetary authority, management responsibility and accountability.
PHASE THREE	FAEB is "corporatised" as an independent legal entity with all the functions of an independent company.
PHASE FOUR	FAEB is "privatised" and becomes a non-government profit oriented business.

This report focuses on those transition, management and technical issues that must be resolved to transform the FAEB into an independent company free of WAPDA's control.

B. Transition Issues

Transition issues are those which arise from the inconsistencies between the current situation and "WAPDA's Strategic Plan for the Privatisation of the Pakistan Power Sector" adopted by the Government in June 1992.

The largest impedient to establishing a Cost Center and eventual corporatisation of FAEB is lack of delegated authority and budgetary

[1] Cost Center is herein used to mean that Faisalabad Area Electricity Board operates as an autonomous financial entity maneging all its dispersements, income, wages and cash flow.

accountability. Currently the Chairman has little authority to operate, improve or control the system. At lower management levels there is less authority to make technical, administrative or personnel decisions. The result is that a system of work-arounds has evolved. SDOs hire trucks or bullocks to transport or install equipment, XENs use inappropriate expense accounts to get needed funds to operate. As WAPDA makes all management decisions, management has grown top heavy, key managers are moved without the Chairman's consent, and approvals for plans and purchases are subject to long delays.

WAPDA performs the out of area and out of country purchasing, and most of the engineering and administration associated with major capital expenditures and system planning. The administration of training is also conducted by WAPDA, as are labour negotiations, tariff setting and material and meter testing. As a result FAEB has not developed expertise in these areas. The following conclusions were reached:

- A WAPDA/Privatization Commission Transition Team (herein referred to as) Transition team must be constituted immediately to address issues identified in this report.

- Within FAEB or available to FAEB through the GSO there is sufficient technical expertise to establish a reliable and efficient Cost Center which can then be corporatised as an independent entity.

- WAPDA in conjunction with independent auditors and consultants free of WAPDA's control must identify costs associated with existing services such as engineering, procurement and testing until FAEB can either assume responsibility or contract for these services. Immediate planning for takeover of grid station operations should begin with firm timetables for complete transfer established.

- When the FAEB is established as an Independent Cost Center, the process of transferring all managerial responsibilities, and reassigning or hiring personnel in key areas such as operations and engineering must begin. While this should be a deliberate systematic process designed not to upset current operations; it must be completed as soon as possible. The Transition Team must have the authority to institute its plans.

- The Transition Team must develop contracts for the purchase of power and transmission services, and for other services identified in

this report.

C. Management Issues

Currently, the FAEB does not perform any financial management or control functions. No organization exists. Once the GOP decides to let FAEB operate as a Cost Center, the Transition Team assisted by outside consultants, should develop an implementation plan to transfer financial, technical and administrative functions. These functions include but are not limited to financial management, long and short term budgeting, cash flow management, purchasing, financial reporting, computer systems support and management information systems. At a minimum the Cost Center must be able to:

- Develop a comprehensive financial management function that includes long term financial planning, budgeting and budgetary control, and detailed financial and cost accounting.

- Develop a transition agreement for workers, including a plan for long term employee ownership of a portion of a privatised FAEB.

- Develop an aggressive public relations program. The public especially the business community, has expressed concern over the autonomous operation of FAEB. Primary concerns are tariffs and quality of service. A series of public forums must be held as soon as definitive financial forecasts are available.

- Develop a social services program. WAPDA currently provides social services such as medical care, schooling and transportation. The delineations of the new organization responsibilities in this area are needed as well as a plan which outlines how such services will be paid for and provided.

D. Legal Issues

There are many critical legal actions which must be initiated to corporatise FAEB. These issues need to be addressed with firm timetables established for their implementation. The failure to resolve these issues could preclude the success of eventual corporatisation.

- **Title:** Currently FAEB does not have ownership rights over property and equipment. There is some concern that even WAPDA does not

have legal ownership of easement for its facilities.

- **Debt:** WAPDA and the GOP must decide the debt to be assigned to the new organization. Although most of the equipment is old there is outstanding debt that must be allocated to the distribution company.

- **Legal Entity:** Articles of corporatisation are required to allow the new organization to (i) enter into commercial transactions (ii) assume debt (iii) issue shares (iv) buy and sell property (v) procure equipment (vi) take legal action (vii) have status before regulatory bodies and (viii) develop and approve budgets.

- **Liability:** Liability status of the corporation must be clarified.

- **Regulatory Relationship:** The new organization must have the ability to resolve technical, contractual and legal issues with WAPDA, neighboring distribution companies, private power producers and its own customers. As no national regulatory authority exists, some national government entity must assume this role until a regulatory body is enabled. Cost Centers can take place prior to the establishment of regulatory bodies but must be in place prior to corporatisation.

E. Proposed Transition Process

PHASE ONE Current Study Effort.

FAEB operates as an electric distribution department with progressively greater control over budget, management and personnel. Planning studies for corporatization are undertaken.

PHASE TWO Establishment of FAEB as an Independent Cost Center.

(1) Develop a WAPDA/FAEB/Privatisation Commission TRANSITION TEAM, supported by outside management and technical consultants, that will plan for and assist in the implementation of the process. The Team to be established by January 31, 1994.

(2) Restructure the WAPDA management and technical organisation so that the FAEB includes responsibility, authority, accountability, and autonomy for operations within the Faisalabad service territory.

(3) Allow FAEB to start functioning as an autonomous Cost Center within the WAPDA organization. July 1, 1994.

(4) The Transition Team will identify the management, administrative and technical functions, currently performed by WAPDA which could or should be performed by the new entity as it evolves into an independent corporation. These functions include, but are not limited to financial management, long term and short term budgeting, cash flow management, strategic and long term planning, load management, system planning, design engineering, procurement, purchasing, management information systems and other computer services, management training, financial reporting and social services.

Note: The Transition Team will evaluate what functions can be most effectively performed by the WAPDA organisation, and what functions can be most effectively performed by FAEB or a contractor to the new entity. This evaluation will include the analysis and development of appropriate transfer prices for all services performed by WAPDA or contractors. Procedure will be established to implement appropriate accounting functions that accurately reflect the cost of services provided or incurred.

PHASE THREE Corporatisation. Begin Implementation of Transition Team Planning.

(1) FAEB will take over and or contract for all management, administrative and technical services currently performed by WAPDA.

(2) FAEB will work with WAPDA, yet to be formed National Electric Power Regulatory Authority (NEPRA) and Provincial Regulators to develop a regulatory process and appropriate organisational

expertise. NEPRA needs to be in place before corporatization can take place.

(3) FAEB will work with WAPDA to define the purchase price (transfer price) of power to the distribution area. This will be reviewed by NEPRA.

(4) FAEB will work with WAPDA to determine the rights and responsibilities of various parties with respect to the ownership of generation facilities and cogeneration contracts.

(5) The GOP must retain an independent financial advisor to determine how to establish FAEB as an independent subsidiary under various ownership scenarios. A determination must be made of (1) the value of the GOP's receipts from the sale, (2) the impact on WAPDA's cash flow, (3) the potential ability of the new firm to generate income and adequate investment capital, and (4) GOP values with respect to economic and social objectives.

Determine whether it is appropriate to separate FAEB into an independent subsidiary.

(6) Establish the new corporation through appropriate legal procedures.

Note: FAEB must become a legal entity, separated from WAPDA and authorised to make decisions without the approval of WAPDA or the GOP. Such authority can be granted to FAEB as part of its government-granted "license" and as part of its Articles of Incorporation. The FAEB must have sufficient legal authority to engage in all of the tasks and commercial transactions necessary to provide distribution service. The FAEB must be provided in its Articles of Incorporation with the authority to: (i) enter into commercial transaction; (ii) incur debt; (iii) issue

shares; (iv) buy and sell all forms of property; (v) procure and sell equipment; (vi) establish its own internal organization and procedures; (vii) develop and approve budgets; (viii) propose those actions which require regulatory approval, and (ix) operate its distribution electrical net work.

PHASE FOUR Privatisation:

After FAEB has demonstrated that it can operate as a corporate entity, the decision to put a value on the organisation and whether or not to privatise it can be made.

I. INTRODUCTION

A. Background

The Government of Pakistan (GOP), established the Water and Power Development Authority (WAPDA) by an enabling ACT of 1958. As provided in this ACT, "WAPDA is responsible for the generation, transmission and distribution of power and the construction, maintenance and operation of power lines and grids" (Section 8(2)). Additionally WAPDA "May acquire by purchase, lease, exchange or other wise, and dispose of by sale, lease, exchange or otherwise, any land or any interest in land" (section 13(2)). Pursuant to this Act, WAPDA proceeded to establish eight distinct and separate regions throughout Pakistan for the distribution or power.

In 1981 the WAPDA Act of 1958, was amended. The existing eight Chief Engineers (Distribution) were designated as Chairman, of their respective Electricity regions newly formed Area Electric Boards (AEB) and were granted administrative, disciplinary, financial and other powers. As a result of this amendment, the Faisalabad (and seven other) Area Electricity Board(s) were established with broad powers" to promote coordinated development of the distribution system and sale of electricity within the jurisdiction of the Board in a most efficient and economical manner". The amendment specifically retained WAPDA's budgetary responsibilities.

The functions enabled by the 1958 ordinance and the 1981 amendment have not been achieved because without the delegation of budgetary authority, accountability cannot be assumed. Therefore the Board is effectively powerless and the plan was doomed to failure.

In 1992, the GOP embraced "WAPDA's Strategic Plan for the Privatisation of the Pakistan Power Sector", to corporatise and eventually spin-off and sell WAPDA's interest in all thermal power generation and distribution facilities. Pursuant to this divestment, International Resources Group (IRG) has been assigned Control Work Plan(CWP) 2.33, as amended, by the United States Agency for International Development to outline procedures and changes necessary to corporatise the Faisalabad Area Electricity Board.

B. Objectives

The purpose of CWP 2.33 is to restructure the Faisalabad Area Electricity Board as an independent commercial entity. The goals of restructuring include increased productivity, reduced cost, improved efficiency, and

greater accountability.

This report is designed to identify the major issues affecting the restructuring of the Faisalabad Area Electricity Board. In addition, the report provides a transition plan with findings derived from extensive research, and interviews with the Faisalabad Area Electricity Board staff, and WAPDA managers. These findings are documented with a view toward improving management and operations leading to the creation of an independent and economically viable subsidiary of WAPDA. This report presents ideas for extensive discussion, and represents the first step toward development of a comprehensive transition strategy.

C. Methodology

A team of management advisors possessing more than 100 years of combined experience in electrical distribution, transmission and generation issues was assembled to conduct this assignment. The team collected and reviewed previous reports prepared by Price Waterhouse and Ebasco; conducted extensive interviews of more than 50 FAEB, WAPDA, and WPPO managers, supervisors, and employees; inspected several Faisalabad area grid stations, and many kilometers of distribution lines, including service drops; visited the Faisalabad Computer Center, Regional Store, and Regional Training Center; and collected and analyzed numerous reports prepared by FAEB and WAPDA. Appendix B lists the documents referenced by this report.

The report presents factual information that has been validated by the appropriate FAEB and WAPDA representatives. The report also presents analytical data derived from FAEB and WAPDA reports or are from actual observation. These analyses were also reviewed by the appropriate FAEB and WAPDA representatives. Finally, the report presents conclusions and recommendations, many of which were discussed with various representatives of FAEB and WAPDA. Generally these conclusions and recommendations reflect the consensus reached between the IRG team and many of the FAEB and WAPDA managers.

D. Content

The report provides a comprehensive discussion of relevant transition issues. The lack of accountability and responsibility is the most pervasive issue. Strategies to address these issues are a cornerstone of this report. Specific management and technical issues are discussed in depth in Section II of the

report. Issues have been integrated and consolidated to facilitate transition and implementation planning. Five major issues are highlighted.

- System Operations
- Financial Management
- Human Resources
- Definition of Service Territory and Electrical Boundaries
- Strategic Planning

Legal issues will become more important as FAEB and WAPDA proceed through the transition process. However, while legal considerations are addressed, they will be discussed in greater detail in supplementary Transition Reports.

Clearly the entire transition process will be dependent on an effective organization. Section III of the report describes a proposed organisation subject to the consideration of the Transition Team. This section summarizes suggested operational improvements that are directly related to and motivated by organisational issues.

Section IV describes a proposed transition process. This section outlines an implementation strategy including assumptions regarding the time and resources required to progress through each transition phase. The process is not prescriptive, but rather describes an approach that can be clarified and embellished through the participation and commitment of the individuals responsible for implementation.

The Faisalabad Area Electricity Board has the potential capability to operate as an independent, autonomous, responsible, and accountable Cost Center. Effective execution of this step requires two interdependent actions:

1. Member Power should direct the Chairman FAEB and senior WAPDA to appoint representatives to the Transition Team to develop a detailed plan for assuming all the responsibilities of independent Cost Center management. This plan should be completed in the first quarter 1994 so that an independent cost center can be established by July 1, 1994.

2. The Chairman FAEB and his staff should have full participation in the ongoing development of the 1994-1995 operating and capital budgets. Autonomous Cost Center management should begin no later than 1 July, 1994.

II. ISSUES

A. System Operations

FAEB is managed by the WAPDA appointed Chief Engineer who conducts the affairs of the company through a highly centralized organisation (Figure II.1). He reports to the General Manger of Distribution Operations, Water and Power Development Authority (WAPDA).

The Chief Engineer has seven WAPDA appointed directors reporting to him:

- Director Planning and Engineering
- Director Construction Maintenance and Operations
- Director Inventory Control
- Director Commercial
- Director Administration
- Director Accounts
- Project Director

He also has four Superintendent Engineers (SE's) who report to him:

- SE Jhang Circle
- SE Sargodha Circle
- SE 1st Faisalabad Circle
- SE 2nd Faisalabad Circle

All of the actual operations occur at the Circle level.

The Circles are divided into geographical areas: Circle 1 and 2 Faisalabad are in the city itself and serve approximately 524,000 customers; Jhang and Sargodha Circles serve, rural areas and have 303,000 and 382,000 customers respectively for a total of 1,209,000 customers.

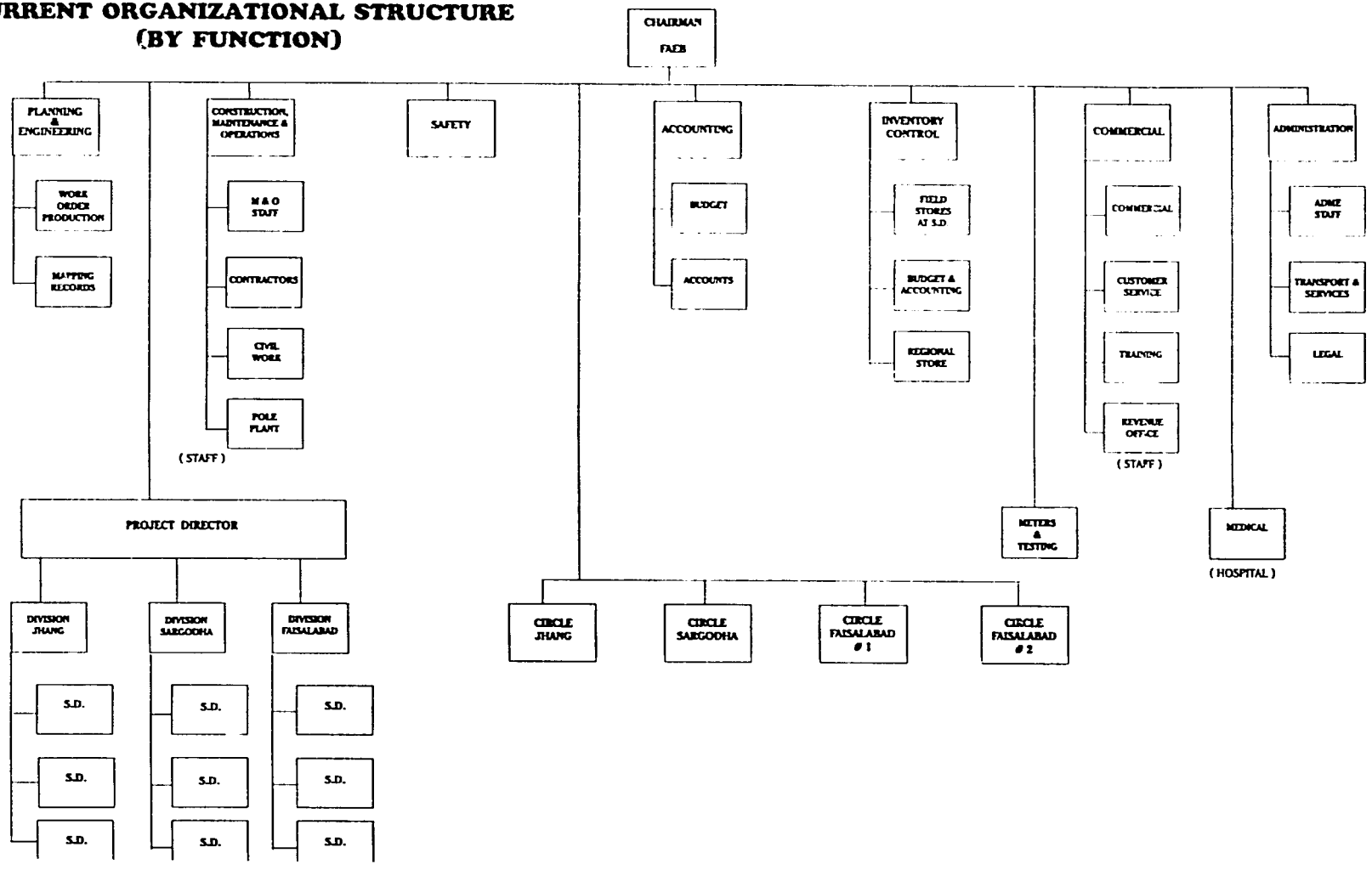
The nominal distribution voltage is 11 KV. Transformer connections are Delta, Wye, neutral grounded, three phase 11 KV/415 volt, with 240 volts to ground. Pole mounted transformers are referred to as "Outdoor Sub-Stations". "Indoor Sub-Stations" are service entrances to industrial loads.

The electrical system, consists of 11 KV feeders, served from 80 Grid Stations at 220 KV, 132 KV and 66 KV. There is one 500 KV Grid Station. All feeders exit the switchgear at the stations via underground 3 phase cables and most feeders are three phase with very little single phase latterals because of the difficulty of balancing loads.

FAISALABAD AREA ELECTRICITY BOARD

FIGURE 11.1

CURRENT ORGANIZATIONAL STRUCTURE (BY FUNCTION)



There are 21,260 km of 11 KV feeders and 10,730 km of 415 V service entrance. The Grid Stations have an installed transformer capacity of 1324 MVA. Maximum demand for 1992 was 911 MW at 85 percent power factor. The FAEB has a total of 35,217, 11 KV/415 V transformers ranging from 25 KVA to 630 KVA.

The Circle Organisation is interesting and designed to serve very unique needs within Pakistan. Figure II.1.1 shows that the Circles are divided into divisions and are further divided into subdivisions. Each division has an Executive Engineer (XEN) in charge; each subdivision has a Sub-Division Officer (SDO). Each division also has one Revenue officer (RO) who reports to the Deputy Director Commercial. The key people in the Circles are the XENs, SDOs and the RO as they deal directly with the customer.

The XEN is responsible for:

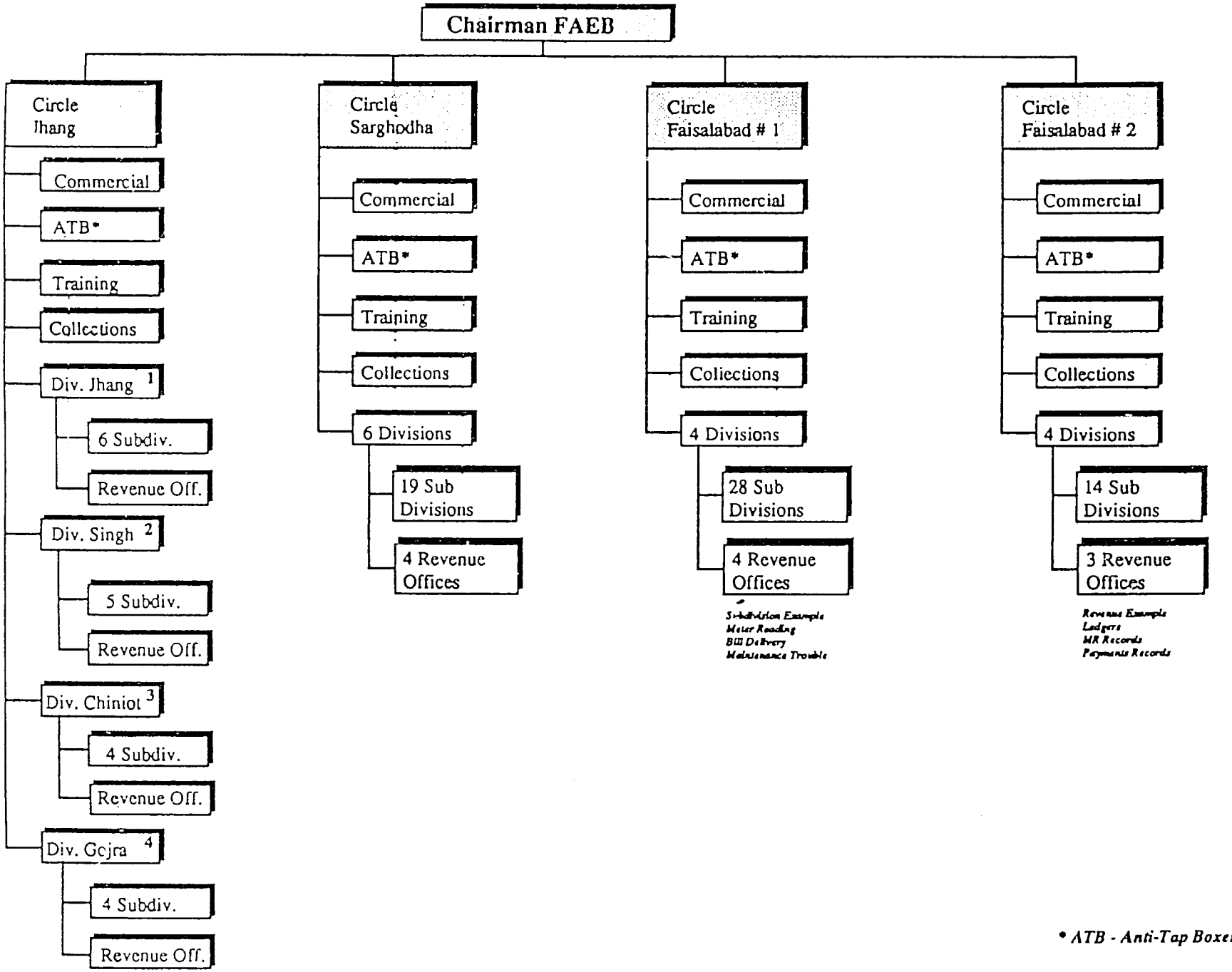
- Insuring the reliable operation of the Division
- Prevent power losses and facilitate power sales
- Earn and collect revenue

However, the XEN's have limited authority to eliminate technical, logistic or administrative problems. Route changing is approved by the FAEB Planning and Engineering Department. New hookups take 4 - 6 months for approval. Political issues preclude the cut-off of non paying or illegal hookups. XEN's also have serious shortages of equipment, especially maintenance vehicles. A large expense item is for hired transport. These issues must he addressed by a detailed review of the work flow and approval system at the XEN level.

The SDO is responsible for:

- Insuring the reliable operation of the subdivision
- Continuity of power supply in the subdivision
- Maintenance of feeder circuits
- Connecting new customers, disconnections and reconnections
- Reading meters
- Supervision of linemen

Faisalabad Area Electricity Board - Current Organizational Structure (Administrative)



* *ATB - Anti-Tap Boxes*

The Revenue Officer (RO) is responsible for:

- Maintaining appropriate customer cost records
- Serving revenue bills to customers
- Collection of bills

Typically, a Revenue Officer with five subdivisions has about seventy five employees of which one-third are bill distributors, one-third collectors and one-third clerical.

Typically, a SDO has about 90 staff comprising, one-half Lineman and Assistant Lineman, fifteen meter readers and the balance clerical and lower levels such as gardeners, watchmen and sweepers. As an example, the 1st Circle Faisalabad totals about 2450 employees. Faisalabad Circle has 4 Divisions and 28 Sub-Divisions.

A new sub-division can be created if a sub-division exceeds 10,000 customers, however, this limit is generally ignored and sub-divisions frequently have 15 to 26,000 customers.

Management is actively engaged in trying to prevent theft of power which is currently around 5-10% of total load. Meter readers read about 50 meters per day and there is suspicion some theft occurs with their cooperation. However the lack of enforcement authority and union problems complicate solutions to this issue.

Local FAEB management has little decision making authority operating under highly structured procedures emanating, from WAPDA. Some FAEB Directors have matrix relationships with counterparts at WAPDA Lahore. This seriously limits self initiative. The staff at FAEB is aware of these problems and some are anxious to have the freedom to initiate and institute changes. The following sections describe the current organisation, comments on the equipment and observations about operations.

1. Planning and Engineering (P&E)

   The Director of P&E reports to the Chairman and has two deputies: Deputy Director of Mapping and Records (DDM&R), and the Deputy Director of Planning (DDP). The Mapping and Records Department is responsible for long term planning, including recommendations for improvement of the overall electrical system as well as the addition of new 11 KV lines.

Responsibilities of the Mapping and Records Department include the processing of applications for service where the loads exceed 500 KW, providing the service connection design, and design of 11 KV feeders to support industrial loads greater than 500 KW. When all the switchgear grid panels are full a request is made to the Grid Station Operations (GSO) WAPDA for additional capacity. The Planning Department is conducting an Energy Loss Reduction program (ELR). Line losses are reduced by reconductoring. A target has been established to upgrade two hundred 11 KV feeders by 1994; one hundred seventy two (172) are scheduled for upgrading of which 150 are completed (see Table 11.4). It utilises a computer program which calculates the losses. The feeders appropriate for upgrade are identified through a benefit-cost analyses. When the benefit cost ratio exceeds 5 the project is approved. Sixty percent of the necessary funds can be borrowed from the Asian Development Bank. Some of the lines exceed 162 km in length and experience significant voltage drops and have line losses up to 1.5 MW. The maps used to model the 11 KV feeders are accurate to about 10%.

Similarly the Planning Department is pursuing ELR implementation for the secondary, 400 volt service entrance cables. Although the length of a 400 volt service, by specification, cannot exceed 800 ft, it is often longer. There are about 10,700 km of service drops to upgrade; a target list of 2500 per year has been developed. In this instance, a benefit-cost ratio of 1.0 is employed. About 2700 proposals have been reviewed of which 2300 have benefit-cost ratios less than 2. Forteen Hundered proposals have been completed, and the work is done by the lineman under the Sub-Divisional Officer (SDO).

Long term load flow studies are done by the Director and his Deputies. When loads reach 80% of transformer rating, they recommend transformer change out.

2. Operations and Maintenance

There are a total 81 Grid Stations of which 34 are served by the 132 KV loop; 44 by the 66 KV loop; 2 by the 220 KV and 1 by the 500 KV line. All the Grid Stations combined have a transformer capacity of 1324 MVA and 25 of the 81 Grid Stations have single transformer service which results in a total shut-down of the station when a transformer fails.

Fourteen grid sites were visited with inspections revealing almost a total

lack of any quality workmanship or standards . Grid Station yards are dirty, unorganized and in disrepair. Concrete underground raceways have broken caps over them and cables lack proper configuration. The 132 KV and 220 KV breakers, Brown Bovari Air Blast and SF6 breakers look reasonably well maintained.

Distribution switchgear in the urban areas are of little more than scrap value and need replacing; occassionally, circuit breakers will open but not close. However, there are new state of the art, modern, indoor metal clad switchgear, with vacuum breakers located in newly built grids. These mainly are used in the rural areas where demand growth is averaging about 10% per year. Although the switchgear is new, the workmanship vastly needs to be improved. Exit cables lack stress cones, energized cables lay without protection and are poorly configured, security is extremely lax with children and others roaming freely through the yards.

While the rural grids were in better condition, with lawns cut, debris removed, etc. they still lacked any degree of uniform workmanship and standards. One suspects that management's inability to control union workers is a chief cause of this problem.

Grid station operation and maintenance is a WAPDA responsibility and the operators do not always have the latest one-line revisions and several incorrect one-lines were noted. Although the diagrams were incorrect the operators were aware of the changes.

The yard bus arrangements are of common engineering practice and acceptable with normal configurations of current transformers, potential transformers, lighting arresters etc. However the stations visited do not have overhead shield wires which would be cheaper and better than arresters.

Signs of poor workmanship were evident, with a lack of attention to details. Yard and house-keeping needed greater attention.

Maintenance at grid stations is controlled by a Permit To Work. The permit clearly states the work to be done on the isolated equipment. However it was noted that not all equipment was tagged as to its status, that is: repaired or defective. Disconnected equipment was not tagged as to condition to prevent reinstallation. Repaired equipment was dirty, dusty and uncovered, potentially causing problems upon use.

When FAEB becomes an independent entity it will be necessary to operate the Grid Stations. The duties of the SDO must be expanded so that Grid Station Operations become part of his/her responsibility. All Grid Stations have operator coverage 24 hours per day and seven days per week. The Transition Team can make a major contribution to operations planning.

3. Safety

The safety program is under the direction of the Deputy Director of Safety with offices located at the Area Board main office. Two safety inspectors report to him.

The Deputy Director Safety is responsible for conducting safety classes for lineman, assistant lineman and for conducting T&P Parades (Tools and Plant Parades). There are spot checks of the overhead line crews with the purpose of insuring that they have and use the proper equipment.

Safety training is done through the Circles. Each Circle has its own training program for the lineman at which the Safety Director gives 2 or 3 lectures at each training session. He issues Personal Protection Equipment (PPE) consisting of safety belts; rubber and protective gloves; shoes and hard hats. However the consultants noted that actual enforcement is very lax, and perhaps non-existent. Most accidents occur because proper PPE is not used. Safety procedures require ground chaining of the 11 KV feeder (no live feeder work is allowed) to prevent accidental feed back. The chains weigh about 20 kg. Lineman often have no vehicles and must walk to the job site and are reluctant to carry the chains. This is a violation of safety rules and can result in an accident.

On the 400 volt secondary lines, lineman are permitted to work while it is energized resulting in a high accident rate. The fatality rate is higher than the nonfatality because many of the initial non-fatalities later became fatal.

Deputy Director Safety (FAEB) reports to the Deputy Director of Safety WAPDA, but also keeps the FAEB Chief Engineer informed of all major accidents. All accident reports must be made within 24 hours to WAPDA. If the incident is fatal, a Board of Inquiry is formed and the Sub-Division Officer and the Line Superintendent are suspended until the

end of the inquiry.

The Deputy Director Safety has no enforcement authority. Safety is not a major objective in either teaching or enforcement. Disciplinary action is seldom taken against a safety violator. The Chief Engineer also has no enforcement authority.

Public Safety programs are almost nonexistent consisting mainly of the posting of warning signs or using loudspeakers (many people cannot read) to warn residents of voltage dangers. Many urban lines are very close to buildings. The team saw lines that could be touched by leaning out of a upper window.

The advisors found a very lax attitude to both public and employee safety. The Line Superintendents do not enforce safety. Lineman generally do not use hard hats, safety shoes or any protection.

4. Transportation

FAEB is operating under a severe handicap, in that its transportation facilities are totally inadequate. FAEB with a total of 1.2 million customers and a combined total of 32,000 km of high and low voltage lines has only 9 bucket type trucks for line use and 9 cranes. Jhang Circle has no cranes or bucket trucks.

XEN's and SDO's have developed work around methods to deal with this problem. XEN's authorize the use of hired trucks. SDO's are reimbursed for their rental expenses. Many times oxen- powered block and tackle systems are used to lift heavy equipment. The lack of equipment makes getting on sites difficult creates delays and is inefficient. This is an area where a small investment in equipment can pay high dividends in cost reduction, efficiencies and workmanship.

Repair of vehicles is performed by the Central WAPDA Foundation Workshop. The foundation workshop was established to generate funds for WAPDA's employee families. This foundation does repair work for all WAPDA's divisions such as: Water Wing, Transmission and Grids as well as the FAEB but its performance is unsatisfactory because they are low paid semi-skills technician.

5. Stores

The Stores Department at FAEB receives material from two sources. Material received from purchase by WAPDA (centralized purchases) and material received from purchases by FAEB (decentralized purchases). About 90% of purchases are centralized and 10% decentralized. All received materials are documented with a Goods Received Notice (GRN), which serves as the data input for a computerized inventory control program. The computer printouts include an identification number, item description, a number designating the supplier, a number designating the account against which the item is purchased, the transaction date, the quantity received, and the value of the items received in rupees. Similarly, distributed items are on the same printout, with the net quantity on hand also identified.

All items, valued over 20,000 rupees are inspected through the office of the Deputy Director Material Plan and Control (WAPDA). This is done for both domestic and foreign purchases. Items are also reinspected by field stores upon receipt.

FAEB has one regional warehouse and eight field stores. The regional and field stores provide WAPDA with stock balances of fast moving items once a week. The field stores also notify WAPDA when balances are too low, however, it was noted by one of the Line Superintendents that field stores are frequently out of supplies. All withdrawals from stores must be approved by FAEB Director Inventory Control except during nighttime emergencies when material can be released without his signature.

The stores computer system appears to be satisfactory and operating well. This is the only activity in the FAEB operation where Personal Computers (PCs) were utilized. The stores groups are currently establishing max/min inventory requirements with input from WAPDA. Automatic reordering will take place when this project is complete.

6. Security

Electrical system security is provided through the Deputy Director of Surveillance who reports to the Director of Commercial. His staff has no sanctioned number of employees and is at the discretion of the Director Commercial and the Chairman.

His duties are to investigate any complaints received by the Area Board concerning the unauthorized use of power. He is also responsible for a surveillance program which is designed to check meters, suspected to be slowed for any reason. Only three phase, four wire commercial loads are checked. These meters are outdoors and the customer is not notified of the check. Indoor meters require the approval of the customer before entry which allows the customer time to correct any dishonest situation.

The meter is checked by disconnecting the four wires on the load side of the meter and installing a calibrated heater load. The time it takes the meter to turn five revolutions is clocked and compared against the calculated time. If the recorded time is greater than the calculated time a report of the incident is made to the sub-divisional officer at that area who, at his discretion, may make out a First Investigation Report (FIR), after consulting with the Executive Officer (XEN) in charge of that district. A FIR, if issued, is then served to the Police Department. At the time of the surveillance an SDO or his representative is present. Internal Auditors follow up on all complaints.

The consultants found the procedure somewhat unstructured. The number of people conducting the surveillance varies. There did not appear to be an established schedule. Only heavy meters (three phase, four wire) were examined. Theft can also occur when a residential customer allows a commercial establishment to hook-up through the residential service since residential rates are less than commercial rates.

As a preventative measure Anti-Theft Boxes (ATB) are installed. These are welded boxes, placed over the meter with only entrance and exit portals for the cables.

Since the public views WAPDA as dishonest and corrupt it would be a good public relations gesture to announce to the press whenever any meter is found tampered. Additionally, more FIR's should be issued and publicized.

7. Purchasing

WAPDA does about 90% of the purchasing with the Area Boards doing the rest. The current purchasing process is complex and will require major additions and changes in the Area Board and WAPDA organisations before purchasing activities can be transferred to the Area Boards.

WAPDA does all of the "centralized" purchases through the offices of the General Manager of Procurement and Inventory Control, while the "decentralized" purchases are done through the Chairman Area Board.

Decentralized purchases are made by the FAEB Regional Director of Inventory Control and consist of locally (Pakistan) made low cost bulk items.

Centralized procurement, for all eight Area Boards may be "in country" or "out of country" purchases consisting of large items such as transformers, 11 KV switchgear, wire, cables, breakers. Large foreign purchases are generally restricted by the regulations of various lending agencies. These regulations also require International Competitive Bidding (ICB). Large "in country" purchases also require Local Competitive Bidding (LCB).

Lending agencies such as the World Bank and Asian Development Bank require that 40% of the funds for foreign exchange be generated internally. The lending agency, upon approval of the project, will provide 60% of the necessary funds.

Responsibility for the purchase of specific technical items such as metal clad switchgear and transformers is delegated to the Manager of Transmission and Distribution who is responsible to write the purchase orders and evaluate the bid for conformity to required specifications.

The Purchasing Department inspects all purchased items over Rs 20,000 whether local or foreign purchases, through the office of the Deputy Director Material and Plan and Control. The process is accelerated through the use of 29 pre-qualified manufacturers.

All of the budgeting is done through the GM Procurement and Inventory Controls staff by estimating future requirements based on the past year's requirements to which is added the forecast (budget) for the next year's construction program including the number of villages to be electrified or lines to be reconductored. From these forecasts, a detailed material procurement plan is produced for the coming year.

Additionally, the WAPDA GM of Procurement and Inventory Control, has an office in Karachi which is responsible for providing appropriate inspections, documents and fees to clear purchased materials through Pakistan's customs organisation.

In corporatizing FAEB, purchasing will be a problem. Inspection costs are high. However WAPDA spreads the cost over the eight AEB's. Clearance of imports by the Chief Resident Inspector (CRI), and the higher purchase costs arising from small quantity purchases will add additional costs. The new corporation will have to establish lines of credit (both short term and long term) and establish relationships with the lending institutions such as the World Bank, Asian Development Bank, and International Monetary Fund.

The consultants were impressed by the WAPDA procurement policies and activities. The total year purchases exceed 2 Billion rupees per year.

Although the regional and field stores frequently run out of materials, stock balance reports are submitted weekly and an attempt is made to have a continuous supply of fast moving items and in assisting the field and regional stores in establishing max/min inventories. The Computer Services Organization is currently working to provide the field and Regional Stores with personal computers to update inventory control records and reports.

Purchasing is complex and can pose an expensive problem when FAEB is corporatised, however, these activities can be delegated to WAPDA until other Area Boards are corporatised as long as WAPDA remains cost competitive. At that time it is conceivable that all eight boards can establish a unified purchasing function.

Since 40% of the foreign exchange associated with purchasing costs must come from cash flow it is extremely important that a precise determination of the FAEB costs be determined. Then the effect of removing FAEB from the financial structure of WAPDA can be determined.

8. Operations Planning

Currently WAPDA is responsible for area expansion plans, major equipment replacement, grid station additions, and modifications to and additions to local generation. FAEB planning is limited to the Energy Loss Reduction program and near term expansion studies. The inability of FAEB to perform long term load flow studies precludes the optimization of the area's electricity flows. Although FAEB does not currently have to have this expertise, it will be needed in the long term. FAEB must also develop tariffs based on cost of service, add grid stations and

maintain the area's electrical efficiency and integrity and expand its services in an efficient manner. All of these functions require that FAEB have the ability to undertake long range technical planning studies.

Systems Operations Issues

The following observations were made regarding the current operation.

- FAEB must have management and electrical control of a defined service area. The current structure does not give FAEB management control of the system or the employees. Electric service cannot be optimized, an area cost of service study performed or employees managed under the current situation.

- There is a severe lack of equipment, especially transport vehicles in FAEB. FAEB management needs budgetary control to allocate resources more efficiently.

- Significant delays occur in receiving materials and supplies; obtaining plan approval for route growth or upgrades and enforcing cut-offs. FAEB management must have the authority to plan and control cost elements that affect the efficiency of operations

- Managers are rotated, assigned, promoted and selected by WAPDA without Area Board consent. Assignments are usually two years or less. Area management cannot manage the system as a Cost Center under the current structure.

- Grid station operation is lax. Equipment and yards are not well maintained. Maintenance and operation procedures are not uniform. FAEB management has no control over stations, their operation or personnel.

- Safety practices are poor, rules are not enforced and procedures are not followed. FAEB has little control over unionized workers. WAPDA is responsible for labour relations. FAEB cannot increase worker productivity under the current organisation.

- FAEB has little budgetary responsibility. FAEB appears to generate a surplus. However as WAPDA controls the budget, purchases, foreign exchange and salaries, FAEB has little motivation to operate more efficiently and has no discretion as to how funds are allocated.

- o Surveillance is not uniform, violators are not effectively prosecuted and enforcement is lax. FAEB lacks authority to improve in this area. The problem must be investigated more thoroughly to find the root cause of poor enforcement.

- o FAEB has no responsibility for system planning, energy management or electrical dispatch. Therefore FAEB management has little influence on energy use in its area. FAEB must be delegated this responsibility along with appropriate resources.

- o Grid stations and lines appear under loaded, yet there are numerous outages. Load flow studies must be performed to define the parameters of this issue.

- o Public relations are nonexistent. Local businessmen have no idea what FAEB could or should do. FAEB must undertake a public relations effort to improve its image. The FAEB's mangement is dicouraged by WAPDA from talking to its customers.

- o There is a substantial regional investment by business and industry in backup generation. The value of this equipment and the cost of outages must be studied. Business must be convinced that more reliable electric system operation will result from a strong locally operated FAEB.

The resolution of these issues lies mainly in giving FAEB both the authority over and accountability for its own operation. The immediate implementation of the 1981 WAPDA Act amendment and recognition of FAEB is the first step. Reorganisation can then follow.

B. Financial Management

1. Issue Identification:

The FAEB does not currently have financial managerial responsibility or expertise. This situation creates a number of organisational and functional issues which must be addressed before the FAEB becomes an independent and economically viable entity. However, even during initial transition phases, the FAEB must understand the total cost of doing business and take control of appropriate revenue and cost management functions.

In the financial management area, the FAEB should consider the following important issues:

- o FAEB does not participate in the development of business plans or financial objectives.
- o Current accounts may not accommodate effective "Cost Center" management and reporting.
- o WAPDA performs critical budgeting functions.
- o FAEB uses WAPDA's priorities to allocate budgeted funds.
- o WAPDA maintains asset and long term liability accounting records.
- o The actual costs of power delivered to the Faisalabad area are not clearly segregated or adequately accounted.
- o The actual costs of services provided by WAPDA are not adequately accounted. WAPDA's overheads are proportioned to existing Cost Centers on a percent of expenses basis.
- o FAEB has little or no control over cash flow.
- o Cost control and cost reduction will be dependent on productivity improvements initiated through organisation efficiencies, quality control and process redesign.
- o FAEB cannot institute organisational changes or process improvements without WAPDA's consent.
- o FAEB has little or no expertise in financial management.

2. Financial Management Overview:

'A corporate electric distribution company will include comprehensive financial planning and managerial functions. In fact, the financial management function is among the most important for an ongoing corporation. Finance will be intimately involved in the development and implementation of the firm's "vision". Financial staff will work closely with the firm's management to define the focus of the organisation and prepare the firm's strategic plan.

The strategic plan will address specific financial goals such as:

Revenues
Operating Income
Net Income
Return On Assets
Return On Equity
Debt / Equity Ratios
Times Interest Earned Ratios

The financial goals will be derived from and integrated with the firm's operating strategies. As a monopoly provider of electric distribution services, the Faisalabad Area Electricity Board will focus on two principal objectives:

(1) Provision of reasonably priced electric power to all qualified customers within the FAEB service territory.

(2) Distribution of purchased power to individual consumers according to their needs and negotiated contracts.

Several issues will be addressed by the firm's strategic plan and management objectives. These issues include, but are not limited to the following:

- Operating efficiencies required to meet income and return on asset objectives, including, but not limited to: controlling labour costs, reducing technical system losses, eliminating theft, minimizing the age of accounts receivables.

- Management of demand growth within specific service quality and price constraints.

- Development of options that enhance the long term operating success of the firm, including, but not limited to power purchase agreements, cogeneration alternatives for indigenous industries, load shaping and demand side management programs.

The Finance organisation will be responsible for negotiating commercial loans, issuing stock and raising the capital required to sustain the operation and growth of the firm. In addition, the Finance organisation will be responsible for managing and monitoring the day-to-day

commercial functions, including budgeting, cash flow management, revenue assessment and collection, accounting, and financial reporting, among other issues.

3. Current Organisation and Responsibilities:

Financial Management:

Currently, the Faisalabad Area Electricity Board performs a very small number of functions attributed to a comprehensive financial management organisation. The accounting organisation is generally responsible for all bookkeeping activities, including trial balances, accounts receivable, accounts payable, income and expense statements and other reports required by WAPDA. Commercial, revenue assessment and collection activities are handled by a number of different groups including Accounting, Divisional functions such as the Revenue Officer, and Bill Distribution, and XEN and Sub-Division functions such as the Meter Reader and SDO.

Most of the financial planning occurs within the Finance organisation of WAPDA in Lahore. WAPDA's Finance organisation is also responsible for determining the need for and potential sources of funds. Proforma PC-1s are prepared by the operating organisations, such as the Managing Director of Distribution for all capital programs, including Distribution Rehabilitation, Rural Electrification and Distribution Expansion. Inputs to these documents are developed by the WAPDA Finance, Distribution Planning and Engineering and other centralised organisations. Generally, the PC-1 documents do not define growth or system improvement objectives for specific Area Boards. Rather they are organised according to political needs and boundaries, and the Government of Pakistan makes the final decision with regard to the allocation of funds to specific PC-1 projects. It is important to note that the World Bank has imposed significant restrictions on the GOP and WAPDA, requiring that WAPDA provide at least 40 percent of its capital expenditures from internally generated funds. Clearly, any decision to corporatise the Faisalabad Area Electricity Board must include a thorough evaluation of the FAEB's contribution to WAPDA's net income in conjunction with FAEB's portion of WAPDA's capital requirements.

Yearly budgeting is by the General Manager of Operations (Distribution). Budgets are developed by WAPDA's Cost Accounting Cell based on its analysis of expected revenues, approved capital investment programs,

previous year's expenditures and any special requirements communicated by the various Area Board Cost Centers. The General Manager Operations allocates a budget to each Area Board and to general account categories. For example, the 1993-1994 "Budget Grant" for the FAEB is defined by two documents issued by the General Manager Operations. The FAEB simply distributes these allocations to "lower formations".

FAISALABAD AREA ELECTRICITY BOARD

BUDGET GRANT, 1993-1994[2]

Operating Expenses Account:

i)	General Establishment	341.000 Rs in millions
ii)	Maintenance Expenses	110.000
iii)	Commercial Operation	165.000
	Total	616.000

Public Sector Development Program & Distribution of Power:

Distribution of Power (Urban)	167.800 Rs in millions
Distribution of Power (Rural)	350.200
Renovation/Augmentation	178.700
Total	696.700

Capital investments and discretionary budgets must meet certain criteria. The Proforma PC-1s include an extensive analysis of the life cycle benefits and costs of each proposed project. Discounted (using 10 and 12 percent cost of capital) Benefit/Cost ratios must be greater than one (1), and income generated from the sale of electricity must be sufficient to meet the 40 percent self financing covenant for annual power sector development expenditures. Specific, Area Board projects are evaluated by the FAEB Planning and Engineering organisation. An example is the Energy Loss Reduction program which requires a five to one benefit/cost ratio before budgeted funds can be released for actual project implementation.

[2] The Budget Grant and detailed allocations by FAEB have not been reconciled at the time of this report. Discussions regarding 1994 estimated costs are based on FAEB's unreconciled estimates.

Many of the basic economic assumptions made by WAPDA will not be appropriate for an independent electric distribution company. The most obvious is the assumption by WAPDA that increased economic activity and attendant tax revenues represent a real economic benefit that can be used to justify rural electrification projects. The new distribution corporation must be capable of evaluating the total life-cycle costs to develop and maintain rural distribution systems, and the income and government subsidies required to meet the corporation's return on investment and return on assets objectives.

WAPDA has also projected an increase in electric tariff rates from an average of 1.5344 paisa per kilowatt hour in 1994 to 2.2465 paisa per kilowatt hour in 1998, specifically to meet the 40 percent self financing covenant. FAEB currently contributes approximately 14 percent to WAPDA's total revenues and between 17 and 22 percent of WAPDA's total income, while using approximately 13 percent of WAPDA's total power generation. See Table 11.2

Table II.2
FAISALABAD AREA ELECTRICITY BOARD
CONTRIBUTION TO WAPDA'S TOTAL KWh RECEIVED, REVENUES & INCOME

Year	% Total KWh Received	% Total Revenue	% Total Income
1990-1991	12.7	13.9	17.5
1991-1992	12.8	14.0	22.0
1992-1993			
1993-1994			

Obviously, WAPDA must evaluate the impact of corporatisation and privatisation on its ability to raise capital and fund investment programs. A new distribution company will have a significantly different set of variables to consider:

- **Rate stability:** The ability of a distribution company to consistently control costs and tariffs can have a significant impact on the operating and investment decisions of large electric users. A commitment to rate stability reduces long term operating cost

estimates and enhances profit potential thus making the Faisalabad area more attractive for industrial investment and growth.

- **Service quality and reliability:** Currently, many of the industrial customers in the Faisalabad Area incur significant costs for standby power generation systems and equipment in order to maintain plant production during WAPDA's frequent power outages and voltage fluctuations. A key attraction for these industries would be a reduction in plant investment based on the availability of reliable, high quality power supplies.

- **Maximizing returns on investment within the constraints imposed by the regulatory compact:** The Managing Director of Distribution has proposed the following Internal Rates of Return (IRR) for various PC-1 distribution system projects:

WAPDA Program	Projected IRR
Distribution Expansion	28.33 %
Distribution Rehabilitation	17.75 %
Rural Electrification	7.72 %

- **Tradeoffs between capital investments, demand and load management programs, and operating and maintenance program improvements.**

- **Power purchase and distribution options and flexibility:** Fuel, generation and transmission costs account for more than 75 percent of the delivered cost of electricity. FAEB will be interested in minimizing these costs to the greatest extent practical. While WAPDA will provide the single source of power for the immediate future, FAEB will eventually have the option to pursue least cost power purchases from independent power generators, indigenous cogenerators, and potentially FAEB's own generating stations. In addition, FAEB's industrial customers will be able to contract for their own power and depend on FAEB for delivery. FAEB must be prepared to compete effectively, maintain and expand its customer base, and achieve its return on investment and assets objectives.

Commercial Activities:

The Commercial Operations of Faisalabad and the seven other Area

Electricity Boards are clearly defined by the Commercial Procedures, 4th Edition, December 1991. These procedures provide specifications for connection applications and agreements, billing, bill adjustment, bill collection, debtors control, disconnection, applications for reconnection, accounting and financial reporting, and Computer Center billing. The procedures describe the commercial responsibilities of the Director Commercial, Director Accounts, Superintendent Engineer, Executive Engineer, Sub-Division Officer, Revenue Officer, Meter Readers, Bill Distributors, Bill Collectors, and Deputy Director Commercial, among others.

In general, Faisalabad executes the prescribed commercial functions in an exemplary manner. However, the assessment and revenue generation activities are complex and resource intensive, and there are several opportunities for process improvements. Meter reading is performed by meter readers as well as SDOs, XENs and SEs depending on the specific customer class. Apparently this system was established to prevent corrupt practices, however it is not clear this objective has been achieved. The meter reading process clearly diverts Sub-division, Division, and Circle management attention to routine functions that can be performed by responsible Meter Readers. Meter Readers currently read approximately 50 meters per day. Productivity is impacted by the lack of transportation vehicles. These impacts could be reduced and the overall productivity of the organisation improved if meter reading was combined with bill distribution. Apparently there is a significant amount of resistance to these types of organisational changes.

The Computer billing process already includes on-line checking for potential input errors. This process could be upgraded and expanded to accommodate many of the routine checking and verification functions performed by the Revenue Officer and Accounting Clerks. All bill collection records could easily be transferred using electronic media versus hard copy accounting records and manual inputs. Current plans call for the installation of computer terminals at each revenue office so that billing information can be input as close to the customer as possible. Faisalabad should immediately pursue additional process improvements with specific emphasis on automation.

Billing services are provided by three Computer Centers in the Faisalabad area, one each for the Faisalabad City Circles, Jhang and Sargoda. Each of the Computer Center reports to the Director of Computers at FAEB who, in turn, reports to the General Manager. FAEB was charged 20.9

million Rupees for billing services during the year ending June 1993. This is equivalent to 1.45 Rupees per customer per month. (Bank charges for the collection and processing of bill payments were more than 2 Rupees per customer per month.) Based on interviews with the Faisalabad Circle Computer Center managers, each center is capable of upgrading and or modifying software, upgrading computer operating systems and generally managing the day to day activities necessary to prepare and record the billing and revenue collection information for more than 1.2 million customers on a monthly basis. A corporate Faisalabad Area Electricity Board would takeover the responsibility for the Computer Centers and potentially expand the organisation's functions to include market analysis and management information activities. These activities may include:

- Evaluation of customer usage patterns and pricing strategies.
- Evaluation of system operating conditions, including load patterns, technical losses, and potential theft losses.
- Evaluation of customer demographics, growth trends and changes in customer requirements.
- Support for engineering and financial management functions.
- Management of the corporation's management information and computer systems.

In addition to billing services, the Faisalabad Computer Centers provide comprehensive reporting and data base support for inventory management and control, and employee pay rolls. More than 825 Million Rupees of materials and equipment flowed through the Faisalabad Stores during the year ending June 1993. Faisalabad has instituted a comprehensive, computerized inventory management and control system that effectively integrates all regional and field stores in the Faisalabad service territory. In addition, the computer system provides on-line quantity and value information, turnover rates, and minimum and maximum flagging capabilities. The pay roll system efficiently monitors and reports the time, salary and benefits for more than 12,500 employees, each month.

Computer services costs have averaged approximately 4 percent of the total System Operations and Maintenance costs, which is about 50% of

the open market cost of purchasing this service. However, marginal benefits derived from additional automation could exceed marginal costs by a significant amount, even after market rates are considered.

Accounting:

FAEB's accounting procedures were established in 1958. Eighty five accountants and account clerks perform typical accounting activities under the Director Accounts. An additional 160 Account Clerks support the assessment and revenue collection functions in each of the 16 Divisions. All accounting data is recorded and reported manually. There are no computers or automated accounting processes.

In general, the accounting transactions follow generally accepted accounting principles, and the numerous accounting reports prepared by the Accounting organisation appear to be comprehensive and accurate. Financial planning, cash flow management, budgeting and audit functions are performed by WAPDA. FAEB provides WAPDA with monthly trial balances and daily cash reports, serving more as a supplier of information as opposed to analytical, planning and financial management. Operating statistics and comparisons of actual and budgeted expenditures is done quarterly, however the timeliness of these reports does not adequately support budgeting management, corrective action planning and work-around evaluations. WAPDA maintains the centralised fixed asset accounting system which includes distribution asset records down to the level of each feeder, showing the total number of poles, transformers and meters, length of conductors and services. Annual depreciation is calculated using WAPDA's composite rate of 3.5 percent per year. Annual depreciation amounts are provided by WAPDA for general account categories such as Station Equipment, Structures and Poles, Over-head Lines, among others. The FAEB Accounting organisation simply records the total annual depreciation amount in its trial balance. Complete financial statements are prepared annually, but again the account closing and reconciliation process requires up to five months, reducing the value of accounting reports in terms of effective management.

The FAEB Accounting Department does not account for the cost of purchased power at any level of detail. These costs are proportioned by WAPDA based on the AEB KWh received as a percent of the total KWh received. While this methodology is logical, it does not accurately account for the true cost of delivering power to Faisalabad.

WAPDA overheads, including the cost of all services provided by WAPDA, are also distributed as a percent (1%) of the total FAEB operating expenses. Clearly WAPDA accounts for the costs of each of its functions within the central organisation. However, these detailed costs are not accurately charged to user organisations such as FAEB.

Auditing:

The internal audit function in the FAEB is conducted through a WAPDA office which does not report to the FAEB. Three types of internal audits are conducted, these include revenue, connections and expenditures. No computer audit work is conducted, although computer generated data summaries are reconciled against accounting reports, and there are plans to train the Computer Center staff in computer auditing techniques.

- Revenue audits are performed at each Revenue Office on a quarterly basis to detect errors in billings and to formulate claims on consumers. For the year ending June 1991, 29.83 million Rupees of undercharges were detected, representing 11.9 percent of the total amount of under charges detected for the entire WAPDA system. Through 1991, Faisalabad had accumulated 197.55 million Rupees of detected undercharges or 10.1 percent of the total for all Area Boards. Faisalabad has been able to reconcile and realize 128.55 million Rupees of these detected undercharges, or 65.1 percent of the total amount detected for Faisalabad. The average reconciliation and realization rate for the WAPDA system, including Faisalabad, is 60.6 percent, with a range from 76.3 percent in Lahore to 6.0 percent in Quetta.

- Connection audits seek to verify, by visits once per year, that applications for service, job orders, and contribution in aid are correctly computed and collected. Faisalabad's target for new connections during the fiscal year ending June 1992 was 97,330. Faisalabad actually completed 89,489 of these connections or 91.9 percent of the target. The average percent completed for the WAPDA system, including Faisalabad was 80.9 percent, with a range from 119.5 percent in Quetta to 63.0 percent in Islamabad.

- Expenditure audits cover all types of expenditures, including payrolls, stores and construction work.

4. Historical Financial Performance:

Operating Performance:

Kilowatt hours sold in the Faisalabad Area Electricity Board have increased at an average rate of 9.3 percent per year since 1990. In 1993 FAEB sold 4.24 billion kilowatt hours of electrical energy. Revenues from electricity sales have increased at a rate of 19.5 percent per year since 1990. FAEB's 1993 revenues from the sale of electricity totaled 6 billion Rupees, or an average of 1.42 Rupees per kilowatt hour. The average tariff per kilowatt hour sold has increased at an average rate of 9.2 percent per year since 1990. Table II.3 provides a breakdown of kilowatt hours sold and revenues received by class of service:

Table II.3
FAISALABAD AREA ELECTRICITY BOARD
KWhs & REVENUES by CLASS OF SERVICE, 1992-1993

CLASS OF SERVICE	KWh (000)	PERCENT OF TOTAL KWh	REVENUES (000)	PERCENT OF TOTAL REVENUES	TOTAL Rs per KWh
RESIDENTIAL	1,277,066	30.1	1,744,470	28.9	1.36
COMMERCIAL	157,114	3.7	994,020	16.5	6.33
INDUSTRIAL	1,833,437	43.2	2,944,000	48.8	1.61
AGRICULTURAL	953,264	22.5	280,470	4.7	0.29
PUBLIC LTG.	20,198	0.5	68,210	1.1	3.37
TOTALS	4,241,079		6,031,170		1.42

Line Losses:

WAPDA's Area Electricity Boards reported line losses averaging 13.0 percent for the period ending June 30, 1992. In 1992 line losses for the eight Area Boards ranged from a low of 8.1 percent in the Islamabad Area Board, to a high of 17.0

percent in the Quetta Area Board[3] Faisalabad's estimated line losses for 1992 were less than the reported Power Wing average at 8.6 percent. The largest line losses are attributed to Faisalabad's urban electric system. In 1992, Faisalabad's urban electric system accounted for 61.6 percent of the kilowatt hours received and 77.1 percent of the line losses. This compares to the Power Wing average where the urban electric system accounts for 60.9 percent of the total kilowatt hours received and 57.1 percent of the total line losses.

As Table II.4 illustrates, Faisalabad has experienced system losses between 7.9 and 8.7 percent during the period from 1989 through June 1993. During the one year period ending June 1993, Faisalabad received 4,655 million kilowatt hours of electricity and billed 4,249 million kilowatt hours, incurring an 8.7 percent loss.

Table II.4
FAISALABAD AREA ELECTRICITY BOARD
DISTRIBUTION LOSSES

YEAR	UNITS RECEIVED (MILLION KWh)	UNITS SOLD (MILLION KWh)	PERCENT LOSSES
1989-1990	3,558	3,256	8.5
1990-1991	3,887	3,580	7.9
1991-1992	4,328	3,957	8.6
1992-1993	4,655	4,249	8.7
1993-1994 est.			

Since 1989, Faisalabad and WAPDA have invested approximately 376 million Rupees in renovation and augmentation activities, including the Energy Loss Reduction program. In fact, the capital expense for Renovation and Augmentation has increased by an average of 58 percent per year since 1990. The 1993-1994 budget calls for a 6.8 percent increase over the previous year's expenditure to 178.7 million Rupees.

[3] The Divisions Circles and AEBs Wise Power Wing Performance Analysis for the Year ended 30-6-92 concludes that the Area Boards manipulated line loss data resulting in calculated load factors that were either impossible or unrealistic. The Performance Analysis includes an estimate of the real line losses based on maximum possible load factors for various electric users. These calculations resulted in an average loss of 14.3 percent for the WAPDA system, with a range between 8.2 percent for Islamabad to 23.8 percent for Quetta.

The Planning and Engineering organisation has made substantial progress in identifying energy loss reduction opportunities. Table II.5 illustrates the progress achieved to date:

Table II.5
FAISALABAD AREA ELECTRICITY BOARD
ENERGY LOSS REDUCTION PROGRAM

TYPE OF LINE	TOTAL POSSIBLE PROPOSALS	PROPOSALS EVALUATED	PROPOSALS COMPLETED
11Kv	427	200	17
400v	2,700	2,700	1,40

Originally, proposals were accepted if they could demonstrate a calculated benefit/cost ratio of five or greater. Many of the proposals evaluated could not meet this criteria. The acceptance criteria has since been adjusted to include all proposals which have a calculated benefit cost ratio of at least one. The Proforma PC-1, "Distribution Rehabilitation, 1993-1998" indicates that Faisalabad has achieved an annual energy savings of 622,686 kilowatt hours per proposal for High Tension (HT) feeders (11Kv), and 20,136 kilowatt hours per proposal for Low Tension (LT) feeders (400v), or a total of 135 million kilowatt hours, 2.9 percent of the total kilowatt hours received during the year ending June 1993. This is equivalent to revenues of approximately 192 million Rupees per year, or 2.7 percent of total revenues, based on the average price per kilowatt hour (1.42) charged during the 1992-1993 fiscal year. According to the Director of Planning and Engineering in Faisalabad, the energy savings are calculated. Actual performance is not measured to determine whether it meets the design and acceptance criteria. Indeed, the overall performance of the FAEB seems to indicate little or no change in technical system losses during the last three to four years. As illustrated by Table II.3 the growth in kilowatt hours received is essentially equal to the growth in kilowatt hours sold. Two conclusions can be drawn:

(1) Faisalabad has not achieved the line loss savings that were calculated for the completed/installed Energy Loss Reduction proposals.

(2) Unauthorized loads are being added to the Faisalabad system at a faster rate than line loss reduction program proposals are implemented.

It is critical that Faisalabad monitor the actual performance of its completed Energy Loss Reduction program proposals to assure it is receiving the expected benefits in accordance with proposal acceptance criteria. Faisalabad must further evaluate the application of limited resources and potentially put a greater emphasis on reducing unauthorized use of electric service.

Safety:

One of the goals of the FAEB should be to improve safety performance and thereby improve customer relations, improve employee moral and performance, and reduce liabilities. Employee and public safety have shown some improvement over the last four years. During the year ending June 30, 1993, Faisalabad recorded sixteen fatal and nine non-fatal accidents. This compares to 26 fatalities and 13 non-fatal accidents during the previous year. Faisalabad's safety record is particularly disconcerting with regard to public safety. During the fiscal years 1991 and 1992 Faisalabad accounted for at 22 percent of all WAPDA electrical fatal and non-fatal accidents. Safety improvements will depend on the Area Board's commitment including more frequent and more effective safety training programs, immediate and more effective disciplinary actions, hiring policies that require specific reading skills, and greater attention to quality control and safe work practices. FAEB's safety record will present a tremendous liability and financial risk in a corporate or private business environment where FAEB will not enjoy the same protections as a government entity.

Operating Revenue:

FAEB's distribution operating expenses per KWh received have been increasing at an average rate of 4.1 percent per year since 1990. In 1993, distribution expenses per kilowatt hour received represented 15.8 percent of revenues. Allocated fuel, generation, transmission and WAPDA overhead costs increased by 18.7 percent from 1991 to 1992. These costs represented 59.4 percent of revenues in 1992. Table II.6 provides a breakdown of costs per KWh which were incurred by the Faisalabad Area Electricity Board during the period from July 1989 through June 1993.

Table II.6
FAISALABAD AREA ELECTRICITY BOARD
OPERATING COST (paisas) per KWh RECEIVED

Operating Cost Description	1990	1991	1992	1993
Revenues	99.36	111.56	121.28	129.55
Distribution O&M	11.18	13.01	14.01	14.83
Distribution Depreciation	3.84	2.62	2.67	3.16
Distribution Interest	3.12	3.29	2.57	2.49
Total Distribution Costs	**18.14**	**18.92**	**19.25**	**20.48**
Fuel		29.92	33.48	
Generation		20.33	23.50	
Transmission		10.90	12.49	
WAPDA Overheads		(0.45)	2.58	
Subtotal Fuel, Generation, Transmission Costs		60.70	72.05	
Total Operating Cost		79.62	91.30	
Net Contribution Margin		31.94	29.98	

The costs delineated above include an allocation of the total fuel, generation, transmission and WAPDA overhead costs based on the kilowatt hours received as a portion of the total KWh received by the eight Area Boards. Eventually the FAEB may include specific grid stations and high tension lines which are currently included in the allocated transmission costs. These costs (132Kv/66Kv) should be segregated and included in the costs of operation for FAEB.

The Net Contribution Margin identified above for 1991 and 1992 does not account for the allocation of profits to generation and transmission assets. If the contribution

margin was proportioned to Generation, Transmission, and Distribution accounts based on operating costs, FAEB would record net profits (before taxes) of 12.05 and 10.44 paisas per KWh received for the years 1991 and 1992 respectively. These profits represent a return on revenues of 10.8 and 8.6 percent respectively. The total FAEB contribution margin for the fiscal years 1991 and 1992 would equal 468 million and 451 million Rupees respectively. These earnings ***before taxes*** would result in the following important ratios:

	1991	1992
Times Interest Earned	3.66	4.07
% of Capital Requirements[4]	388%	165%

The percent of capital requirements (as calculated) indicates that FAEB is clearly capable of meeting the covenants and restrictions imposed by the World Bank. While these figures are impressive, an extensive study of actual contribution margins must be undertaken to verify the projected income of the FAEB. The study must include an allocation for taxes which would reduce earnings by 45 percent at the current corporate rate. In addition, the study must evaluate the real price of purchased power and the level of subsidies and tax benefits required to provide a reasonable return on investment in government programs such as Rural Electrification.

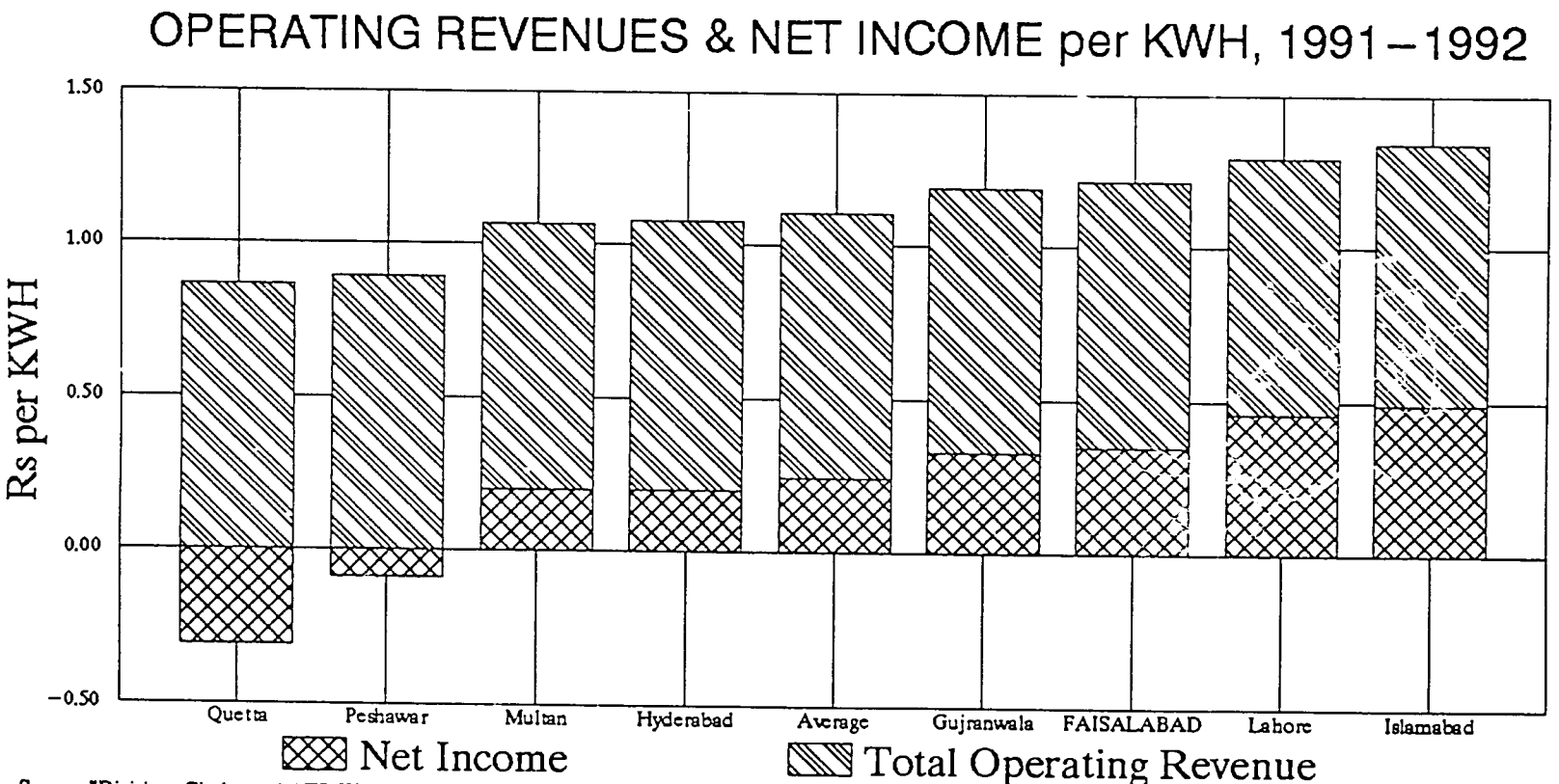
Faisalabad has out-performed the other Area Boards in terms of operating revenues and income per KWh received. Figure II.7 illustrates Faisalabad's standing relative to the seven other WAPDA Area Boards. This performance is a direct result of Faisalabad's strong markets for commercial and industrial electrical energy, which return above average revenues per KWh sold.

Operations and Maintenance Expenses:

WAPDA's Area Electricity Boards' 1992 operating and maintenance expenses averaged 13.1 paisas per kilowatt hour received or 11.2 percent of revenues. Operating and maintenance expenses for the eight Area Boards range from a low of 10.9 paisas per kilowatt hour received or 8.1 percent of revenues in the Lahore Area Board, to a high of 15.1 paisas per kilowatt hour received or 18.7 percent of revenues in the Peshawar Area Board. Faisalabad's operating and maintenance expenses have been very close to the Power Wing average at 13.5 paisas per kilowatt hour sold or

[4] The % of capital requirements calculation adds depreciation to net income to determine a total cash flow. The total cash flow is then divided by the actual capital expenditures for the fiscal year (not including GSO capital expenses).

FIGURE 11.7



Source: "Divisions Circles and AEB Wise Power Wing Performance Analysis for the Year Ended 30–6–1992"

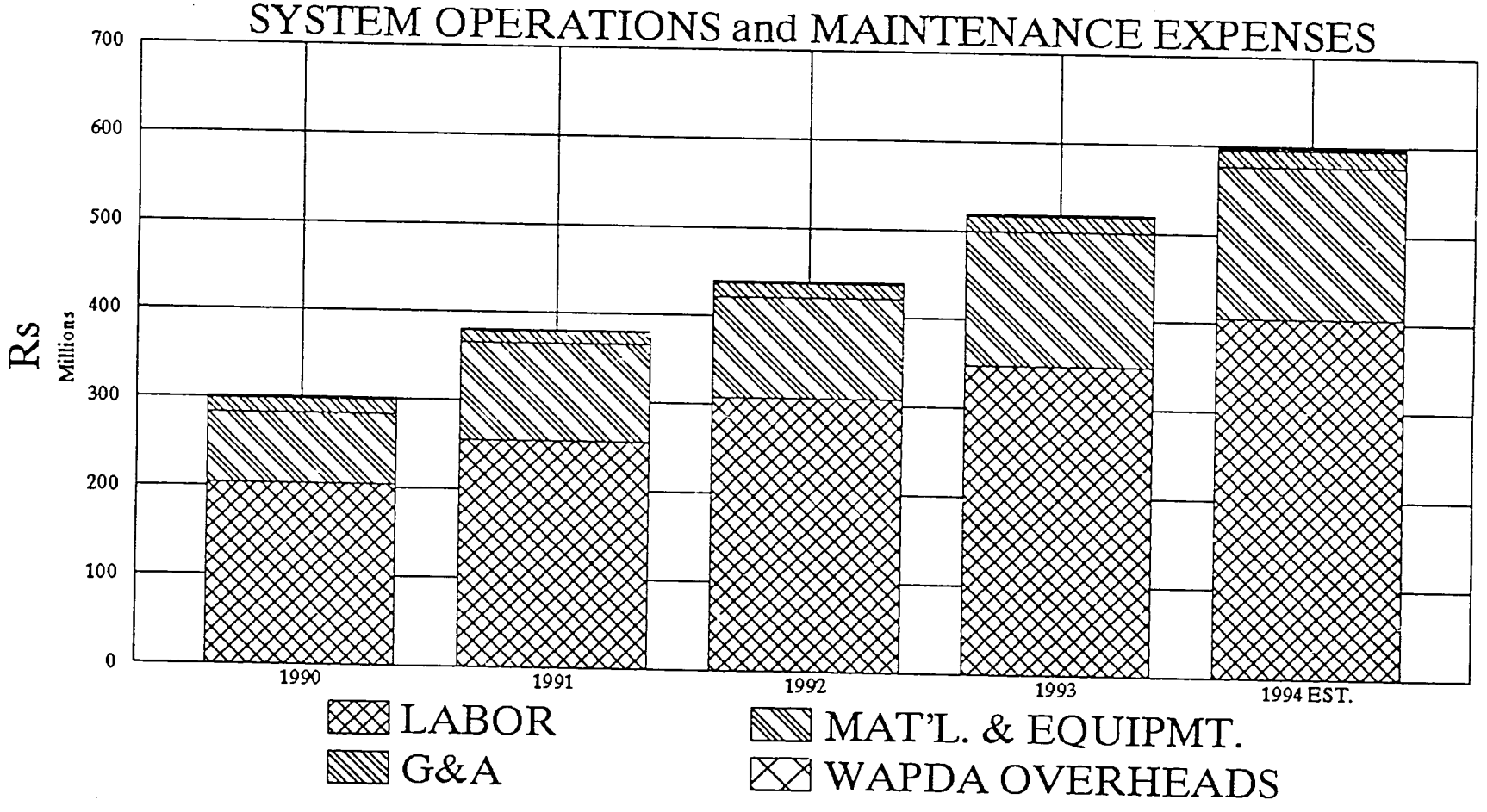
10.6 percent of revenues. In 1993, Faisalabad incurred Operating and Maintenance expenses equivalent to 14.8 paisas per kilowatt hour received, which represents a 9.6 percent increase in O&M costs per kilowatt hour received. Faisalabad's 1993 O&M expenses accounted for 9.8 percent of 1993 revenues.

Faisalabad Area Electricity Board Operation and Maintenance expenses can be segregated into two distinct functions, System Operations and Maintenance, and Commercial Operations. System Operations and Maintenance (SO&M) expenses have accounted for an average of 75 percent of the total Operations and Maintenance expenses (not including depreciation, interest or bad debt expenses) for the Faisalabad Area Electricity Board from 1990 through 1993.

System Operations and Maintenance expenses have been increasing at an average rate of 20 percent per year since 1990. Figure II.8 illustrates the breakdown of SO&M costs by Labour, Material and Equipment, General and Administrative and WAPDA Overheads. Costs have been increasing in each of these major categories. Labour expenses have increased at an average rate of 20 percent per year since 1990. Material and equipment expenses have increased at an average rate of 25 percent per year.

Labour costs represent an average of 67 percent of the total SO&M costs. The number of SO&M personnel has not changed since 1986. However, Pay and Allowances have increased rapidly over the last several years. P&A for Line and Technical Staff, including the Supervisory staff (account code 13) have increased by an average rate of 19 percent per year since 1990, and represent 65 percent of the total labour costs for SO&M in 1993. This increase is significantly greater than the rate of inflation, however pay rates within FAEB and WAPDA remain less than comparable rates in private industry.

FIGURE 11.8

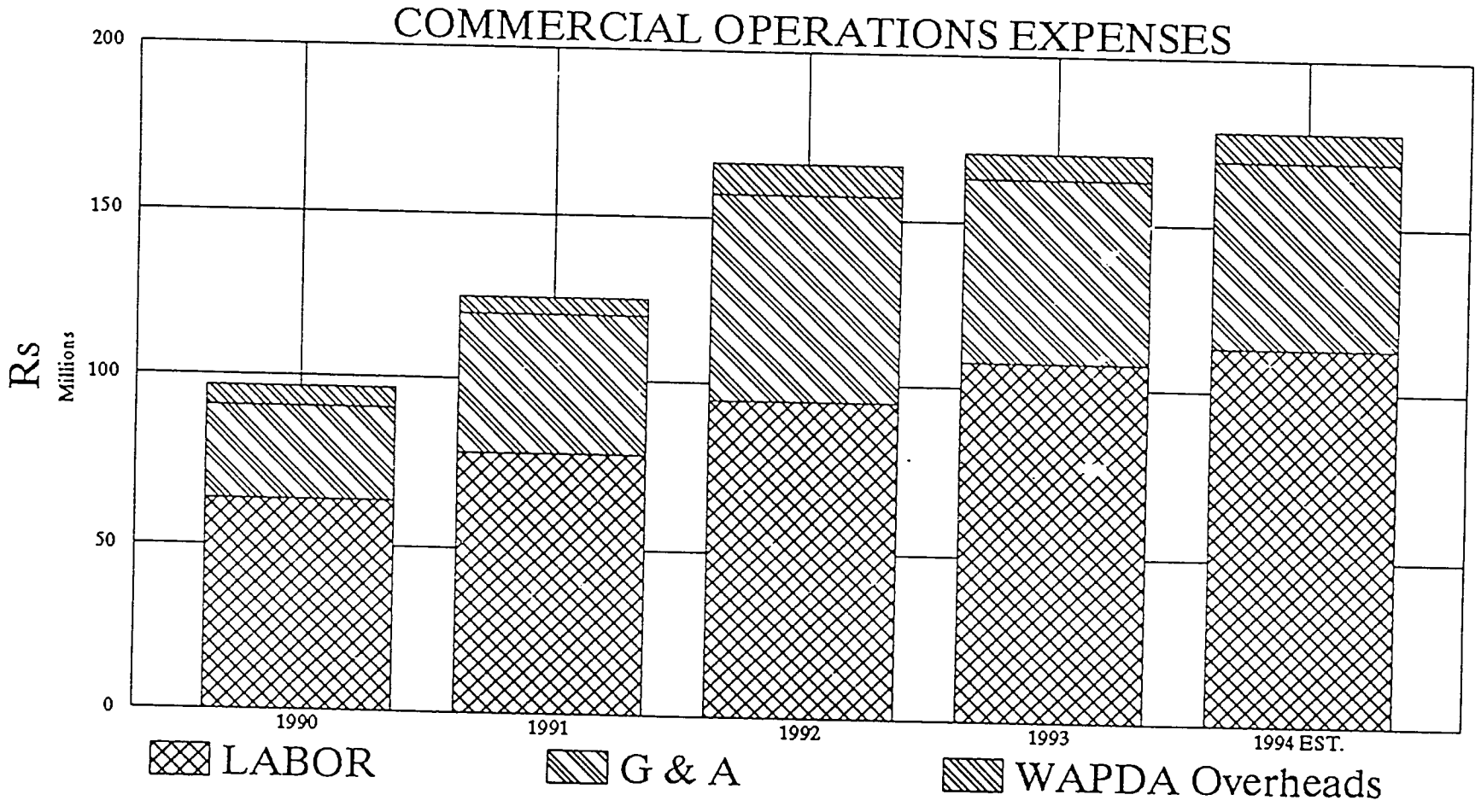

SYSTEM OPERATIONS and MAINTENANCE EXPENSES
Rs
Millions
700
600
500
400
300
200
100
0
1990
1991
1992
1993
1994 EST.
LABOR
G&A
MAT'L. & EQUIPMT.
WAPDA OVERHEADS

The cost of Commercial Operations represents approximately 25 percent of the total Operations and Maintenance expense. Commercial Operations costs have increased significantly since 1990, averaging 22 percent per year. Figure II.9 illustrates the breakdown of commercial costs by Labour, G and A, and WAPDA Overheads. Costs have been increasing in each of these major categories.

Commercial labour expenses have increased at an average rate of 19 percent per year since 1990. G and A expenses, which account for approximately 33 percent of commercial expenses and include bank, legal and computer charges, have increased at an average rate of 31 percent per year. Pay and Allowances for Meter Readers, Bill Distributors and Meter Inspectors has increased at a rate of 21 percent per year since 1990 and represents 30 percent of the total labour cost for Commercial Operations. Pay and Allowances for the clerical and support staff has increased by an average of 18 percent per year since 1990. The combined Pay and Allowances for these two labour categories (meter readers, bill distributors, meter inspectors, clerical, and support staff) accounts for 51 percent of the total labour cost for Commercial Operations.

While labour rates have increased, the total Faisalabad labour force has numbered close to 12,530 since 1986. The apparent freeze on hiring has resulted in a significant increase in productivity. The number of FAEB customers has increased by 7 percent since 1992, and kilowatt hours sold have increased by an average rate of 9.3 percent per year since 1991. The growth in the number of customers and electricity consumption, combined with increasing tariffs have lead to an average growth in Faisalabad's revenues of 19.5 percent per year since 1990, virtually equivalent to the growth rate in labour costs. However, the raising cost of labour presents important financial risks to the Faisalabad Area Electricity Board. To maintain rate stability, improve service quality and reliability, continue service growth, and generate acceptable rates of return on assets and investments, FAEB must continually improve worker productivity. The new corporation must consider the functions and skill levels that will be needed to operate a cost effective distribution company. There are several areas which will require an increase in skill levels, as well as number of employees.

FIGURE 11.9


COMMERCIAL OPERATIONS EXPENSES
Rs
Millions
200
150
100
50
0
1990
1991
1992
1993
1994 EST.
LABOR
G & A
WAPDA Overheads

- Engineering will continue current activities including design and planning of system operation improvements, Energy Loss Reduction initiatives, and distribution system expansion. In addition, engineering will become responsible for long term system design planning (beyond the one year currently used), load management engineering, development and implementation of design, operations and maintenance standards, development of equipment and material specifications, quality assurance and control, and eventually design and maintenance engineering functions associated with the operation and maintenance of 132Kv/66Kv/11Kv grid stations.

- Financial Management will become much more than an accounting function. The new corporation will be required to prepare detailed proforma business plans, evaluate power purchase agreements, develop financing strategies, negotiate commercial loans and long term debt, issue stocks, and prepare the detailed financial reports required by various regulatory agencies that oversee the activities of publicly held corporations. Much of the expertise required to carry-out these functions does not currently exist within the FAEB organisation.

- Customer relations will become increasingly more important. FAEB's marketing and customer relations functions should be staffed with individuals who understand the issues affecting customer satisfaction. These individuals must be capable of working with FAEB's operating and management organisations to generate appropriate implementation strategies, and maintain the FAEB customer base in both consumer power and bulk power markets.

In addition to increased costs for employee wages and benefits, the FAEB may incur increasing costs to fund employee retirement and pension programs.

Material and Equipment Costs:

Material and equipment costs represent an average of 19 percent of the total SO&M costs. Material and equipment costs have been increasing at an average annual rate of 25 percent per year since 1990. System growth, inflation and exchange rate fluctuations have contributed to the increase in material and equipment costs. WAPDA's purchasing power, including the guarantees provided by the Government of Pakistan, have had a significant and positive impact on material and equipment cost control. A separate or private distribution company may not be capable of achieving the same cost savings. These risks must be thoroughly evaluated as WAPDA and FAEB prepare various proforma scenarios.

Capital Expenses:

Actual capital expenses have been increasing at an average rate of over 100 percent per year since 1991. 1993 capital expenses totalled 584 Million Rupees. More than 75 percent of these expenses were accounted in material and equipment accounts. Capital expenses have increased significantly in each of the three major categories, including Development of Power, Village Electrification, and Renovation/Augmentation. Table II.10 illustrates the capital expenses recorded per kilowatt hour received during the past four fiscal years.

Table II.10
FAISALABAD AREA ELECTRICITY BOARD
CAPITAL EXPENSES per KWh RECEIVED (Paisas)

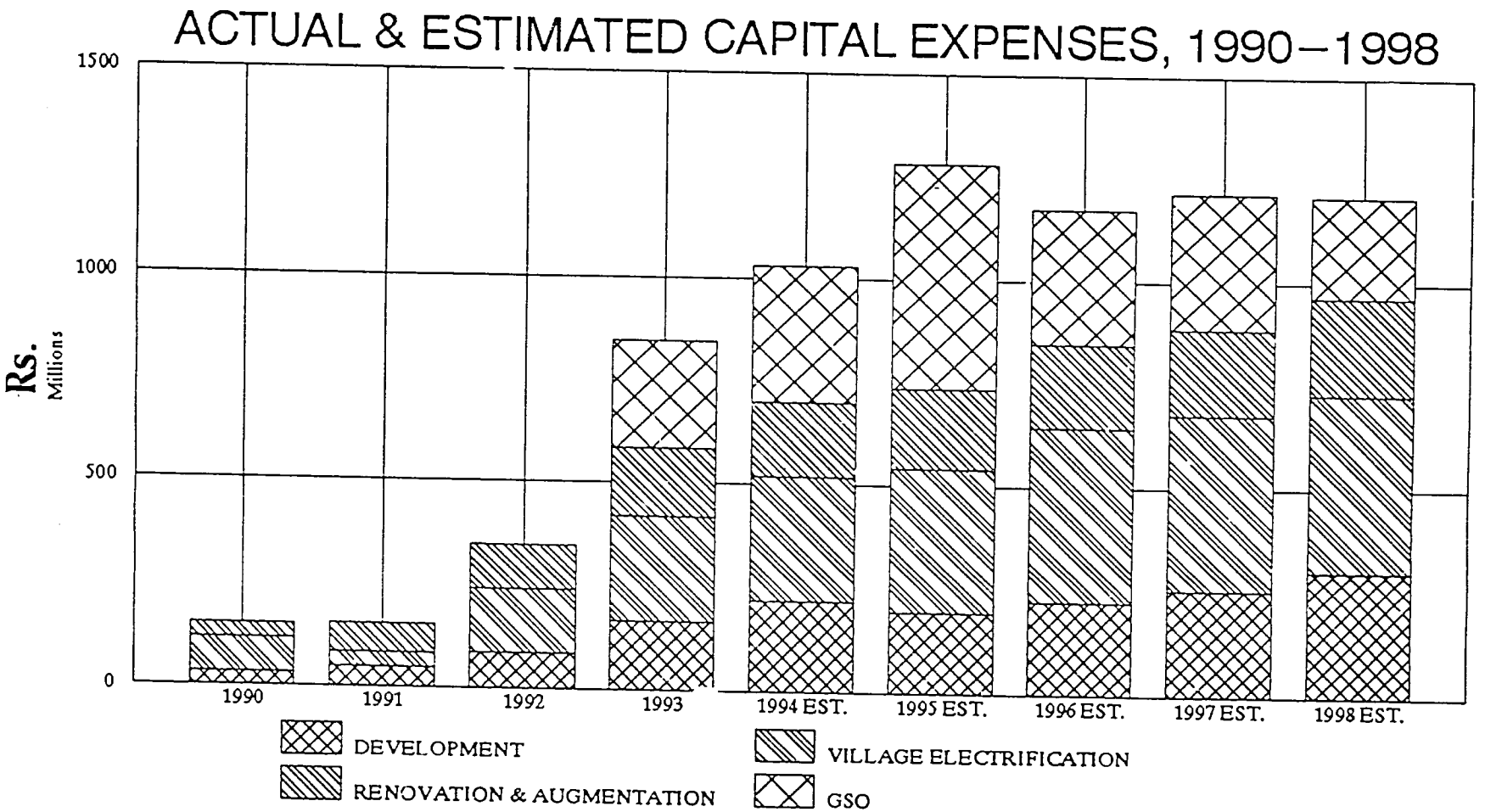
Capital/Depreciation Expense	1990	1991	1992	1993
Development of Power	0.87	1.18	1.93	3.47
Village Electrification	2.26	0.87	3.49	5.47
Renovation/Augmentation	0.91	1.74	2.52	3.60
Total Capital Expense	**4.04**	**3.79**	**7.94**	**12.54**

WAPDA has begun the considerable investment in system upgrades and expansion that will be required to reduce losses, improve the quality of service, and provide electric power to a growing market in the Faisalabad area. The Proforma PC-1 for Distribution Rehabilitation estimates overall increases of between 3 and 14 percent per year in capital expenditures through 1998. The PC-1 for Distribution of Power (Distribution Expansion) estimates overall increases of between 12 and 20 percent per year through 1998. WAPDA has calculated Internal Rates of Return (IRR) of 14.8 and 28.3 percent, respectively for these programs.

The Rural Electrification program is expected to require approximately the same level of capital investment for the next five years as expended during the fiscal year ending 1993. WAPDA has estimated this will result in an IRR of 7.5 percent.

In addition to the distribution system capital requirements, WAPDA has also projected significant capital expenses for grid station expansion and augmentation. Figure II.11 illustrates the breakdown of actual capital expenses for each of the past four years, and the estimated capital expenses, based on approved Proforma PC-1s

FIGURE 11.11


ACTUAL & ESTIMATED CAPITAL EXPENSES, 1990–1998
Rs.
Millions
1500
1000
500
0
1990
1991
1992
1993
1994 EST.
1995 EST.
1996 EST.
1997 EST.
1998 EST.
DEVELOPMENT
RENOVATION & AUGMENTATION
VILLAGE ELECTRIFICATION
GSO

and Planning Power programs. Foreign exchange requirements for capital projects vary, however, the average foreign exchange requirement is approximately 45 percent.

Procurement and purchasing, foreign exchange, and loan covenants and restrictions will have a significant impact on FAEB's operating and investment strategies.

FAEB must evaluate its capital requirements with a clear understanding of real costs and expected returns, including government or tariff subsidies for programs such as Rural Electrification.

Asset Value:

The assessment effort conducted for this report included inspections of several grid stations and many kilometers of distribution lines. The physical assets of the FAEB where found to be mostly old and poorly maintained. Further discussions with various managers and supervisors of the FAEB organisation corroborated the conclusion that the firm's assets have very little technical or economic value. Clearly, FAEB must assess the useful life remaining for all assets, as well as the tradeoffs between capital investments in new equipment and increasing maintenance expenses, employee and public safety hazards, and the risks of lost revenues owing to forced system outages. This assessment should produce proforma income statements and balance sheets defining the real value of the firm.

There is a need for an accurate evaluation of assets for a number of purposes, including the transfer of these assets from WAPDA to a new subsidiary and for the setting of tariffs. Assets include fixed assets, receivables and stores. WAPDA records fixed assets at their historical cost and uses a composite depreciation rate of 3.5 percent per year. Based on this procedure the current, 1993 value of FAEB's fixed assets is 3,911 million Rupees ($130.4 million based on 30 Rupees per dollar). Table II.12 provides a breakdown of FAEB's total assets as of June 1993. (Long term liabilities and net worth information was not made available for this report.)

Table II.12
FAISALABAD AREA ELECTRICITY BOARD
STATEMENT OF ASSETS, JUNE 1993

Asset Description	Asset Value Rs millions
Cash	88.752
Receivables	153.341
Stocks	190.334
Work In Progress	131.883
Short Term Investments	4.064
Subtotal Current Assets	**568.374**
Fixed Assets	3,911.058
Long Term Investments	85.667
Subtotal Fixed Assets	3,996.722
Total Assets	4,565.096

5. Summary of Potential Issue Resolution Strategies:

FAEB's capability to manage financial functions will evolve and improve throughout the systematic transition process.

- WAPDA and FAEB should proceed immediately to define clearly the business and financial objectives of an independent, autonomous distribution Cost Center.
- Accounts and accounting processes should be established that facilitate the effective management of the distribution Cost Center.
- Appropriate personnel and expertise should be assigned to the FAEB Cost Center and given responsibility and accountability for financial management functions.

As the transition process proceeds, FAEB personnel and WAPDA representatives will work together to create a business entity that is fully responsible and accountable for revenue targets, cost control and contribution objectives. WAPDA and FAEB should consider the following:

- Specifically define the price for delivered power.

- Specifically define the price and performance criteria for WAPDA and potential contract services.

- Allow FAEB to develop and implement a comprehensive budgeting and budget control process including operations, maintenance and capital expenses.

- Provide the services or expertise required to manage cash flows, negotiate commercial lending agreements, issue stocks and bonds and generally raise the capital required to sustain and expand the distribution business.

- Develop comprehensive business and strategic plans including specific, quantified targets for:

  Revenues
  Operating income
  Net income
  Return on assets
  Return on equity
  Debt/equity ratios
  Times interest earned ratios

C. Human Resources

Any change in FAEB's organisation will create apprehension and concern for its employees. As FAEB transitions from its current operation to an accountable Cost Center and eventually to a corporate entity, employee support is critical. Managers and union employees must be kept well informed of the process, be allowed to participate in it and be provided with assurances about their livelihood. Resource issues during the transition to a Cost Center (Phase Two) and then to a corporatised entity (Phase Three) are discussed below:

Phase Two - Human Relations Issues:

Currently all management assignments to and within FAEB are made by WAPDA. Few appointments are greater than two years in duration. Interviewers could not state why assignments were made or what was the basis for assignment. The Chairman and the Deputies had little say in the selection, rotation or appointment of key managers. They did state however that people were seldom in a position long enough to become thoroughly competent in the job. No succession planning was evident. Politics and personal contacts seem to be key considerations in new appointments. A number of interviewees verified this.

FAEB management must have a say in management appointments if it is to be held accountable as a Cost Center. Many managers stated they would welcome the opportunity to demonstrate their skills. During Phase Two WAPDA must define and cost out the benefits that are provided to both management and union workers. Social services such as schools, hospital care and housing must be priced. The Transition Team must develop a transition package for all employees that will provide the employee choices about their future.

A second significant area which must be addressed is labour relations. WAPDA currently conducts all union negotiations, establishes work standards, reviews performance, handles grievances, and hires and fires employees at all levels. Management has little ability to change the way work is performed, enforce productivity standards, make labour saving improvements or control labour costs. Without a strong voice in these matters FAEB management will be unable to function efficiently as a Cost Center. The resolution of this issue will be a major factor in determining the financial viability of FAEB as a Cost Center. Union workers will have to be provided with options as to whether to stay with FAEB or WAPDA. Incentive plans may be needed to promote increases in productivity.

A third area which requires attention to allow FAEB to operate efficiently as a Cost Center is training. FAEB has 5 training centers; four of which are lineman training centers (Central Training Centers) and one Regional Training Center (Commercial Training Center). Each Circle has its own Lineman Training Center. The commercial training center services all of the Circles. All five of the centers are under the technical control of the General Manager Training in Lahore. Lahore establishes the course content and training budget, the FAEB Chairman then administers the activities of the Regional Training Center. The Central Training Centers report directly to the SE' in each Circle.

The Regional Training Center provides for the training of Revenue Officers, Line Superintendents, Meter Readers, Bill Distributors, Sub Divisional Officers and Clerks. Each Central Train2g Center provides lineman training to newly -hired Assistant Linemen, Linemen I and Linemen II.

Additional training facilities are available at the Distribution Institute in Lahore where courses such as: Utility Management, Commerce, Planning, Utility Finance and others are conducted. Twenty six courses are taught.

Training of lineman is difficult. Although new employees are required to have a 10th grade level of education, many of the older employees, who are progressing through seniority rights, cannot read or write. It is estimated that approximately 25% of the linemen staff have been promoted from Assistant Lineman positions where there is no literacy requirement. The team assumes this is a primary reason for ignorance of safety rules and may also contribute to the lack of quality workmanship. The consultants were advised that better quality people are available on the open market however, owing to internal and external pressure FAEB are required to accept people who are friends or relatives of politicians or of WAPDA management.

When FAEB exists as a Corporation these training services can be acquired from WAPDA for a fee or contracted to outside parties. However, at some time in the future FAEB must begin considering its responsibilities for adequate training and upgrading of its workforce.

The lack of a consistent training and promotion policy directly contributes to safety, maintenance problems and the overall quality of operation. FAEB management needs a stronger role in the training function.

Human Resource Issues

The summary of human resource issues follows:

- o FAEB management has little input to the selection appointment or promotion of managers.
- o Assignment duration of managers is too short for managers to become thoroughly competent at their job.
- o Union workers have no vested interest in more efficient operations. Area management cannot effectively direct their activities.
- o WAPDA provides a wide range of social services. Some of these may continue to be provided but they must be subsidized. Such costs should not be included in evaluating FAEB's performance as a Cost Center.
- o Grid station operations have no reporting relationship to FAEB management. It is not possible to determine whether outages are a result of GS operation or area distribution.
- o Training is inadequate resulting in maintenance, safety and outage problems.

Unless FAEB management is given control of human resources it is not possible to evaluate the ability of management to operate an efficient system. Clearly FAEB and WAPDA must develop a plan and issue directives which clearly defines FAEB's management authority. This process should begin as soon as the decision is made to operate FAEB as a Cost Center.

D. Definition of Service Territory and Electrical Boundaries

The geographic, physical and electrical boundaries of the distribution system must be defined in clear, unambiguous language. Currently the FAEB covers seven political districts, encompassing more than 1.2 million customers. The system includes more than 30,000 Km of high and low voltage lines (11 KV and 400 V), and more than 35,000 transformers, ranging in size from 25 KVA to 630 KVA.

The FAEB distribution system currently begins at the cable pole, outside existing grid stations. Based on the Team's own observations as well as the observations and statements of numerous FAEB and WAPDA representatives, it was quickly apparent that a truly independent and economically viable distribution system should include some portion of the existing Grid System Operations (GSO). The operating objectives are clear:

- The distribution system should control the electric loads entering the service territory.

- The distribution system should be capable of expanding or upgrading transformer and distribution capacity to meet the needs of existing and potential customers.

- The distribution system should have the authority, responsibility, and capability to operate and maintain the transformer and distribution equipment in accordance with the needs of its customers and the overall cost/revenue objectives of the distribution organisation.

- There must be adequate metering and accounting of power purchased and power delivered.

Defining FAEB as an independent Cost Center could have no effect on the existing electrical boundary. However, as FAEB moves through the transition process from an independent Cost Center to an economically viable subsidiary or private company, it must take control of the systems and equipment that affect FAEB's ability to provide reliable and reasonably priced electric service. It is therefore the strong recommendation of the advisors, in concurrence with the Managing Director of Distribution and the former Chairman, FAEB, that all 132/11 KV and 66/11 KV grid stations and all 132 KV and 66KV grid loop ties within the FAEB area become the property of the Faisalabad Area Board.

Several alternatives were considered by the Team and WAPDA/FAEB representatives before reaching the recommended conclusion.

Figure II.13 illustrates the points considered:

- The first point is the current FAEB responsibility point, at the cable pole, subjects FAEB to the discretion of the current grid station operator, the GSO. FAEB must compete with the entire GSO organisation for the resources required to operate, maintain and expand the grid stations.

- The second point of ownership is the connection between the incoming 11 KV line (from the 132/11 KV or 66/11 KV transformer) and the 11 KV switchgear at the current transformer. FAEB would own, operate and maintain the switchgear and all distribution lines originating at the switchgear. This point would allow FAEB to operate, maintain and expand equipment that is an integral element of the distribution service responsibility. However the additional benefits derived from controlling the transformation and related equipment would not be realized. Owning the switchgear without the other grid station equipment would also create grid stations operated by two different departments and potentially two different companies. The third point of ownership presents similar problems.

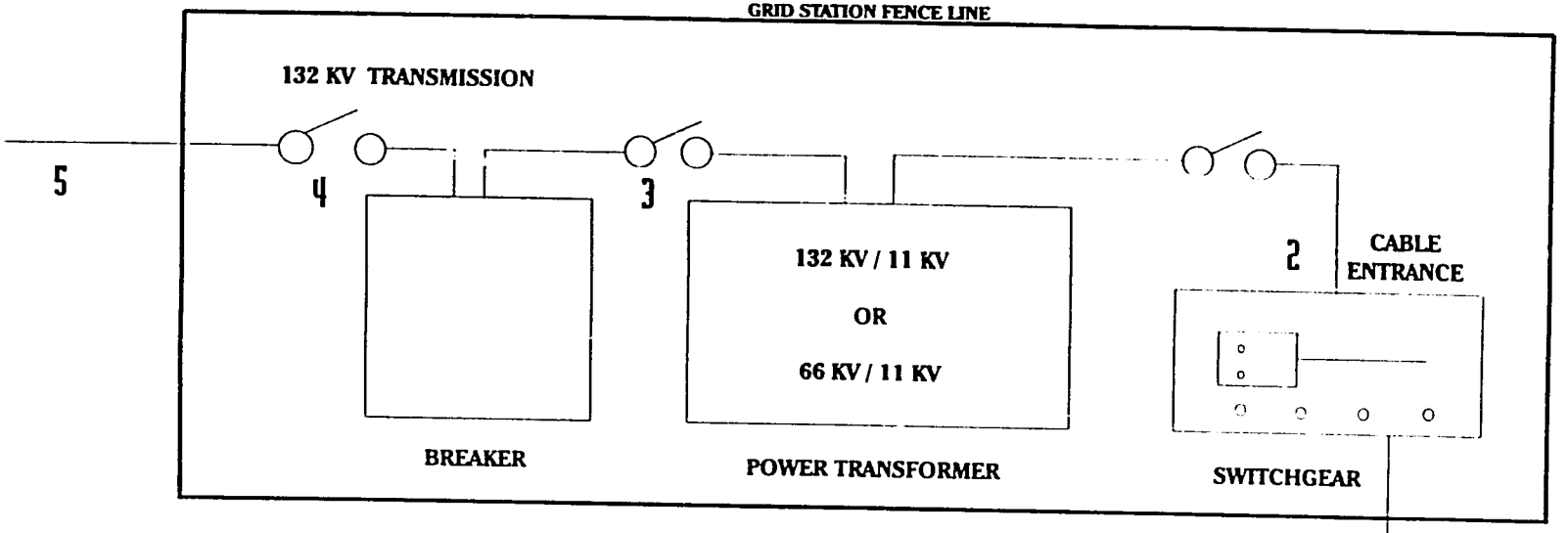
- The fourth point of ownership would give the distribution system most of the equipment affecting its ability to deliver electric energy. However, reliability could be improved and cost of service reduced by controlling the high voltage (132 KV) lines that link the service territory's grid stations, and effectively increase the ability of the Area Board to serve load requirements during station outages.

- The fifth point would include all the grid stations plus all grid loop ties. This excludes the radial generation supply transmission lines but does include all loop ties inside the FAEB franchise district.

There are 34 132/11 KV and 43 66/11 KV grid stations, serving the Faisalabad service territory. In some cases, current and potential transformers will require re-arrangement or additions for proper metering of transmission loads. Both WAPDA and FAEB would install and monitor appropriate electric meters, and the recommended configuration would mean that FAEB accounts for all transformer losses.

FIGURE 11.13

POTENTIAL OWNERSHIP TRANSITION POINTS
FAISALABAD AREA ELECTRICITY BOARD



POSSIBLE TRANSITION POINTS

1. Current FAEB responsibility point
2. 2nd Point of Ownership
3. 3rd Point of Ownership
4. 4th Point of Ownership
5. Recommended Point of Ownership (Grids & Loops)

Clearly, the recommended transition point adds considerable responsibility and cost to the distribution system. The value of assets is increased substantially, possibly limiting the number of investors capable of raising the required investment capital. Operations and maintenance expenses would be increased by more than 50 percent. However, the benefits far exceed the costs. Reductions in the number and length of grid station outages will increase revenues and income. The price of purchased power will also be reduced by the amount currently allocated for grid station expenses, and the distribution system will accrue all of the benefits derived from productivity improvements in grid station operations.

E. Strategic Planning Issues

FAEB does not perform any strategic planning functions. Planning is limited to short term engineering planning related to such efforts as new hookups, transformer change outs, load management and equipment requirements. WAPDA performs long term planning such as the grid load flow studies, voltage electrification plans, generation and transmission planning. As a corporatised entity, FAEB will have to undertake planning efforts in-house or contract out for these studies. The following is a partial list of five, ten and twenty year plans that will have to be developed.

1. Load Forecast

A forecast of the annual growth in electrical energy and capacity by sector (residential, commercial, industrial and government) and by customer class within FAEB and FAEB subareas. This forecast must be developed for high, low and medium population growth rates and with and without Demand Side Management.

2. Fuel Availability Forecast

Even though FAEB will not own any large scale generation it must know and forecast fuel availability and prices to perform cost benefit analysis of DSM and load management.

3. Demand Side Management

This is a forecast of DSM techniques, policies and devices that cost effectively reduce the need to purchase energy. Through DSM techniques such as rebates for efficient motors, building standards, and incentives for solar power, FAEB can reduce the need for power purchase while also reducing the need

for foreign exchange investment capital and transmission lines. Although long range in concept, FAEB management should become familiar with these options now.

4. Policy Plan

FAEB should begin to develop positions on issues such as cogeneration, wholesale and retail wheeling, self generation, incentives for conservation and load shedding rates. Nominal now, these issues will develop as rates change and the area grows.

In addition, FAEB will have to develop policies regarding Demand Side Management implementation. Tariffs, incentives and rebates which promote the efficient use of energy will have to be developed to meet Faisalabad's needs. The Area Board should aggressively pursue working with the agricultural interests to optimize pumping power usage and with the textile industry for load shedding. FAEB must also develop policies regarding independent power production in its area and policies regarding bidding for additional power supplies.

III. PROPOSED Organisation

As FAEB moves towards corporatisation it will be necessary to assume current WAPDA functions and realign existing functions. Key results of reorganisation are:

- Provision of lower cost, reliable electric service
- Employee recognition and reward
- Enhancement of management accountability
- Improvement of the decision process
- Reduced operational expenses
- Reduced cost of capital

The proposed organisation is designed to address the following critical issues:

- The assumption and control of financial functions as a Cost Center.

- o The control and responsibility of the Chairman must be enhanced.
- o Accountability in the organisation must be at lower levels.
- o Strategic planning, power contracts, tariffs, finances and engineering must be internally controlled.

As FAEB develops, gains expertise and takes over functions that are currently performed by WAPDA in purchasing, engineering, maintenance and labour relations the organisation will have to change to reflect increased duties. However, the existing structure at the Circle level, has demonstrated flexibility to grow and maintain service. The existing organisation is shown in Figure II.2. The proposed organisation shown in Figure III.1 makes maximum use of the existing titles to avoid confusion and builds upon the strength of the existing structure.

The organization as proposed is a prototype which the Transition Team can modify as it develops its implementation plan.

1. Board of Directors

Functions:

The Board of Directors will serve the functions normally associated with such boards for privately-owned companies formed under the Companies Ordinance, 1984. The Board of Directors will supervise the operation and management of the FAEB with the ultimate objectives of ensuring that FAEB covers its operating costs and maximizes returns on investment. The Board functions may include:

(1) Select/hire the Chairman and approve selection of all senior officers.

(2) Establish the salary of Chairman and all senior officers.

(3) Review and approve internal reorganisations.

(4) Review financial accounts and proposals, approve plans for major financing (share issuance and debt), and investment and resource acquisition programs.

(5) Audit the finances of the corporation.

The suggested board make up could be:

2 business representatives
1 Commercial Sector Representative
1 Agricultural Sector Representative
1 Education Sector Representative
1 Chairman - FAEB
3 Directors - FAEB

The initial nominees will be recommended by the FAEB Chairman and concurred in by the Transition Team. It is essential the Board be apolitical. Succeeding Chairmen of the new organisation will be selected by the Board.

The Board of Directors should establish a few standing committees to pay close attention to certain activities of management. The committees should focus on the most critical objectives of the corporatised FAEB, notably (1) finance; (2) operational improvements; (3) system planning; (4) labour relations (5) privatisation and (6) audits.

2. Chairman

Currently this position is held by the WAPDA appointed Chairman of FAEB. His current duties are limited to the operation of the electric distribution in the Faisalabad area. He has little or no authority over tariffs, compensation, personnel, finances, strategic planning, labour relations and power resources. Under corporatised organisation the following functions could report to the Chairman.

Line Functions:

- o General Manager - Finance
- o General Manager - Operations & Engineering
- o Deputy General Manager - Commercial
- o Deputy General Manager - Administration

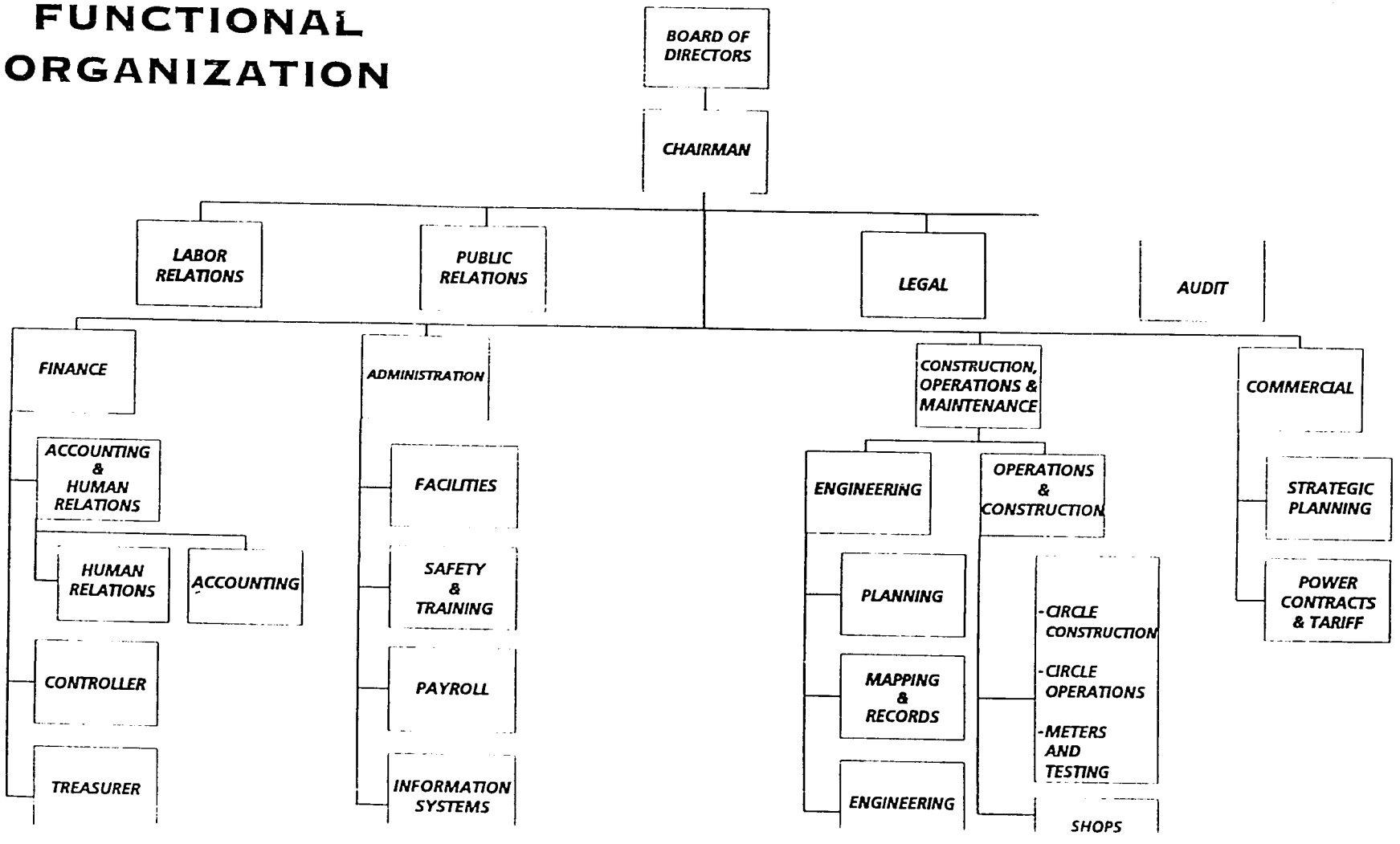
Staff Functions:

- o Chief Legal Counsel
- o Manager - Labour Relations
- o Manager - Internal Audits
- o Manager - Public Relations

Each of these functions and supporting organisation is described below:

PROPOSED FUNCTIONAL ORGANIZATION

FIGURE 111.1



2.1 General Manager - Finance

The current Faisalabad Area Electricity Board does not include a distinct Finance function. Accounting activities are performed under the Director Accounts and include basic bookkeeping functions. The Director Accounts reports to the Chairman Area Electricity Board.

Revenue collection activities are performed by each Division under the supervision of the Division Executive Engineer (XEN). In addition, many commercial activities carried out within each Division and for the entire Area Electricity Board are administered by the Director Commercial, who reports to the Chairman Area Board.

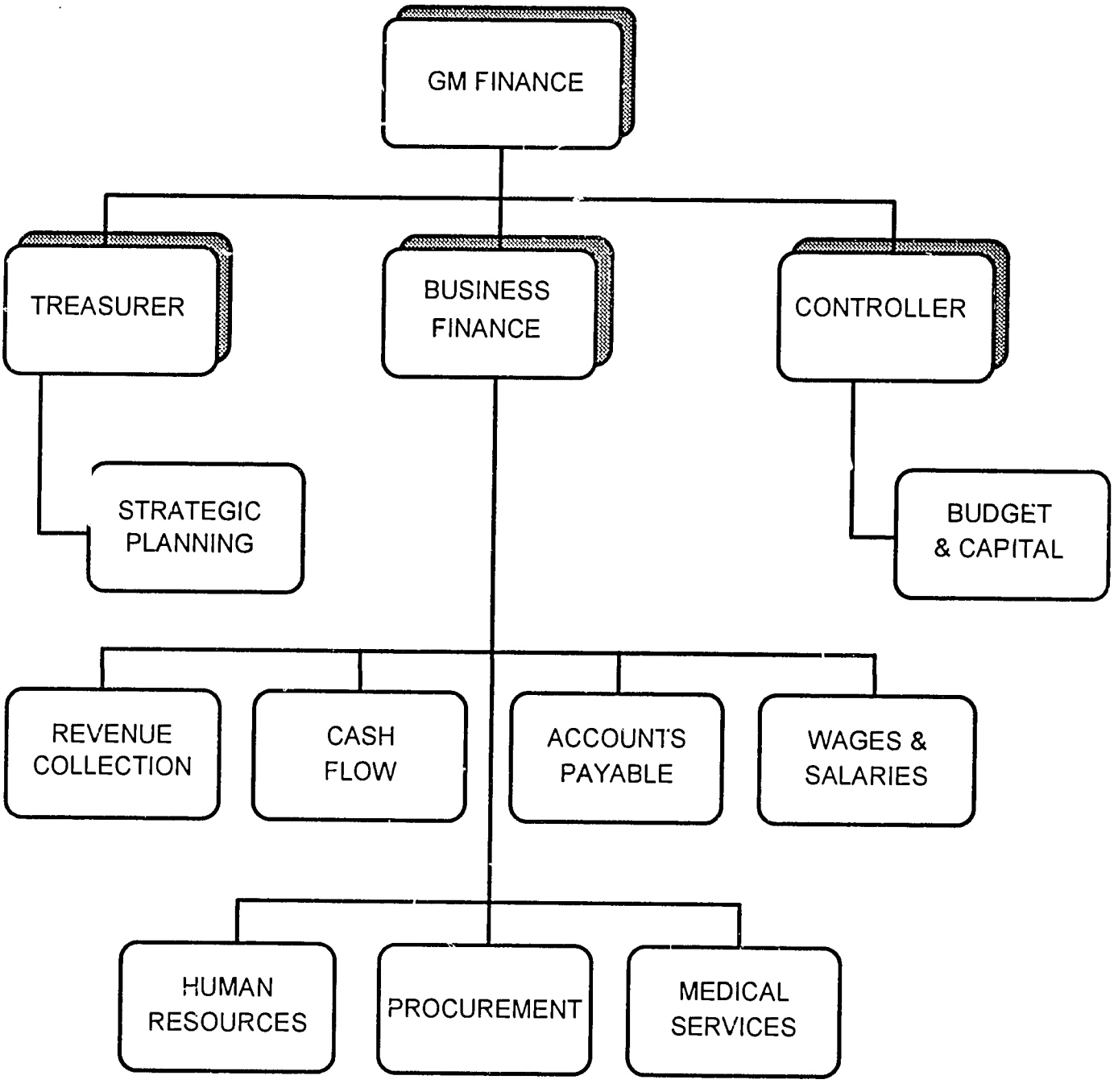
Both the Director Accounts and the Director Commercial serve as whole-time members of the Area Electricity Board. The scheme entitled "The Supply and Distribution of Power Scheme, 1981" specifically prescribes that one whole-time member be "...a serving officer of the Authority of the rank of a Senior Accountant...". The Faisalabad Area Electricity Board has thus given extensive weight to the accounting and commercial functions of the organisation. The proposed organisation extends and enhances this influence. The Finance Department will be directed by a General Manager (Finance) who will have a prominent position in the organisation and on the Board of Directors.

The General Manager (Finance) will direct all of the firm's money management functions. This position will replace and expand the role of the Director Accounts, and direct many of the revenue collection and management activities currently administered by the Director Commercial. Many of the activities described below are currently performed by central organisations within WAPDA, Lahore. The new Area Electricity Board organisation will have the option of continuing to use WAPDA to perform these functions, develop its own in-house expertise, or contract for specific services. The following provides a summary of the proposed functions which will be performed under the purview of the General Manager (Finance): See Figure III.2.

FIGURE III.2

FAISALABAD AREA ELECTRICITY BOARD

PROPOSED FINANCE ORGANIZATION



- **Business, Financial and Strategic Planning:** This includes the development of detailed financial plans, strategies and objectives in concert with the AEB's management, and focused on the mission of the firm. The Planning function will address the proforma operating and capital budgets of the firm, the firm's sources of capital, cost of capital and required returns on investment.

- **Capital Management:** This includes the specific identification of the sources of capital and the implementation of appropriate strategies to generate the capital required to operate, maintain, improve and expand the AEB distribution system. Sources of funds may include equity investments, long term loans from international and Pakistani banks, public and commercial bond issues, short term commercial loans, et. al. The Finance Department will be responsible to optimize the cost of capital within the constraints imposed by the National Electric Power Regulatory Authority and various lending institutions.

- **Revenue Collection:** The revenue collection function will be administered by the Finance Department with specific emphasis on maximizing revenues collected, minimizing arrears and the age of accounts receivable, improving customer interaction and reducing the costs of commercial activities.

- **Budgeting and Control:** This includes the development of yearly operating, maintenance and capital budgets in concert with the firms operating divisions. The Finance Department will establish and ensure the proper implementation of a systematic budget assessment process that fully supports the goals of the firm. Discretionary capital will not be budgeted or expended if the benefits derived from the proposed activities do not meet specific financial criteria. In addition, the Finance Department will develop, implement and maintain a comprehensive management reporting process that includes monitoring of actual costs and performance, evaluation of trends and potential cost and schedule impacts, and variance analysis and reporting. The process will be designed to support operations, maintenance, construction and commercial activities in a timely manner so that the firm's managers can react effectively to control costs and improve performance.

- **Purchasing and Procurement:** Many of the activities of the firm require foreign exchange and domestic duties. The Finance Department will be responsible to procure the necessary exchange capital, arrange appropriate duty and import tariff payments and payment schedules,

ensure receipt of materials and equipment in accordance with specifications and accompanying delivery documents, and expedite the clearance of purchased items through Pakistan's customs authorities. The Finance Department will work very closely with the operating, maintenance, engineering and construction organisations to coordinate material and equipment deliveries in accordance with operating, maintenance and new construction schedules.

- **Cashflow Management**: The Finance Department will be responsible to determine the cash needs of the firm and ensure that adequate cash assets are available to support the day to day operations of the firm. This function also includes optimization of returns on cash assets in accordance with any covenants or restrictions imposed by the National Electric Power Regulatory Authority or various lending agencies. The Finance Department will be responsible for the overnight control of cash assets.

- **Human Resource Management**: Currently, the Faisalabad Area Electricity Board does not segregate Human Resource Management functions. It is not clear whether these functions are grouped under one operating head within the WAPDA organisation, or if certain activities are performed within several different organisations. The Finance Department of the restructured firm will consolidate all Human Resource Management activities including: administration of pay and allowances, specification of employee incentive and performance measurement programs, employee health and medical benefits, employee pensions and disability programs, employee stock ownership plans, employee credit unions and banking services, employee grievance programs, et.al.

- **Accounting and Financial Reporting**: The Faisalabad Area Electric Board performs many of the accounting functions that would be required by the restructured firm. In fact, the Accounting organisation collects and maintains accounting data and performs accounting transactions in an exemplary fashion. These functions include: accounts payable, accounts receivable, payroll support, transaction recording, accounting report generation, etc. Additional functions that will be performed include: potential restructuring of accounts to achieve consistency with public utility regulations and accounting practices; accounting transactions associated with long term loans, stock and bond issues, etc.; accounting transactions associated with foreign exchange; all financial reporting required by various regulatory agencies, including the

NEPRA, securities regulators, stockholders, commercial lending institutions, etc.

The Finance organisation will include several departments, each with specific responsibilities as described above. The new electric energy distribution organisation will determine how the Finance Department is to be structured, the levels of expertise that will be required, the number of supervisors and managers needed to direct the important activities of the department, and a reasonable level of expense for the financial management functions. At a minimum the Finance Department should include a Deputy General Manager of Business and Fiance, Treasurer and Controller, each supported by a staff of managers or supervisors that oversee the detailed financial activities.

2.2 General Manager - Operations, Engineering & Construction

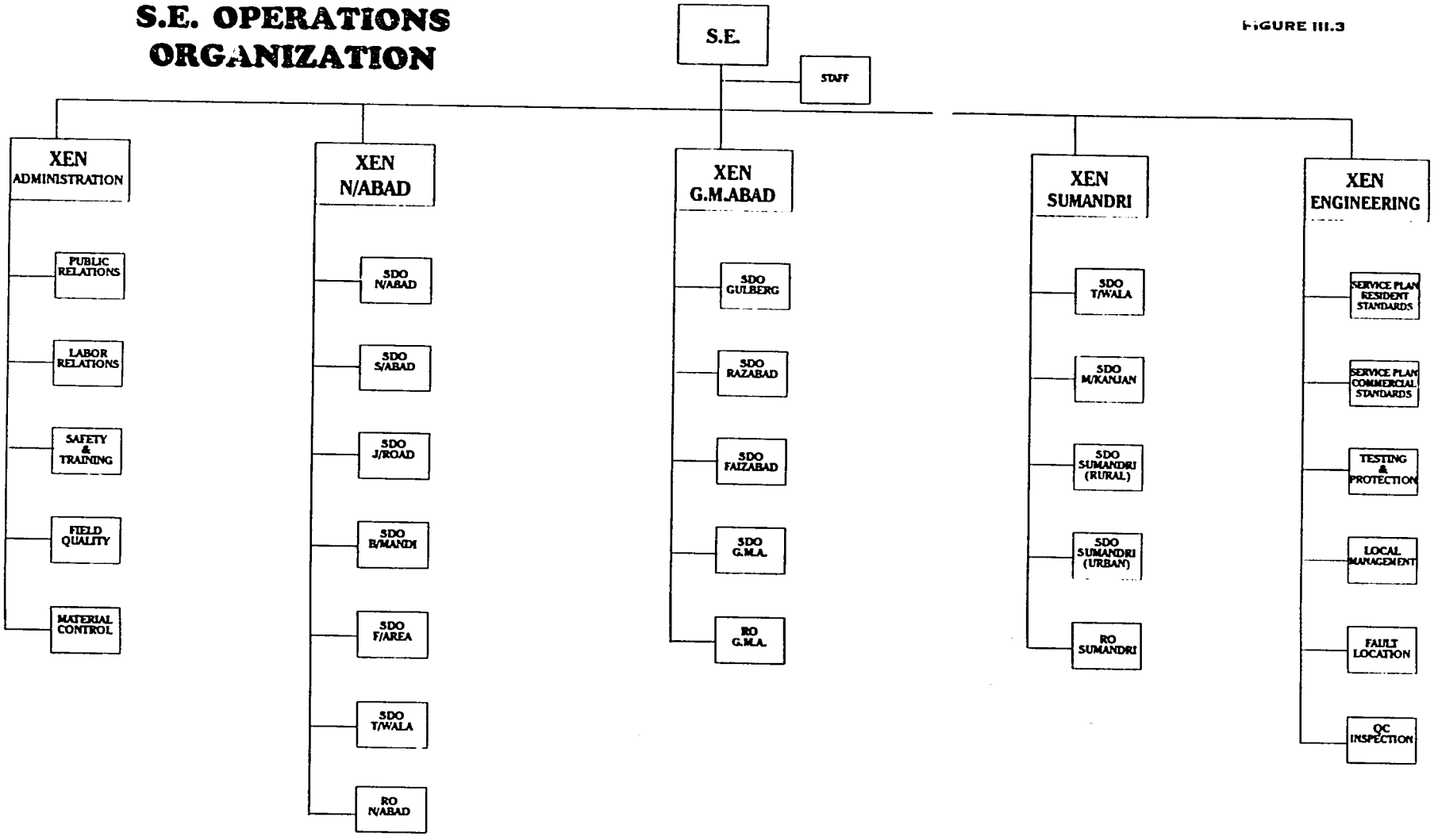
As described in the current organisation, Planning and Engineering is under one Director and Construction and Maintenance is under another. In the proposed organisation a General Manager is responsible for these functions. Currently almost all engineering is performed by WAPDA. These functions will grow significantly as FAEB assumes more responsibility. In the meantime, little will change. WAPDA will be asked to provide existing engineering services under contract.

- **Deputy General Manager Operations and Construction:** A Deputy General Manager of Operations and Construction will report to the General Manager. A significant organisational change is that the Circle Superintendent Engineers will no longer report to the Chairman. Rather they will report to the Deputy General Manager of Operations and Construction. The Executive Engineer of Meters and Testing will also report to the Deputy General Manager of Operations and Construction as will the Manager of Construction. These changes will focus all operational and engineering functions under one individual, increase communication and relieve the Chairman of many administrative functions. Accountability is driven down into the organisation.

The SE's and XEN's are the front line of management and operations. Almost all contact with customers and line employees takes place at the Circle level. To provide better service to customers, increase employee relations and improve field operations, two new XEN positions are to be added to each Circle. These new positions will report to the SE's. See Figure II.3.

PROPOSED TYPICAL S.E. OPERATIONS ORGANIZATION

FIGURE III.3



One position is the XEN, Administration. This position will be responsible for public relations, labour relations, safety and training, field quality and material control in the Circle. These functions are currently performed at headquarters and are too high in the organisation. SE's through this XEN will have direct responsibility for representing the organisation and ensuring quality.

The second new position at the Circle level will be an XEN, Engineering. This position is responsible for developing customer service plans, load management, fault location and testing. All outages will be coordinated and planned by this XEN. All new connections, reconductoring and service improvements will be reviewed and or planned at this level in the Circle. SE's will now have the responsibility, budget and accountability for safety, service and engineering in their respective areas. The XEN, Engineering will be responsible for instituting quality standards.

- **Manager - Construction:** The Manager Construction will report to the Deputy General Manager Operations and Construction. This organisation is responsible for all construction within the Circles. Electrical, mechanical and civil engineers will be matrixed to XEN's responsible for capital construction within each Circle. In effect the Circles will have the capability to perform large capital construction projects such as rural electrification but avoid having a large engineering staff in residence.

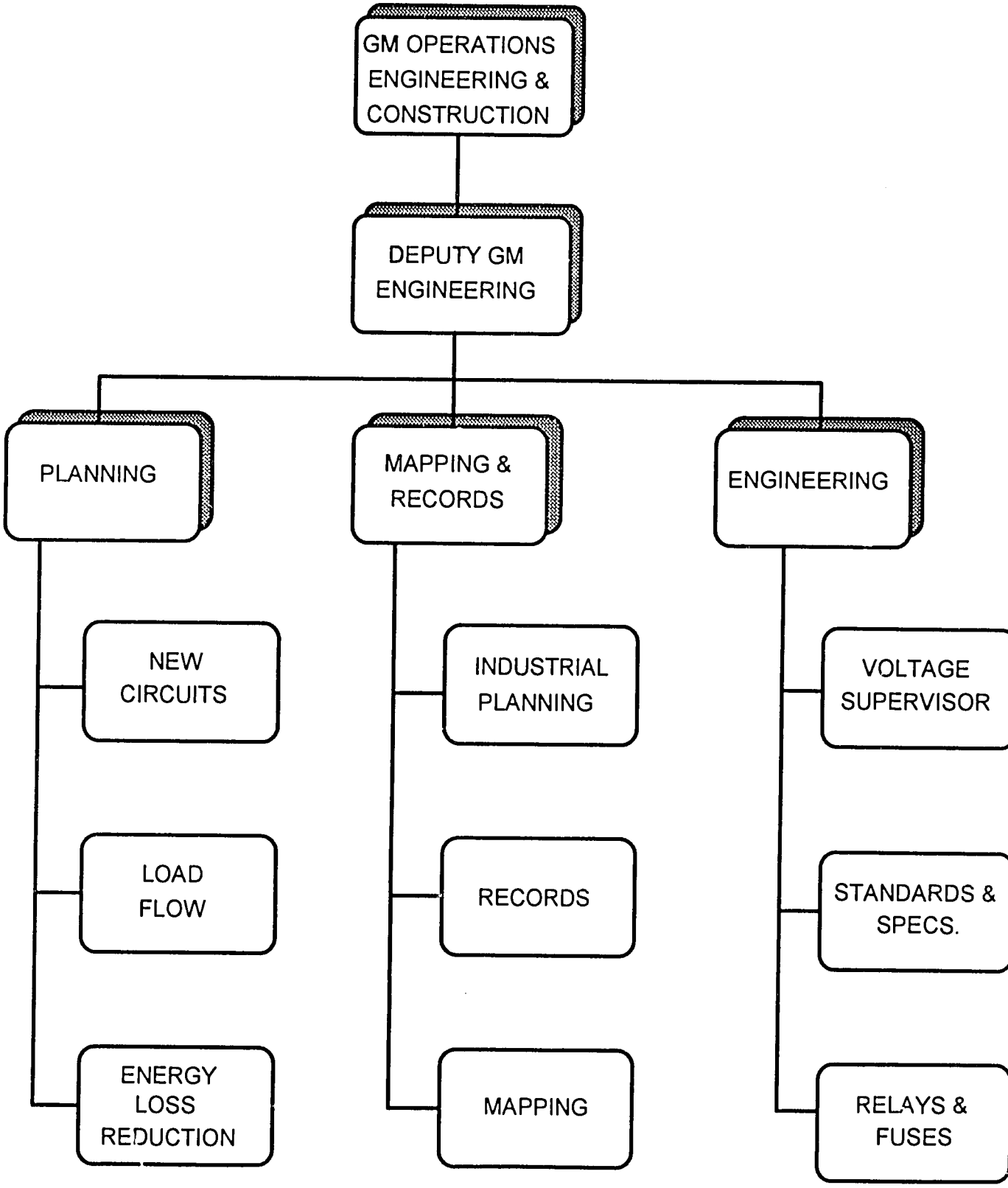
In addition to Engineering and XEN's the Deputy General Manager Operations and Construction will have the Supervisor of Shops and the XEN Meters and Testing reporting to him. The XEN (M&T) will administer sub-divisional offices and testing at the Circle level.

- **Deputy General Manager - Engineering:** The Deputy General Manager Engineering also reports to the Senior General Manager Operations, Engineering and Construction. Managers of Planning, Mapping and Records, and Engineering will report to the Deputy General Manager Engineering. Many of these functions are performed by WAPDA and in the short term will have to be contracted back to WAPDA. Eventually, the new organisation will have to develop in house expertise. Figure III.4 provides the recommended engineering organisation.

FIGURE III.4

FAISALABAD AREA ELECTRICITY BOARD

PROPOSED ENGINEERING ORGANIZATION



2.3 Deputy General Manager Commercial

Under the existing structure the Director Commercial had the following responsibilities:

- o Commercial Customers
- o Customer Services
- o Training
- o Tariff and Loss Reduction

In the proposed organisation the Deputy General Manager Commercial will have many new and expanded functions. Strategic planning, power and transmission contract negotiations, tariffs and, load management sanctions will be under Deputy General Manager Commercial as shown in Figure III.5. The Deputy General Manager will have a Manager of Strategic Planning and a Manager of Power Contracts and tariff.

The following is partial list of long range plans that will have to be developed within the new organisation.

1. Load Forecast

   A forecast of the annual growth in electrical energy and capacity by sector (residential, commercial, industrial and government) and by customer class within FAEB and FAEB subareas. This forecast must be developed for high, low and medium population growth rates and with and without Demand Side Management.

2. Fuel Availability Forecast

   Even though FAEB will not own any large scale generation it must know and forecast fuel availability and prices to perform cost benefit analysis of DSM and load management.

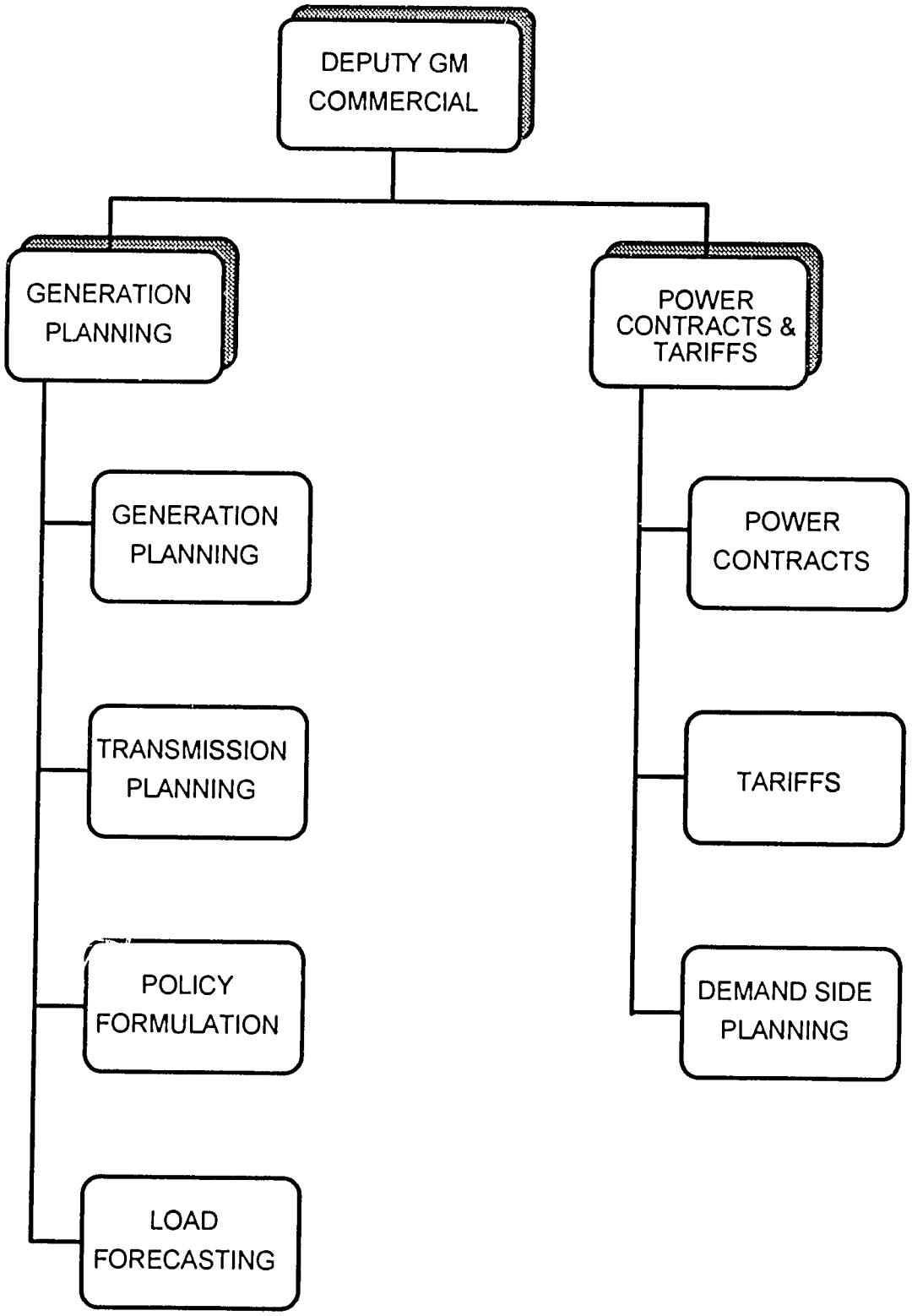
3. DSM Plan

   This is a forecast of DSM techniques, policies and devices that cost effectively reduce the need to purchase energy. Through DSM techniques such as rebates for efficient motors, building standards, and incentives for solar power, FAEB can reduce the need for power purchased while also reducing the need for foreign exchange investment capital and transmission lines. Although long range in concept FAEB management should become familiar with these options now.

FIGURE III.5

FAISALABAD AREA ELECTRICITY BOARD

PROPOSED COMMERCIAL ORGANIZATION



4. Policy Plan

FAEB should begin to develop positions on issues such as cogeneration, wholesale and retail wheeling, self generation, incentives for conservation and load shedding rates. Nominal now, these issues will develop as rates change and the area grows.

5. Transmission Plan

As FAEB's service area grows, FAEB will have to plan for new line extensions, reconductoring, grid stations and rural electrification. Currently this function is not performed within FAEB.

Additionally all grid interconnection planning and coordination with the National Control Center will be directed by the Deputy General Manager Commercial. In the near term these will not be critical areas of study. However, as the new organisation develops more power and transmission contracts these responsibilities will grow in importance.

- **Strategic Planning and Policy Formulation:** The responsibility for Strategic Planning and Policy Formation Organisation does not exist within FAEB. Strategic Planning in the new organisation must define the overall goals, objectives and plans for providing a low cost, reliable, accessible energy and energy -related services to its customers.

  Policy formulation involves the definition of future legislation, regulations, specifications and rules designed to enhance or facilitate the provision of electrical energy and related services. As examples a goal of the strategic plan will be to define the preferred mix of power contracts, area generation, load management and Demand Side Management (DSM) to provide system stability and reliability. Policies regarding time of use tariffs, appliance rebates, retail wheeling, line extensions, tariffs and building standards may be needed to achieve this desired mix of energy sources. The current level of planning as illustrated by the PC-1's is too large and must be broken down into geographic areas that reflect FAEB boundaries and sub-areas within the FAEB. Policy formulation is currently at the national level and does not reflect area differences such as the opportunity for cogeneration, alternative energy resources and population.

- **Power Contracts and Tariffs:** The manager of this section has the responsibility to direct the contract negotiations for energy and transmission; to develop a cost of service study and electric tariffs and develop demand side management (DSM) programs. These will be critical areas of responsibility as the new organisation assumes more and more control of its sources of supply. There are three sections reporting to this manager.

Power Contracts

The supervisor of power contracts is responsible for negotiating with WAPDA for transmission services and energy supply. The section is also responsible for negotiations with independent power producers, cogeneration, and customer incentive programs. As a competitive energy environment develops in Pakistan this will become a critical function.

Tariffs

This section is responsible for conducting cost of service studies and developing tariffs by customer class. This will entail detailed development of accounts, cost, allocation models, and tariff schedules.

Demand Side Management (DSM) and Load Management (LM)

DSM is the reduction of the demand for capacity and energy through the implementation of energy efficiency measures. Actions such as the promotion of energy efficient motors (commercial, A/C, pumps) insulation, building standards all help avoid future growth. LM is the shaping of the load through direct A/C cut-off switches or indirect time of use rates which effect the time of day that energy is demanded. As FAEB will now be responsible for purchasing power, the control of growth and load shaping can be very cost effective.

2.4 Deputy General Manager - Administration

This position already exists as the Director Administration. The existing functions of Facility Management, Safety and Training and Administration will continue to report to this director. In addition the Deputy General Manager Administration will be responsible for Information Systems. The purpose of this function is to develop management data and information systems such as operational performance measures, financial status reports, budget control and human resource reports. Customer information and billing will be handled by this group. Currently computer services are provided by an office, located in Faisalabad, which reports directly to WAPDA Lahore. This entire function should be transferred to the new organisation.

2.5 Staff Functions to the Chairman

o Public Relations:

This is a centralized function to ensure that the FAEB is represented in civic and government activities at the regional and national levels; to centralize responses to and contact with the media and to arrange the participation of the president at public information presentations regarding electricity supply and electric services. This office will develope public relations policies to improve public image which currently is at a very low level.

o Internal Audit:

An independent, internal review of the organisation's management and financial performance. Internal audit will perform periodic reviews of all activities and at the direction of the Chairman under take specific review assignments. This is already performed to a limited extent.

o Labour Relations:

The majority of the organisation's labour force is unionized. WAPDA currently handles union relations. FAEB must develop its own labour relations contracts and wage and salary structure for unionized and non-unionized employees. This office will be responsible for developing labour contracts, handling grievances, general coordination and interface with unions, the development of management salary structure and the negotiation of benefits packages for all employees.

o Chief Legal Counsel:

The chief legal counsel will be responsible for ensuring that all activities undertaken by FAEB are consistent with the charter that enabled the organisation, with the national laws and with the provincial laws. This office will review contracts, labour agreements, file and respond to legal suits, and legally represent the organisation.

The office will also represent the organisation at the National Electric Power Regulatory Authority and in the development of power and international purchase contracts.

IV TRANSITION PLAN

The transition from an operational, Cost Center organisation to a corporatised entity will be slow and complex. Significant organisational, technical and legal changes will be needed within WAPDA and FAEB. A systematic, methodical approach will require at least two years. However, there will be greater assurance of success leading inevitably to more corporatisation and privatisation initiatives. The following conclusions have been reached:

1. Neither WAPDA or FAEB is structured to support autonomous operation. WAPDA does not currently price energy or transmission, or segregate administrative overheads at the AEB level. FAEB does not perform many functions independently and neither organisation has planned for FAEB to operate as an independent entity.

2. Autonomous operation of FAEB as a Cost Center will require changes in attitude, training, delegation of authority, and considerable time.

3. FAEB is not a saleable entity (at a reasonable value) as it is now constituted. Management is not ready, equipment is of little value, accountability is lacking and liability problems could be severe. The changes herein proposed would alter that greatly and make the entity more appealing to investors.

4. A restructured Board of Directors is needed.

5. At the Circle level the distribution of electricity and collection of revenue is performed well despite the handicaps. Unless there is substantial investment in people and equipment FAEB cannot continue to perform when faced with growing energy demand and expectations for quality service.

6. There must be a buyers market for wholesale power before a corporate distribution company can become a truly viable investment property.

The following progressive phases are seen in FAEB's transition.

Proposed Transition Process

PHASE ONE FAEB operates as an electric distribution department with progressively greater control over budgets, management, and personnel. Planning studies for corporatisation are undertaken.

PHASE TWO Establishment of FAEB as a Cost Center.

(1) Develop a WAPDA/FAEB/Privatization Committee Transition Team, supported by outside management and technical consultants, that will plan for and assist in the implementation of the process.

(2) Restructure the WAPDA management and technical organisation so that the FAEB includes responsibility, authority, accountability, and autonomy for operations within the Faisalabad service territory.

(3) Allow FAEB to function as an autonomous Cost Center within the WAPDA organisation.

(4) The Transition Team will identify the management, administrative and technical functions, currently performed by WAPDA which could or should be performed by the new entity as it evolves into a corporation. These functions include, but are not limited to financial management, long term and short term budgeting, cash flow management, strategic and long term planning, load management, system planning, design engineering, procurement, purchasing, management information systems and other computer services, management training, financial reporting and social services.

Note: FAEB with WAPDA will evaluate what functions can be most effectively performed by the WAPDA organisation, and what functions can be most effectively performed by FAEB or a contractor to the new entity. This evaluation will include the analysis and development of appropriate transfer prices for all services performed by WAPDA or contractors. Procedures will be established to implement appropriate accounting functions that accurately account for the services provided and the cost incurred.

PHASE THREE Corporatisation.

(1) FAEB will take over and or contract for all management, administrative and technical services currently performed by WAPDA.

(2) FAEB will work with WAPDA and the newly formed National Electric Power Regulatory Authority to develop a regulatory process and appropriate organisational expertise.

(3) FAEB will work with WAPDA to define the purchase price (transfer price) of power to the distribution area.

(4) FAEB will work with WAPDA and the NEPRA to determine the rights and responsibilities of various parties with respect to the ownership of indigenous generation facilities and cogeneration contracts.

(5) Determine if there is value to establish FAEB as an independent subsidiary under various acceptable ownership scenarios. The value must be determined for all parties, e.g. WAPDA's receipts from the sale, impact to WAPDA's operating income, the ability of the new firm to generate income and adequate investment capital, GOP values with respect to economic and social objectives.

Determine whether it is appropriate to separate FAEB into an independent subsidiary.

(6) Establish the new corporation through appropriate legal procedures.

Note: FAEB must become a legal identity, separated from WAPDA and especially authorized to make decisions without the approval of WAPDA or the GOP. Such authority can be granted to FAEB as part of its government-granted "license" and as part of its Articles of Incorporation. The FAEB must have sufficient legal authority to engage in all of the tasks and commercial transactions necessary to provide distribution service. The FAEB must be provided in its Articles of Incorporation with the authority to: (i) enter into commercial transactions; (ii) incur debt; (iii) issue shares; (iv) buy and sell all forms of property; (v) procure equipment; (vi) establish its own internal organisation and procedures; (vii) develop and approve budgets; and (viii) propose those actions which require regulatory approval.

PHASE FOUR Privatisation:

After FAEB has demonstrated that it can operate as a corporate entity, the decision to put a value on the organisation and privatise or not privatise can be made.

APPENDIX A

LIST OF ACRONYMS AND DEFINITIONS

AEB	Area Electricity Board
ATB	Anti Theft Box
CEO	Chief Executive Officer
CRI	Chief Resident Inspector
CWP	Control Work Plan
DDE	Deputy Director Engineering
DSM	Demand Side Management
ELR	Energy Loss Reduction
FAEB	Faisalabad Area Electricity Board
FIR	First Investigation Report
GM	General Manager
GOP	Government of Pakistan
GRN	Goods Received Notice
GSO	Grid System Operation
HT	High Tension
ICB	International Competitive Bidding
IRG	International Resources Group
IRR	Internal Rate of Return
LCB	Local Competitive Bidding
LM	Load Management
LT	Low Tension
P&E	Planning and Engineering
PC	Personal Computer
PPE	Personal Protection Equipment
RO	Revenue Officer
SE	Superintending Engineer
SDO	Sub Division Officer
SO&M	System Operation and Maintenance
T&P	Tools and Plant
WAPDA	Water and Power Development Authorit
XEN	Executive Engineer

APPENDIX B

LIST OF REFERENCE DOCUMENTS

1. Minutes of the 436th Authority Meeting Held on 27 March 1989
2. Minutes of 36th Meeting of Area Electricity Board Faisalabad, 21 November 1992
3. Minutes of 35th Meeting of Area Electricity Board Faisalabad, 12 September 1992
4. Minutes of 34th Meeting of Area Electricity Board Faisalabad, 18 November 1991
5. Minutes of 33rd Meeting of Area Electricity Board Faisalabad, 31, August 1991
6. Minutes of 32nd Meeting of Area Electricity Board Faisalabad, 27 May 1991
7. Total Sanctioned Strength in Respect of 1st Operation Circle Electricity: WAPDA Faisalabad
8. Water And Power Development Authority, Gridwise List of Feeders for Faisalabad AEB
9. Pakistan Water And Power Development Authority Power Wing, Meter Reading Record, CP-Form 11 of 149
10. Capacity Wise Nos. of Grid Station (provided by the Director of Planning and Engineering, Faisalabad)
11. Pakistan Water And Power Development Authority, Permit To Work
12. Statement of Fatal/Non Fatal Accident Year Wise in Respect of Chairman Area Electricity Board F/Abad
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14. Master Schedule for the Period for 4/93 to 12/93 in Respect of AEB, Commercial Training Center, WAPDA Faisalabad
15. Organisation of G.M. Training WAPDA, Lahore
16. Yardstick of Vehicles in Area Electricity Boards of WAPDA, 30 July 1992

17. Standardisation of Purchase of Vehicles, 1 October 1990

18. Statement Showing the Detail of Vehicles as per Yardstick Existing-Similar and Balance Required in Respect of AEB

19. Stock Balance Statement of All AEBs (Including Field Stores), Week Ending 14 October 1993

20. Part I - Power Wing Centralized Materials

21. Part II - Common Use Materials

22. List of Materials (Decentralized Items) Which Are To Be Procured By General Manager and Chief Engineers

23. Non Fatal/Fatal Accident to Mr. Iqbal Masih Alm Under City Sub Division Kamalia on 21 September 1993

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35. Sub Division Wise No. of Consumers, 1st Circle WAPDA Faisalabad

36. Water And Power Development Authority, Power Wing, Analysis of Energy Billed, CP-41, September 1993

37. Meter Reading and Billing Programme for Billing Cycle for the Month of 09/1993 in Respect of Area Electricity Board WAPDA Faisalabad

38. Analysis of Energy Sold by AEB Faisalabad (Computer print-out by customer class, by Division, for the period from 1 July 1992 through 30 June 1993)

39. Pakistan Water And Power Development Authority, Increase and Rationalization of Electricity Tariffs, 12 August 1993

40. Pakistan Water And Power Development Authority, Lump Sum Charges for New General Connections Under Tariff A-I and A-II

41. WAPDA Power Wing Projected Operating Data, Year 1993-1994

42. Water And Power Development Authority Pakistan, Distribution of Budget Grants for the Year 1993-94 Under Major Head, "Operating Expense Accounts", AEB, WAPDA, Lahore, 10 October 1993

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- Distribution Fixed Assets-Civil Works and Equipment, Consolidated
- Statement of Assets and Liabilities, Form AB-144
- Distribution Net Revenue
- Revenue Statement
- Distribution Operating Statement, Form AB-125
- Commercial Operations, Form AB-128
- Management and Administration, Form AB-145
- Stock Control Report, Form A-70
- Staff and Labour Report, Form A-80
- Statement Showing Staff Related Costs
- Repairs and Maintenance of Distribution Equipment, Form AB-137
- Repairs and Maintenance of Civil Works, Form AB-140
- Construction Workshop Overheads, Manual Reference A-55
- Transport Operating Costs, Form AB-141
- Creditors Control Report, Form 4/7
- Debtors (Other Than Energy)
- Energy Debtors and Arrears
- Trial Balance
- Fixed Asset Distribution in Respect of AEB WAPDA Faisalabad
- Abstract of 9014 (Distribution Equipment) in Respect of AEB Faisalabad
- Abstract of 9015 (Mobile Plant and Equipment) in Respect of AEB WAPDA Faisalabad
- Abstract of 9010 (Land) in Respect of AEB WAPDA Faisalabad
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