

PN-ABA-623
ISN 57444

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Request for Proposal No.

Computer System of the Organization for
Energy Planning of Egypt

US Agency for International Development
Cairo Center
Cairo, ARE
Telephone: 774305 x 257 Telex
Attn: Art Bjorlykke

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1 INTRODUCTION

1.1 BACKGROUND

The Organization for Energy Planning (OEP), established by Presidential decree (spring of 1983), will undertake integrated energy planning analyses. These integrated energy planning analyses will require OEP to develop and maintain a complete analytical modeling and data support activity. A computer will be a primary instrument to OEP in organizing and maintaining data bases and using these data in exercising analytical models and performing statistical analyses. OEP will evolve within 2½ years into an organization of approximately 120 people with a technical staff of more than 100. A majority of the technical staff will use the computer in their daily tasks and it is expected that the administrative staff will use the computer for financial analyses and word processing.

OEP is comprised of three primary technical groups (Policy, Planning and Analysis; Engineering Support; Information Service) and an administrative group. The Policy, Planning and Analysis group will be mainly performing national energy analyses using data gathered by information service group. They will typically be running large energy planning and energy/economic interaction models. Many of these models will require a large fast processor. Approximately 8 analysts will be engaged in running these large models. In addition to running large planning models this group will be performing data analyses that will require some data management software.

The engineering support group will not demand a large processor for any single model use (their models will be much smaller) but a large processor may be required for multiple users of small engineering models. Since one of the primary functions of this group is to provide engineering support to many different energy consumers and conservation projects, a number of small engineering models will be integrated into an engineering package for ease of operation. On line interaction operation will probably be the typical user pattern thus requiring a significant number of terminals. Microcomputers will also be required so that some of these models could be run in the field during energy audits or engineering analyses. Thus the microcomputers will also serve as a field computer and an intelligent terminal to the large processor where confidential data could be stored.

The information services group will be primarily responsible for the assembly, analysis, and maintenance of OEP data bases. Although other technical groups will be the primary data users from an analytical perspective, the information group will provide the primary data base services. They will assemble data and create the data file structures that will be used by the other technical groups in running their analytical models. However the information group will generate a variety of data reports that will be used inside and outside the organization. The primary computer needs of this group are terminals (data base entry, verification, and file structuring), peripheral data storage (disks and backup tape) and data management software that will ease the development and maintenance cost of the OEP data bases.

1.2 GENERAL FACILITY REQUIREMENTS:

This solicitation requests bids for the hardware, software, facility preparation, training, and for related support services such as maintenance. The focus of facility will be a large central processor that can accommodate large analytical models and many simultaneous users (interactive and batch). Several smaller microcomputers are also expected to be part of this facility. The microcomputers are expected to be used independently (in the field) and also serve as intelligent terminals to the central processor.

Many different analytical models will be setup on the central processor, therefore requiring a complete set of language compilers. Many data bases will be installed on the central processor so that advanced data management software will be an essential feature of the system. This software will be used to create and modify files as well as to print standard reports. Graphical outputs are considered essential to OEP operations so that software routines will be required to assist users in preparing and developing graphical materials. Word processing is also a requirement of this facility, but the use of central processor is not a necessary requirement. Bids that include independent, but compatible word processing capability would be acceptable. Compatibility with information generated on the microcomputer or central processor is essential.

Facility Preparation:

The Organization for Energy Planning has adequate space to house their central processor and associated hardware. However, the space does not provide an acceptable environment for the computer. The space will need to be modified slightly (interior walls movement), wired, environmentally controlled and secured. An uninterruptible power supply system is required and must be located nearby but not in the computer area. In general OEP wishes an excellent environment for the computer so that system reliability is maximized over a long time period. A raised floor that can be used for air distribution and cabling is considered desirable from an environmental and visibility perspective.

Training:

Training is an essential part of the installation of a new computer system in any organization receiving a new computer system, but is of particular importance to a new organization like OEP. In addition to the usual training for systems managers, computer operators and systems programmers OEP will require training courses in all systems software that are included in the bid package and in programming languages for their technical staff.

1.3 SCHEDULE OF PROCUREMENT

1.3.1 Bidders Conference

Thirty days after the issuance of this Request for Proposals a bidders conference will be held at the computer site. The purpose of this conference is to familiarize potential bidders with the facility for the purpose of defining their facility preparation proposals and to answer any questions regarding this specifications package.

1.3.2 Facility Improvement

It is expected that the facility improvements be completed before the arrival of the computer hardware so that installation can begin immediately. Since another computer system will be located in the same area and is currently installed, the amount of time to perform the facility preparation should be minimized so that it minimizes the disruption to the other computer.

1.3.3 Training

Training should begin immediately so that Organization for Energy Planning staff are prepared to use the system upon installation. This includes training in programming languages for the technical staff as well as training for the computer systems staff.

2 TECHNICAL SPECIFICATIONS

The overall hardware configuration of the OEP Computer system is shown in Figure 1.

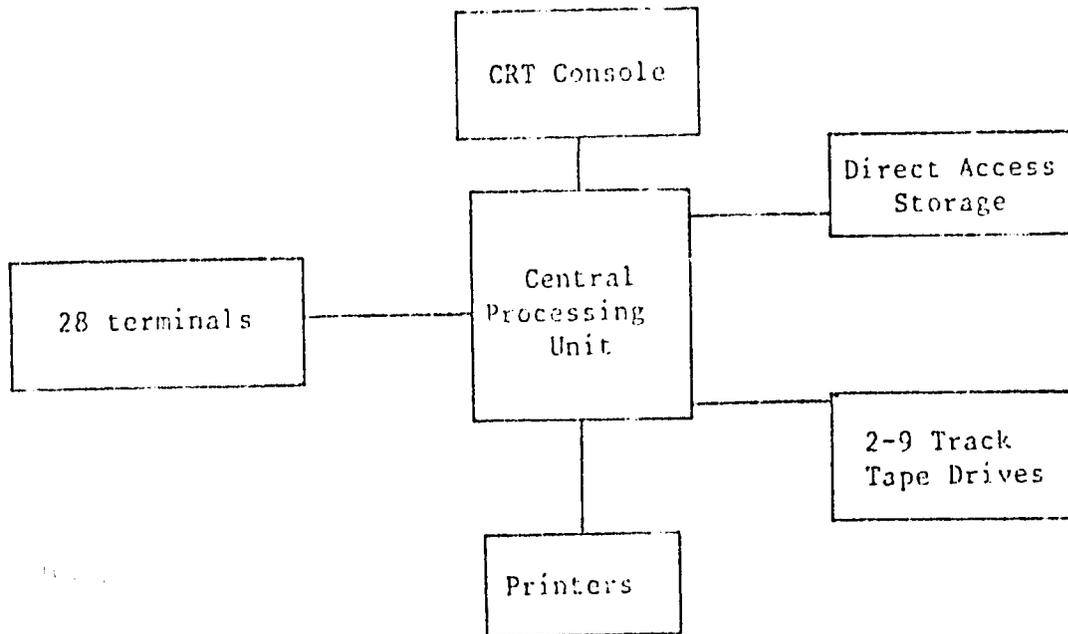


Figure 1. Computer System Configuration

2.1 HARDWARE SPECIFICATIONS

2.1.1 Central Processor Needs:

The central processor provides two basic services:

- 1) Batch Processing: Runs small to large programs any time of the day. Very large programs would be run in the evenings, nights and weekends when personnel are not working.
- 2) Interactive Processing: Runs programs that directly interact with personnel via terminals. Used for writing software, collecting data, data analysis, information services and office support activities. This service should be available 24 hours per day, but will be used primarily during normal working hours.

Processor Sizing: The largest single program for complete analysis requires 3 processing hours on an IBM 3033 or 30 processing hours on a Vax 11/780, but this program can be broken down into batch jobs that require a ½ hour of IBM 3033U or 5 processing hours on a Vax 11/780. It is a requirement that the largest batch job of this model (½ hour of 3033U time) be capable of running in one day or less while still performing daily services. Other batch processing will consist of small to large programs such as simulation and analysis models, data management operation, and system procedures. Total weekly batch processing is expected to be a maximum of 72 processor hours. (initial)

The computer will be an integral part of OEP's daily operations so that many staff will be using the computer interactively. Interactive requirements can be grouped into four categories:

- 1) Program preparation - programs and data preparation for batch processing.
- 2) Data analysis - statistical analysis, graphical outputs, etc.
- 3) Information services - data retrieval, input, file modification.
- 4) Office support - word processing and administration.

Initially, 28 terminals are expected to be hardwired to the central processor (expandible at a later time) and the terminals are expected to be used to their fullest extent. During daytime it is expected that 75% of the processor is assumed to be used for interactive processing.

Other central processing unit requirements include:

- o CPU upgradability is important, explain the upgradability of the proposed processor.
- o Provide memory protection to prevent any attempt to write into and/or read from protected areas.
- o Memory shall provide automatic error detection and correction for single bit errors. Detection of multiple bit errors must also be provided.
- o The proposed system must have four mega bytes processor storage. Memory must be expandable, explain the expandability pattern.
- o The proposed system must have an operator console device to enable man machine communication and to help the system operator in monitoring the status of the system components (cpu, I/O devices, etc).
- o Explain I/O devices attachment to the cpu and required interfaces if any.
- o The proposed cpu must have an internal clock and time of day clock.
- o Provides floating point operations.

2.1.2 Direct Access Storage Devices (DASD)

Direct access storage must be provided for operating system (200M Bytes), software packages (100 M Bytes), and data bases (300 M Bytes). Reliability of the computer system is very important to OEP operations so that redundancy in facilities is important. Potential suppliers should have at a minimum, 2 disk drives, with a minimum size of 200 MB, and at least one removed disk. The system should be capability of operating effectively with one disk drive down. Bidder should specify how this system would be expanded in the future (i.e., configuration and cost).

Other requirements:

- o The proposed DASD subsystem must have the facility for error detection, correction, and reporting.
- o The proposed DASD subsystem must be upgradable; specify maximum DASD space.

- The proposed DASD subsystem shall perform diagnosis and verification to maintain its operations.

2.1.3 Offline Storage

Tape units are required for:

- 1) backup of online data,
- 2) data transfer to or from the OEP computer, and
- 3) large data file requirements. Two nine track tape units are required to run applications that require tape, to store backup files and for system reliability.

Other requirements:

- Specify upgrading possibilities.
- Specify speed and data transfer rate.
- Specify capability of providing DASD subsystem back up operations.
- Specify cost for the different sized tape units.

2.1.4 Printers

Three printers are required for operations. A medium speed (600 lpm) printer is required for printing output from batch processing and data base listings. This medium speed printer should be backed up by a 300 lpm printer. A high quality printer capable of letter quality is required for some OEP documents. The high quality printer will also serve as the final copy and a high quality output device for the four word processing stations.

Other requirements of the line printer:

- Print the Arabic character set.
- Adjustable tractor feeds to accommodate different continuous forms sizes.
- Sound deadening cabinet for minimal noise.
- Provide a labeled set of control indicators for ease of operation.

- Notifies the operator with paper jam and end of forms.
- Equipped with adjustable stacking mechanism for stacking of printed output.
- 132 print positions.
- Provide for double spacing, page ejection and multiple line skipping under program control.
- 128 character set for latin characters.

2.1.5 Terminals

All terminals will hard wired to the Central Processor and communicate at 9600 BAUD, using standard communication protocol. Several different types of terminals are required:

- 1) 18- high resolution monochromatic, CRT, alphanumeric terminals,
- 2) 2- color graphics terminals with hard copy units,
- 3) 2- microcomputers (with dual floppy disk drives and a hard disk unit) with wide track matrix printers,
- 4) 4- word processing stations with a local printer (Arabic and English) and,
- 5) 1- alphanumeric CRT terminal in the computer room.
- 6) Low speed dot matrix paper printer/terminal for console log

The microcomputers must have a minimum of 512 K Bytes of memory, must be IBM compatible in order to run OEP microsoftware, and be rugged enough to be reliable under transportable conditions. The microcomputers will be used as stand alone field computers and intelligent terminals to the central processor so that they must be compatible with the central processor system. If this is not possible then other options must be described (additional terminals). Compatibility with IBM microsoftware and the central processor is the most desirable alternative. Additional provisions should be made for the 2 IBM compatible microcomputers already being used by OEP so that they will be compatible with the central processor.

- o Anti-glare screens, operator brightness control
- o Capacity: 24 lines, 80 and 132 characters/line
- o Display Arabic character set
- o Specify field attributes available on the proposed terminals
- o Full screen editing with central processor, using alternate keypad on terminal
- o Keyboards must have typewriter layout, high reliability and capacitive keys
- o Full duplex operation with central computer
- o Cursor control (up-moves, down-moves, left, right moves, etc.)
- o Must be provided with functions keys, specify the no
- o Specify the terminal connectability and maximum number of terminal that can be attached (connected) to the computer
- o Also specify and explain the necessary interfaces between the terminals and the processor if any

Color Graphics Terminals

- o Used for multicolor charts, graphs, ... etc.
- o High resolution units
- o Specify the other features of the proposed colored CRTs
- o Specify the colors available

2.1.6 Graphics

- o 2 flat bed color pen plotters
- o 1 large drum plotter

2.2 SOFTWARE SPECIFICATIONS

The software requirements of OEP can be broken in four categories:

- 1) Operating system,
- 2) Programming Languages,
- 3) Data Base management software, and
- 4) Program Development Software.

Operating System

The computer operating system must be currently supported by the vendor and must provide:

- 1) A multi-user system providing concurrent batch and interactive processing.
- 2) Must be capable of running more than one batch program at a time.
- 3) Interactive processing must serve 28 terminal sessions simultaneously and be expandible.
- 4) A virtual memory in order to run large technical models and other software products. Batch operations must be capable of addressing 2 MBytes of virtual memory.
- 5) Be able to use multiple disk drives, tape units, and line printers (spooled).
- 6) Basic software utilities such as for data file backup, transfer and interactive full screen editing of data files.
- 7) Must be user oriented, easy to train technical and operations staff.
- 8) Data file protection and access control such that each user account can be assigned specific access privileges or no access, read only, read/write levels for any data file.
- 9) Performs error recovery operations.
- 10) Facility for data transfer between different stations.
- 11) Job accounting facility to keep track of system usage.
- 12) Facilities to keep the access of the data processing resources under control of authorized persons only.

- 13) Facility for problem handling, problem reporting and diagnosis.

Programming Languages

COBOL, FORTRAN, Basic and Pascual must all be available and "C" language is desirable.

Data Base Management

Data organization, collection, updating, and retrieval functions that enable OEP to gather and use a large amount of energy-related data. This data management software must:

- o Support the relational approach in order to facilitate the process of building data bases.
- o Support union, intersection, selection and the facility of data reconstruction.
- o Provide a high degree of:
 - Independence
 - Integrity
 - Simplicity and ease of use
- o Be capable of easy recovery from data base malfunctions and error situations.
- o Be capable of growth (explain this feature in the proposed Data Base Software).
- o Provide the user with a facility to define the data content.
- o Provide the users with as simple as possible inquiry and report capability to enable the users to deal with the data base with no requirements to write programs.
- o Interface with at least COBOL and/or FORTRAN. Interface with other programming languages (Basic, Pascual and "C" language) is desirable.
- o The inquiry capabilities must be well defined in the proposal.
- o Full screen forms interface for data entry, retrieval, and menus.
- o The data base have an inquiry facility that is available to the users in both batch and on-line modes.

- Well supported by vendor for software enhancements, corrections to software and user-oriented problems.

Program Development Software

Additional software is required by the computer system to facilitate the use of computer resource by a variety of OEP staff in carrying their daily activities. The following is a description software requirements that are at a minimum but additional software could be added by the bidder if he feels it useful for OEP operations.

1) Editor

- help users create files, insert, delete and change records interactively, using full screen editing features with alternate keyboard equivalent).
- help applications developers in debugging their programs from the computer.
- provide the facility for program compilation and testing interactively.
- facility to store and copy files in the system libraries. (specify types available).

2) Development Facility

Applications and programs development facility that helps applications developers develop their programs with minimal coding effort. Minimizes the effort needed for CRT layout design, and implementation. Simple and easy to learn and use.

3) Graphics

Support users in preparing the development of different graph shapes, circles and histograms. Software must provide the user with adequate facilities to develop their diagrams, display and print them. Software should support output devices (CRT terminals, hardcopy, and flat bed pen plotters and drum plotter).

4) Technical Support Software

Some mathematical functions and statistical routines package should be available to help the engineers and other OEP technical staff with support in doing data analyses and plan evaluations. Software to support general engineering problems, numerical analysis, curve fitting, etc., are important for computer use. A general simulation software capability (e.g. GPSS or SIMULA) is also needed for OEP operations.

2.3 MAINTENANCE AND TIMELY REPAIR

It is mandatory that preventative maintenance and timely repair be provided and available locally in Cairo. Timely repair is defined as the vendor responding to calls for service on a same day basis. If called before 12 noon, the vendor must be onsite by the end of the work day. If called after 12 noon, the vendor must be onsite by the beginning of the next normal work day.

If the bidder is not local to Cairo, the bidder must recommend local vendor(s) that are certified by the original computer manufacturer for providing these services.

Maintenance for software must include implementing all software modifications and updates provided by the manufacturer, and include software support for responding to occasional questions and problems.

The bidder should specify additional software support services that are included or available at additional cost. Any additional costs should be specified.

The bidder should specify if preventative maintenance is required for any of the computer terminals, local printers, or microcomputers.

Timely repair must be provided by the bidder (or a certified local vendor), and be certified as qualified by the original manufacturer to perform such services. The bidder must demonstrate the capability of responding and completing repairs in a timely manner, including the availability and/or stocking of replacement parts.

The bidder must include references of providing these services to similar computer systems in Cairo. The bidder should also include a recommended list of spare parts and supplies, and sources.

2.4 TRAINING

Training needs to be provided for technical and support staff at OEP. Training should be designed to support a 8 to 24 hour per day operation of the computer facility. The vendor should describe the computer technical staff requirements to operate their proposed facility and the training requirements for each of these staff. Detailed job descriptions, experience and training for each staff needed to support this system should be clearly identified. These staff would probably include: system manager and programmers, computer operators, and data base administrators.

In addition to these computer staff the vendor should outline a training program for the OEP technical staff. These staff include:

- 1) Technical staff (application programming, software products, technical models)
- 2) Application programmer (programming languages, data base management)
- 3) Secretaries (word processing)

The bidder should specify what training is included and the cost, availability, and location of any additional training recommended. Self paced (video cassette or computer tutorials) training should also be described.

Training for the following areas should be addressed:

- 1) Operating system operation, account and resource management, system restart and error recovery
- 2) File handling and management, backup procedures
- 3) Operation of equipment: tape, disk, printers
- 4) Full screen editor
- 5) System utilities
- 6) Software products

The bidder should also recommend what courses should be considered after the initial training period. What training should be considered after the first year of operation.

3 TECHNICAL SPECIFICATIONS FOR FACILITY IMPROVEMENTS

Figure 1 provides a rough layout of the room space that has been allocated to the computer, but does not include the space where the UPS would be located. A prebid inspection of this space and the space that would be available for the UPS will be arranged so that all bidders can provide detailed specifications in their bids for facility improvements.

3.1 SPACE IMPROVEMENTS

3.1.1 Expand room by one office (currently sliding glass doors separate offices).

- Remove sliding glass doors and interior walls (need height since floor will be raised).
- Close and lock (or remove) door (from hallway to office) in office being added to computer room.

3.1.2 Add door in hallway leading to computer room (noted on computer room diagram).

3.1.3 Raised floor, (8 inch height) approximately 64 m² area (example specifications attached). Includes:

- Ramp between outside and inside doors at main entrance.
- Step (or ramp) inside door by STI computer.

Note: Raised floor used for:

- * Air distribution.
- * Cabling distribution.
- * Protection from cable damage or injuries from persons tripping.

3.2 AIR CONDITIONING

The computer room must be kept at the following conditions:

- Temperature; 70° F
- Humidity: 50% (± 10%) (both humidifier and dehumidifier if necessary)
- 24 hour operation
- designed specifically for computer rooms

One 100% or 2-50 to 70% units (prefer 2 units)

- Fresh air exchanger (filtered)
- Positive pressure device (to create pressure in room, reducing dust problems)

3.3 POWER REQUIREMENTS

- Power for all computer equipment in computer room (including Air conditioning, ventilation, positive pressure devices). Includes power for operator console.
- Number of Phases, Voltages dependent on computer being purchased.
- Uninterruptible power supply
 - * UPS only for OEP computer (not air conditioning)
 - * Input from 2 different substations
 - * Battery room for: OEP u/p system
STI u/p system
 - Battery room must be: well ventilated
"not too hot"
(vendor recommendation)
 - * Converts AC to DC, charges batteries, DC to AC
 - * Serviceable in Cairo
 - * Automatically switches between power stations, switches to batteries, signals computer room
 - * by pass through power stabilizer in case of UPS failure
- Power cable to each device in room
- Appropriate number of spare power plugs distributed around room (220 v. 50 cycle)
- Distribution and control panel in computer room
- Emergency power OFF switch, located in easy access location (marked on diagram)
- Power stabilizers for all sensitive equipment (e.g. terminals, printers)

3.4 WIRING

3.4.1 Power cables provided by vendor

3.4.2 Computer equipment cables provided by vendor

3.4.3 Terminals (vendor should bid as a separate task)

- Terminal distribution panel (as marked on diagram)
- Wiring from computers (OEP and ST1) to panel
- Wiring from panel to each office

Vendor MUST specify number of conductors required for each terminal and type of cable.

3.5 FIRE PROTECTION

Fire protection system must meet local safety codes. An automatic fire alarm and extinguishing system should be provided. If the extinguishing system is automatic, then a manual system should be available as a backup.

3.6 MAINTENANCE AND REPAIR SERVICE

It is mandatory that preventative maintenance and timely repair be provided by a vendor located in Cairo, for all computer room equipment provided by the bidder (timely repair is defined in section 2.3).

The bidder should specify what preventative maintenance is required for each piece of equipment, including spare parts and supplies needed.

Timely repair must be available on pieces of equipment that are necessary for the operation of the computer system. The bidder must demonstrate the capability of timely repair by certified personnel, available in Cairo. The bidder (or designated vendor) must provide references of providing such services for similar equipment.

3.7 OTHER EQUIPMENT AND SUPPLIES (some are optional)

- Drop ceiling (for air conditioning distribution and lighting)

OPTIONAL

- Lighting fixtures OPTIONAL (Vendor should evaluate)
- Access control at 2 doors - card key system
(information attached)

- Large desk for operator (2 CRT terminals) and chair (76 cm x 152 cm minimum)
- desk and chair for graphics station
- 2 tape cabinets (600 tapes / cabinet)
- 4 equipment and supply shelves / cabinets
- Computer printout shelves, installed on wall in hallway between inner and outer doors
- Emergency lighting - charged battery system, mounted on wall
- Any other equipment the vendor feels will adequately equip this computer facility.

4 BIDDER INSTRUCTIONS

4.1 GENERAL CONDITIONS

The objective of this Request for Proposals is to request fixed price bids for a computer system and the preparation of a facility for the system. The technical specifications for the computer system are described in Section 2 and the specifications for the facility preparation are described in Section 3. Since OEP is interested in continuing support beyond the initial installation of the computer system, the bids are requested to supply additional information (training costs) that are not a part of the fixed price bid but will be used by the evaluators to determine the overall best system and support bidder.

The USAID does not guarantee that a system will be purchased under the arrangements of this bid process but it can be assumed that a bid will be awarded if it meets the technical specifications and the budget requirements. The USAID is interested in a single contract for the supply of the computer system and the facility preparation but reserves the right to separate these parts of the bid and issue two contracts under this RFP. Therefore, the bidder should separate the bids into two parts (Computer System and Facility Preparation).

Hardware, software, maintenance, training, and facility improvements should be quoted as fixed firm prices. All prices should be referenced to published price lists and any discounts that are applicable must be clearly stated and referenced. The discounts must remain fixed for the full term of the contract in the event that additional items are added to purchase before delivery (training and hardware).

For any new features that have been recently announced the bidder must give firm evidence that these options will be available and that they will be adequately supported in Cairo. In the event that USAID exercises its option to split the contract award or to eliminate some of the technical specifications, then the discount price submitted in the bid must be valid for the remaining portions of the equipment and or service.

4.2 PROPOSAL FORMAT AND CONTENT

4.2.1 General

Proposals shall be submitted in two separately sealed parts as follows:

- Part I - Technical Information
 - Section a - Computer System
 - Section b - Facility Preparation

Part II -- Cost Information
Section a - Computer System
Section b - Facility Preparation

Each part shall consist of one original and six (6) copies. In addition, two (2) copies of any separate supporting documents must be included, such as manuals, advertising summaries, brochures, customer references, etc.

Each proposal should be simply presented providing a straightforward, concise description of the vendor's capabilities to satisfy the requirements of the RFP. Promotional material are not desired. However, photographs of proposed equipment or facility preparation contracts performed by the vendors should be included in the proposal, and technical literature must be included as required to document performance characteristics and specifications. Emphasis in each proposal must be on completeness and clarity of content.

4.2.2 Configuration and General Description

The vendor shall supply a complete configuration diagram and list for the system proposed. This configuration must completely specify the model numbers of all components in the system. As part of section b the vendor must supply a complete layout drawing of the computer facility, including the UPS location, and illustrate all modifications that are described in the proposal.

4.2.3 Compliance with Hardware Requirements

The vendor shall document the availability of all required hardware components and features. For each component the vendor shall reference the document which describes the component or feature that satisfies the requirement. When alternatives to required components are proposed, the vendor shall attach a description of the alternate component which must include complete specifications.

4.2.4 Compliance with Software Requirements

The vendor shall document the availability of the software components required, and reference the document which describes the component or feature that satisfies the requirement. If software components or features are to be supplied by a party other than the vendor, the vendor shall state the source of the component or feature along with references to their availability and support.

4.2.5 Deviations from Requirements

The vendor shall explicitly specify any hardware or software requirement which is not satisfied by the proposed system. The vendor may, if he wishes, propose alternatives for any requirement which cannot be met. The vendor shall also specify any room changes that do coincide with the space already allotted for the computer system.

4.2.6 Capacity to Upgrade

The vendor shall summarize options or expansions that can be added to the system to adjust to increased workload demands; and state clearly if the item in question is the fully equipped top-of-the-line equipment and cannot be readily enhanced or increased in capacity. The vendor should also state what software systems are available and could be incorporated into the system at a later date. Cost estimates and upgrading requirements should be simply stated and referenced.

4.2.7 Environmental Requirements

The vendor shall supply complete physical requirements for each component of the proposed system. This must include: a) physical space requirements; b) electrical requirements, including both peak loads and normal operating loads for the system proposed (required voltages, currents, and power features must be specified); c) weight; and d) temperature and humidity. The section b proposed should of course meet at least the minimum requirements for the system with an acceptable level of reliability.

4.2.8 Delivery Schedule

Vendors shall state the maximum number of days needed to perform the facility preparation tasks and to install the complete system, and should clearly identify the testing period.

4.2.9 System Documentation

Two (2) copies of all system documentation shall accompany the proposal. This documentation must include all documents and manuals ordinarily used in the operation, management, use, and maintenance of the proposed system, even though these documents may not be necessary to document a specific requirement of the proposal. This packet should also include installation specifications and a price list of all available documentation related to the system. Equipment documentation should also be included for equipment used in the facility preparation (air conditioning, humidity control).

4.2.10 Client References

Vendors shall list as references five (5) major customers presently utilizing the same or approximately the same equipment as proposed. References that are located in Egypt are strongly recommended. References should be also available for facility preparation in Egypt of this type of computer system or similar type of system.

4.2.11 Cost Information

Tables A through G shall be submitted in sufficient detail to provide the capability to develop firm costs. Vendors shall include any additional cost information which may be pertinent to the proposal such as additional training costs beyond the initial cost of training units that are a basic part of the proposal. The tables should indicate components and items benefiting from volume discounts. These tables are:

<u>Table</u>	<u>Title</u>
A	One Time Costs
B	Computer System Hardware Costs
C	Software Costs
D	Facility Improvement Costs
E	Facility Hardware Costs
F	Optional Hardware, Software, or Training not listed in Tables B, C, D or E.
G	Cost Summary

4.3 BID EVALUATION PROCEDURE AND CRITERIA

The evaluation of bids will be performed by the USAID, assisted by an external committee of Egyptian and U.S. experts. The committee members will rank proposals using several criteria. The major criteria are:

- a) Completeness and Clarity. Whether the proposal addresses all the functional specifications presented in the RFP, including reference materials and the degree to which the proposal presents itself in a clear and concise manner. (10%)

- b) System Performance. Performance of the computer system in meeting the goal of OEP over the short and long term. This performance criteria will be evaluated for both the computer system and facility preparation independently. (20%)
- c) Experience. Experience with similar contracts for comparable equipment and facility preparation. An evaluation of references will be one of the primary means of evaluating this criteria. References in Egypt will be considered more valuable than elsewhere. (10%)
- d) Support. Ability and responsiveness in supporting the computer system (hardware and software) and facility. This very important criteria must be clearly demonstrated in Egypt. Maintenance scheduling and responsiveness are important elements as well as long term training and cooperation with vendor over the long term. (20%)
- e) Contractor Resource Capability. The financial resources; adequate number of trained staff; and ability to meet schedules and delivery dates must be clearly identified. (10%)
- f) Schedule. No schedule specifications are provided but USAID and OEP are interested in having the computer system installed and operating as soon as possible. Therefore, each proposal will be evaluated in terms of time from contract signing until system operation. Time for facility preparation will be evaluated separately from delivery and installation of the computer system so that the proposal should treat these items independently from the schedule perspective. (10%)
- g) Cost - USAID and OEP are concerned with initial costs and long term costs and the cost portion of the proposal will be evaluated from this perspective. Certain options may not be a basic part of the initial contract but considered in the future and will be evaluated from a cost perspective. Some of these items are 1) maintenance requirements not covered by the contract or contract escalation; 2) incremental costs to expand the system, and 3) additional training costs. (40%)

4.4 SCHEDULE OF DELIVERY AND SET UP

The USAID and OEP are interested in having the facility prepared and system installed in less than six months from the contract signing. The degree to which the contractor is able to shorten this schedule is considered a desirable attribute for the proposal. The availability of a similar computer system for training and set up of OEP models prior to the delivery and installation of the OEP computer system will be strongly considered.

4.5 SYSTEM ACCEPTANCE

The selected bidder shall certify in writing to the USAID when the equipment is installed in Cairo and ready for use. A performance test period of thirty consecutive calendar days shall commence on the first workday following certification, at which time operational control becomes the responsibility of the OEP or its designated agent. If the equipment shall have operated at an average level of effectiveness of 95 percent or more for a period of 30 consecutive days from the commencement date of the performance period, and if it operates in a manner described in the proposal and referenced material, then USAID will consider the system acceptable.

4.6 WARRANTY/MAINTENANCE

The contractor should clearly define the warranty coverage for each piece of equipment included in the system. The contractor must provide a scheduled preventive maintenance package and be able to provide parts and skilled labor in a timely manner. Quick response to uncheduled outage problems of the computer system or the facility equipment (air condition, humidifiers, etc.) is important. A less than 24 hour response time is necessary and should be part of the contract.

If there are price decreases or additional discounts (other than those quoted in the proposal) prior to delivery and installation of the equipment, then these price decreases or discounts must be applied to this contract.

APPENDIX A

TABLE FOR COST INFORMATION

TABLE A. ONE-TIME COSTS

1. Transportation costs to deliver
computer systems and facility
preparation equipment to Cairo, Egypt.

2. Installation charges.

3. Training costs.

4. Other one-time costs. (List)

TOTAL ONE-TIME COSTS

TABLE B. COMPUTER SYSTEM HARDWARE COSTS

Model Number	Description	No. of Units	Unit Purchase Price	Volume Discount Price/Unit	Total Cost (all units)
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TOTAL

TABLE C. SOFTWARE COSTS

Item Designation	Description	No. of Units	One-time Cost or Paid-up License per Unit	Monthly Maintenance or License per Unit
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TOTAL

TABLE E FACILITY HARDWARE COSTS

Model Number	Description	No. of Units	Unit Cost	Value Discount	Total Cost
TOTAL					

TABLE F OPTIONAL HARDWARE, SOFTWARE, OR TRAINING
COSTS NOT LISTED IN TABLES B, C, D, E

Item or Model Number	Description	No. of Units	Unit Purchase Price	Volume Discount Price per Unit	Total Cost (All Units)
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TABLE G COST SUMMARY

Total One-Time Charges (Table A)
Total Purchase Price of Hardware (Table B)
Facility Improvement Costs (Table D)
Facility Hardware Costs (Table E)
Annual Hardware Maintenance Cost
Total Software Cost (Paid up License)
Annual Software License Fee
TOTAL 5-YEAR COST

ARGONNE NATIONAL LABORATORY
9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS 60439

TELEPHONE 312/972-3724

August 26, 1985

TO: Dr. Hussein Abdallah, Chairman Organization for Energy Planning
Eric Peterson, Project Officer, USAID, Cairo

FROM: Thomas Volsko, Project Manager, Technical Support Contract to Energy
Policy Planning Subproject 263-0122.1 (AA)

SUBJECT: Distributed Microcomputer Systems Specification for OEP

This memo is a companion to the needs memo that describes the benefits of the distributed microsystem. I have defined a basic package that would be the first buy for OEP and could easily meet their needs over the next year. Each machine is defined in terms of the OEP functional requirements as described in the computer needs document of 1984. Table 1 defines the recommended first purchase for OEP. It defines all the major hardware and software components of the system. Table 2 provides a sample cost list (U.S. list price and GSA) for these components using our recommended vendor, however, Table 1 adequately describes the system for the use in a purchase requisition. I will further describe each of these major components.

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Processor

Table 1 defines the processor for all 11 stations as an 80286 processor chip. This is the latest processor that is the heart of the IBM PC/AT machine which is the recommended machine for OEP. The 80286 processor is also available in other IBM compatible machines so that other vendors could bid on this configuration. The 80287 co-processor should be added to these basic machines because this will enhance the speed of calculation in all the machines. Some of the applications may not require the 80287 but since the cost is minimal it would be appropriate that all OEP machines have this co-processor option. The IBM PC/AT is the recommended machine for OEP because it has been on the market for at least one year and many of the problems have been debugged. In addition IBM usually provides excellent support and backup to their equipment so that reliability, which is an important factor for OEP, would probably be the best with the IBM equipment. However, IBM compatible vendors like COMPAQ produce excellent products and might end up being as reliable as the IBM product.

Hard Disk

Each of the microcomputer workstations would include at least a 20 megabyte hard disk that would be used for storing programs or small databases as part of their individual application. The large data base system computer should probably have 200 to 300 megabytes of hard disk storage of large data bases for all of OEP. More than one large hard disk should be considered for this station (2-120 Mbyte units). However, until the application grows, 20 megabytes of storage would be adequate for storing sizeable data bases on these microcomputers, except in the case of the large data base station. Other large disks can be added later, with better technology available.

Floppy Disk

All microcomputer stations should have two floppy disk drives as an integral part of their system. The two floppy disk drives should be of different densities. The one floppy disk should be a 1.2 megabyte, high-density disk and the other should be 3.6 kilobyte standard-density disk that is current in most microcomputers today. The high-density floppy disk would be an excellent mechanism for storing large amounts of data and programs rather than including everything on the hard disk. Many microcomputers will come with two floppy disk drives but usually only at 3.6 kilobyte levels. Vendors should only be considered that include the higher density floppy disk as one of the disks.

Tape Unit

The tape unit identified in this configuration would be a backup that could be used to archive and store data. A tape unit is suggested for both the major data base station and data analysis station for OEP. Cartridge tape units are available at a reasonable cost that could be used to store data rather than keeping it on the hard disk. We considered the use of the modern day Bernoulli Box (cartridge hard disk) currently marketed by IOMEGA Corporation. This hard disk cartridge unit is very reliable and it has provided excellent service at Argonne for over a year. However, recent reviews of this hardware find that it is very sensitive to dust and therefore it is not practical for application in OEP because of these dust problems. I am sure that this technology will be advanced over the next several years and in the future OEP might consider buying a Bernoulli Box type of system for data storage.

Memory

The standard microcomputer currently comes with 640K of random access memory. Each of the machines should come with this memory except for the technical analysis machines that should get an initial 3 megabytes of memory. Additional memory can be added later to the other machines if the need arises for any one of the applications. The cost for additional memory is inexpensive and can be added quite easily with no additional modification charges other than inserting the new memory units. Therefore, it is not appropriate at this time to add large amounts of memory to each one of these configurations until the application within OEP demands this additional memory.

Monitor

All microcomputers with the exception of field station and the word processing station should have color graphic monitors. These color graphic monitors should be an enhanced or high resolution monitors, one of which is currently being used by OEP. The medium resolution monitors are very difficult on the eyes and should not be considered as an alternative. The enhanced color graphics monitor should be at least equivalent to the enhanced graphics monitor currently marketed by IBM.

Printer

Each station should have its own high quality, dot matrix printer with exception of the database stations that might require a slightly faster and higher quality printer. Examples of these printers are listed in the cost sheet in Table 2.

Plotter

We would suggest that the database station, the technical analysis stations, and the data analysis station have color pen plotters for plotting graphical output. This is not a costly item and greatly facilitates the presentation of technical analysis and data.

Networking

We would suggest that each of the other systems be networked so that databases can be shared and/or transferred, except for the word processing station and the field station. If appropriate, the management station can be independent. Even though the systems are all networked, it would be possible to decouple one of the machines if it was necessary to make this machine secure from all other applications.

Power Backup and Filtering Unit

It is necessary that all microcomputer systems and their associated hardware (printers, plotters) should have a power backup and filtering units. This would greatly increase the reliability of the equipment, minimize down time, and minimize any difficulties in the operation of programs on these computers.

Additional Procurement Thoughts

Training - It is not necessary that training be a part of the procurement package. It can be acquired from a local vendor on an as needed basis. A tradeoff between best price and an integrated package (including a certain number of hours of training) should be considered. Firms like Computerland (down the street from OEP) could offer an integrated package and a reasonable cost. If training is to be part of an integrated package, I would suggest that 500 training hours be included in the procurement with an open procurement to add more if the training goes well.

Setup - Procurement should include equipment setup, testing and demonstration. A performance period of 20-30 days should be included to uncover any bugs.

Service - Vendor should arrange for some local support of the equipment (reliable support), if this is not part of an integrated package. OEP should probably set up its own relationship with local firms.

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Table 1 GEP Distributed System Configuration

	Data Base Station	Management Station	Data Entry and Library	Computer Support	Technical Analysis	Data Analysis	Field Station	Word Processor
Processor	80286	80286	80286	80286	80286	80286	80286	80286
Co-processor	80287	80287	80287	80287	80287	80287	80287	80287
Hard Disk (MBytes)	200-300	20		20	20	20	20	20
Floppy Disk (1.2 MB, 3.6 KB)	2	2	2	2	2	2	2	2
Telex Unit	Yes	No	No	No	No	Yes	No	No
Memory	640K	640K	640K	640K	3M	640K	640K	640K
Monitors:								
Color Graphic	✓	✓	✓	✓	✓	✓	✓	✓
Monochrome								
Monochrome with Arabic								
Real Time Clock	✓	✓	✓	✓	✓	✓	✓	✓
Serial Port	✓	✓	✓	✓	✓	✓	✓	✓
Parallel Port	✓	✓	✓	✓	✓	✓	✓	✓
Printer:								
Dot Matrix High Quality	✓	✓	✓	✓	✓	✓	✓	✓
Plotter	✓				✓	✓		
Networked	✓	✓	✓	✓		✓		✓
Power Backup and Filtering Unit	✓	✓	✓	✓	✓	✓	✓	✓
Software:								
Spreadsheet	✓	✓		✓	✓	✓	✓	
Editor				✓	✓	✓		✓
Graphics	✓	✓		✓	✓	✓		
Data Management	✓	✓	✓	✓	✓	✓	✓	
FORTRAN				✓	✓	✓		
BASIC	✓	✓	✓	✓	✓	✓	✓	
COBOL	✓			✓	✓	✓	✓	
Word Processing								✓
Number of Stations	1	1	1	2	2	1	1	2

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Table 2 Unit Costs for Microcomputer Equipment

All Prices in U.S. \$						
	# List	# GSA	# in System ^A	System List	Cost GSA	
<u>IBM PC/AT</u>						
1 20 MByte Hard Disk	5,995	4,141	11	65,945	45,551	
1 1.2 MByte Floppy Disk 512K Memory						
Floppy Disk Drive (3.6KB)	650	442	11	7,150	4,862	
128K Memory Expansion (to expand unit to 640K memory)	350	238	14	3,850	2,618	
Memory Expansion to 3M	2,500	2,500	2	5,000	5,000	
Serial/Parallel Adapter	150	102	11	1,650	1,122	
Serial Adapter Connector	35	24	11	385	264	
Network Adapter Board	695	473	11	7,645	5,203	
Monitor - Monochrome	275	200(e)	11	275	200	
Monitor - Monochrome with Arabic	?	?	2	?	?	
Monitor - High Resolution Color (IBM 5154)	849	577	8	6,792	4,616	
Enhanced Graphic Adapter	524	356	8	4,192	2,846	
Streaming Tape Backup Unit Mountain 60 MBytes/Tape	1,895	1516(e)	2	3,790	3,032	
Hard Disk - 120	9,900	7920(e)	2	19,800	15,840	
<u>Printers:</u>						
IBM Proprinters 200 Char/Sec 200 Char/Sec Draft, 40 Char/Sec letter quality, No Wide Carriage, Has Compressed Character Format	549	375	10	5,490	3,750	
Printer Cable	45	N/C	10	45	NC	
Toshiba 350: 288 Char/Sec Wide Carriage, Programmable Fonts	1,895	1500(e)	1	1,895	1,500	
Printer Cable	50(e)	50(e)	1	50	50	

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Table 2 Unit Costs for Microcomputer Equipment (Cont'd.)

	# List	# GSA	# in System ^a	System List	Cost GSA
Pen Plotter - 6 Pens HP 7475 or IBM 7372	1,900	1,292	4	7,600	5,168
Plotter Cable	51	43	6	306	258
Network Translator Unit (Master Unit Only) 8 Slots	595	405	1	595	405
Ease Expander (8 additional slots)	59	40	1	59	40
Cable/Expansion Unit (Short-50 ft)	39	27			
Cable/Expansion Unit (Medium-100 ft)	79	54			
Cable/Expansion Unit (Long-200 ft)	89	61	5	445	305
Power Backup and Filtering Unit	1,000	1,000	11	11,000	11,000
<u>Software:</u>					
MS-DOS 3.1	65	44	11	715	484
Xenix	395	336	2	790	772
Networking-IBM (for ea. machine)	75	51	6	450	306
Spreadsheet - Lotus 1-2-3	400	400	2	800	800
Framework	400	400	2	800	800
Date Management - dBase III	400	400	4	1,600	1,600
Word Processing	400(e)	400(e)	2	800	800
Graphical - Grafbak	400	400	4	1,600	1,600
IBM Professional Editor	200	200	4	800	800
FORTRAN - MSFORTRAN (or IBM)	400	400	2	800	800
BASIC -	300	300	2	600	600
COBOL - MSCOBOL	400	400	2	800	800
Total Cost				164,514	123,792

^a# in system represents the total number of pieces of equipment required and does not correspond directly with Table 1, which displays the potential use of equipment (or software) by functional area within the O&P organization.

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ARGONNE NATIONAL LABORATORY

9760 SOUTH CASS AVENUE, ARGONNE, ILLINOIS 60439

TELEPHONE 312/972-3724

August 26, 1985

TO: Dr. Hussein Abdellah, Chairman Organization for Energy Planning
Eric Peterson, Project Officer, USAID, Cairo

FROM: Thomas Wolsko, Project Manager, Technical Support Contract to Energy
Policy Planning Subproject 263-0123.1 (T)

SUBJECT: Computer Hardware/Software Needs for the Organization for Energy
Planning

A little more than one year ago a computer system needs description was developed for the Organization for Energy Planning. This description characterized a computer system that was necessary to support the anticipated modeling and data base activities of the Organization for Energy Planning. A centralized computer system (minicomputer) was characterized on the basis of its need to support some large analytical models and some large data bases that could not be handled by microcomputers at that time.

In the past year technology advances in microcomputers and the availability of large analytical models on microcomputers have changed my perspective, and I currently believe that the need for a minicomputer centralized computer system no longer exists. I will briefly describe the change in status of computers and models in the past year.

The Technology

In spring of 1984 the state-of-the-art microcomputer (IBM compatible) was a 16 bit processor with a maximum of 640 kilobytes of memory. Networking systems was not reasonable for most microcomputers, supporting hardware was not available, and software for analytical work had not been tested. Since that time IBM released their advanced technology microcomputer (PC/AT), in the fall of 1984, that includes a much faster processor, better supporting hardware, and excellent networking capabilities. The current AT can include three megabytes of memory and either an MS/DOS or Unix type operating system can be used. Hardware with similar specifications is now available from other vendors that produce IBM compatible microcomputers.

Conclusion: Microcomputer technology is advancing rapidly. Hardware and software are now available that can meet the computer system needs of OEP and the latest advances can be added later.

The Models

The primary driving force for the minicomputer system in 1984 was the need to support large analytical models like WASP (see p. 8 of the "Description of Computer Hardware/Software Needs for the Organization for Energy Planning). The WASP models and other energy planning models were not available on microcomputers and therefore a larger processor was required. In the past year, Argonne has developed an integrated modeling package (ENPEP-Energy and Power Evaluation Program) for micro-computers that includes the WASP model. The microcomputer version of WASP will be available shortly. A complete set of energy planning models are available in the ENPEP system as well as from other sources. Therefore, a minicomputer system is not necessary to support the large analytical models and these models can be run conveniently on a micro-computer system.

In addition to these two primary changes in the computer system needs situation (technology advancement and analytical model needs) there are many advantages of a distributed microcomputer system. I will briefly describe each of the major advantages.

1. Cost

Purchase Price

The cost of the minicomputer system was estimated between \$825,000 and \$950,000 (see cost estimate memo May 28, 1985). This price includes about \$180,000 for room improvements and power system backup that would be required for the minicomputer. Since OEP currently leases office space, these investments would be made in rented facilities. Any computer movement and relocation would be very expensive. The initial purchase price of the microcomputer system is around \$150,000. Since the microcomputer system does not require a specialized work environment, the room improvements are not necessary.

Operating Costs

The annual maintenance fee for a minicomputer system is usually around 10% of the capital value of the equipment. The annual maintenance requirement for the minicomputer system and support facilities would be around \$80,000. Since the microcomputer equipment is as sensitive, the annual maintenance might only be in the hundreds of dollars or at most maybe \$2,000.

2. Reliability

The minicomputer system would employ a central station processor that would be used for all OEP activities (database, library, technical analysis, word processing). Therefore, when the central system is down for maintenance or repair the entire OEP staff would be without computer support. A distributed microcomputer system allows all users to be independent of each other, but since each of the microcomputer stations is similar, if a computer is down for repair then another can be used in its place. Redundancy greatly improves the reliability of any system. If some

major repair were required for the minicomputer that required a long down time (parts not available) it could be a disaster for OEP as an organization.

3. Flexibility

The minicomputer system would be primarily a one time purchase that would freeze the OEP computer system for many years. Since OEP is an evolving organization, it is difficult to anticipate completely its computer needs for the future and the centralized minicomputer may not meet the needs in a couple of years. On the other hand the microcomputer system would be developed incrementally and therefore can be modified to meet the OEP computer needs as they evolve. Any very important factor is the rapidly advancing microcomputer technology. An incremental purchasing approach could take advantage of technology (software and hardware) that will be available next year, and following years.

4. Training

The amount of training required to use a microcomputer system is far less than any minicomputer. Systems managers and systems programmers (required for a minicomputer system) would require weeks of training to support the OEP staff. This training is expensive and centralizes the human computer resources, thus requiring the OEP staff to use a few people for all of these applications. The microcomputer system on the other hand has easy-to-use (user-friendly) software that can be easily learned by any of the technical or administrative staff. This would allow each staff to pursue his own applications without requiring the help of the computer system staff. This is certainly a very important factor considering the rapid turnover of computer professionals that currently exists in Egypt.

Another factor to consider is training. Most training courses for minicomputer systems software are structured courses and anything beyond these courses is considered technical consulting. These courses are usually quite expensive and are only available in a group format. However, microcomputer software is easy to learn, inexpensive, one-on-one training is available on an hourly basis, and training activities can be actual problem-solving sessions (setting up an OEP data base using dBase III).

In summary, OEP would be better served by a microcomputer system from a training perspective because:

- 1) it would involve much less cost,
- 2) it is easier to obtain,
- 3) OEP staff would be fully using the computer resources much quicker,
- 4) one-on-one training would facilitate learning the system, and
- 5) microcomputer software usually comes with tutorials that are adequate for learning the software basics.

TW/dd