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UKRAINE LOCAL ELECTRIC COMPANIES

Provision of Equipment (Task 9)

NIS Institutional Based Services Under the Energy Efficiency and Market Reform Project
Contract No CCN-Q-00-93-00152-00

Ukraine Power Sector Reform
Delivery Order No 10

Final Report

Prepared for

U S Agency for International Development
Bureau for Europe and NIS
Office of Environment, Energy and Urban Development
Energy and Infrastructure Division

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EXECUTIVE SUMMARY

S.1 TASK DESCRIPTION

The work on this task was initated under Delivery Order 10 of the Ukrainian Power Sector Reform Project, Activity One Local Electric Companies (LECs) The objectives of the overall activity were defined as

LEC-OB-1	Separate from existing regional monopolies and create new organizational structures as joint stock companies
LEC-OB-2	Establish commercial operating LECs that can participate in the restructured utility system
LEC-OB-3	Develop capability and systems that will allow sustained LEC operation on an economic and efficiency basis

The Scope of Work for these activities included the specific LEC-Task 9 - Provision of Equipment, which states

"--Based on organizational/operational requirements identified in previous tasks (of the Delivery Order), define equipment needs to initiate upgrade of key management and/or operational systems(s) -- Procure and assure installation of selected equipment based on selection criteria and priorities established in consultation with LECs and USAID"

S 2 METHODOLOGY AND APPROACH

In May, 1996, Hagler Bailly undertook a full survey and analysis of the data-automation systems which were in place at the twelve (12) Oblenergos where Hagler Bailly was, at that time, providing basic advisory services This survey resulted in a response and request for wide variety of computing equipment from all of the Oblenergos in various forms Given the requirement of providing assistance in developing "capability and systems (to) allow sustained LEC operation on an economic and efficiency basis" and giving consideration to concurrent work activities that were underway at the instruction of USAID's Kiev Mission, Hagler Bailly LEC advisors coordinated the purchase of this equipment with it's subcontractor, Price-Waterhouse The Price Waterhouse team had, as a separate task, initiated a project to design and develop a specific piece of software to be applied at the Oblenergos to assist in the aging of account receivables (one part of the Accounts Receivable Collection Process) While the system requirements for the application of the Accounts Aging Software formed the basis for the specification of equipment which was purchased under this project, the overall application of this equipment was developed to assist the Oblenergos in financial management and reporting, monitoring of accounts receivables, accounting, and tariff calculations, as well as general management information and communication systems

S.3 CHRONOLOGY OF WORK PERFORMED

In July, 1996 a final report making full recommendations along with complete specifications for equipment to be purchsed was prepared by the Hagler Bailly LEC Advisory Team This report (see Appendix A) was reviewed and additional data and information was compiled and prepared, and in November, 1996, it was forwarded to USAID's Contracts Office for review, with a request for approval of the purchase of this equipment During the period of November, 1996 to February, 1997, USAID technical specialists in the area of computing equipment worked with Hagler Bailly to ensure that the equipment being specificed was appropriate and would indeed meet the intended purpose of it's application Final purchase approval was provided by USAID in March, 1997

In April/May, 1997, bid were solicited from various computer vendors for the specified equipment Final Bids were received in June, 1997 and final approvals for the purchase of the equipment were obtained in August, 1997

All purchased equipment was shipped to a central warehouse in the United States for accumulation and subsequent re-shipment to Ukraine, in Oblenergo-specific packaging Concurrently, the Kiev office of Hagler Bailly developed a list of requirements for clearance through the Ukrainian Customs In the Fall of 1997, USAID informed Hagler Bailly that it's Ukrainian registration with the Ukrainian National Agency for Reconstruction and Development, as a provider of Technical Assistance under contract with USAID, had lapsed Shipment of the equipment to Ukraine was postponed until such time as registration could be reinstated (January, 1998)

In January, 1998, several newly identified issues, including shipping insurance, physical protection of the equipment in transit, guarantee of Customs Clearance, etc, were raised, which led to postponing the shipment for approximately 8 weeks until all final shipping issues could be resolved The final shipment was made on March 5 1998 Equipment was received at Borispil (Kiev) Customs Warehouse on March 17, 1998, at which time the paperwork to clear this shipment without Customs Fees could be processed (Advance applications for Customs clearances were refused by NARD, since the shipment had not arrived)

The process of clearance through Ukrainian Customs required approximately 8 weeks from the date of original receipt by the Customs Warehouse in Kiev

On May 12, 1998, the shipment was released from Ukrainian Customs and transferred to a Minenergo-owned warehouse in Kiev, where the shipment was placed under 24-hour supervision and where inspection and testing of the equipment was undertaken by the local Compac computer service provider, RG-Data

As individual Oblenergo equipment was inspected and tested, the specific Oblenergo was asked to come to Kiev to pick up it's shipment Six (6) Oblenergose also asked Hagler Bailly to provide security services to help insure the safe shipment from the Minenergo warehouse to the ultimate destination at the specified Oblenergo Transfer of the computer equipment to

Oblenergos was completed on June 4, 1998 All the recipients signed the Letters of Receipt and Acceptance (see Appendix B)

In the process of initial testing by RGdata, it was found that some components (power cords, interface cables) needed to operate servers and workstations had not been provided for in the original urchase Theses components were purchased locally in Ukraine A final and complete inventory, including components purchased in Ukraine, is presented in Appendix C

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APPENDIX A

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Information Systems for the Oblenergos of Ukraine: A Strategy for Development

DRAFT REPORT
July 1996

Prepared for
The U S Agency for International Development

by
CMP International and
Hagler Bailly Consulting, Inc

August 5, 1996

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Chapter I. INTRODUCTION

Under the U S Agency for International Development's program to assist in Restructuring of the Ukrainian Energy Infrastructure, the Oblenergos (Local Electric Companies or "LECs") have been recognized as a key element in making a successful transition to market-based operations As an integral part of the overall program of assistance, CMP International and Hagler Bailly Consulting, Inc have undertaken a thorough review of the capabilities and needs of the Oblenergo Information Systems and developed a strategic approach to address the requirements which are needed to help insure this successful transition

The criticality of these needs may be best exemplified by the recent focus on the Oblenergos to improve the cash flow position of the entire energy infrastructure As the final link in the chain between generator and end-user, the Oblenergo provides the critical interface between the energy system and it's customers Customers who, in the final analysis must pay for the product which is provided by the industry electricity

This report presents a compilation of information which has been gathered over the last three months, including a review of currently installed computing and communications equipment, current applications and capabilities, a review of the perceived needs of the LECs, themselves, an evaluation of information system requirements for proper management and operations in a market-based infrastructure, and an assessment of available equipment and training which can be readily implemented The results of these activities and the proposed strategic approach for development are included in Chapter 4 of this report, entitled "Recommendations"

It should be noted that this report includes only information on the twelve (12) Oblenergos located in the Dnieper, Kiev and Vinnitsia Regions, which fall within the purview of the Advisory Tasks that have been assigned to CMP International and Hagler Bailly Consulting, Inc , as part of the U S effort to assist Ukraine in the restructuring of its electric energy infrastructure No attempt was made to investigate the capabilities and/or requirements of Oblenergos located outside these regions However, we believe that this report may provide a reasonable representation of the capabilities and needs of all Oblenergos throughout Ukraine

Scope of Work

The work which is represented by this report consisted of a series of personal interviews and data gathering efforts at the twelve (12)[1] Ukrainian Oblenergos which are being supported by CMP International and Hagler Bailly Consulting, Inc , under the auspices of the USAID assistance program in Ukraine These efforts, were combined with several discussions held with various technical experts in the field of communications and computing, and an analysis of future information requirements Included in these efforts were the following activities

- Review of Current Organizational Structures & Information Flows
- Review of Proposed Organizational Structures & Market Information Requirements
- Review of Current Applications and Software Capabilities
- Assessment of Information System Requirements for Market-Based Operations
- Final Recommendations for Implementation of a Strategic Approach to development of an Information Systems infrastructure for Oblenergos

Coordination with Other Tasks

Recognition should be made of all the individual management personnel at the various Oblenergos for their assistance in preparing this information as well as Mr Aaron Leatherwood of Price Waterhouse, and to Mr Charles Zimmerman, Mr Jim Ellison, and Mr Andrei Kuninov, all of Hagler Bailly Consulting, for their efforts in developing a similar report on Information System Requirements for the Generating Companies of Ukraine It is their work and the lessons which they learned, which guided the development of this report

[1]Due to diversities between the Oblenergos, not all twelve of the Oblenergos participated in the data-gathering effort to the same degree Whenever possible, verbal comments and informal information have been included in this report, as an indication of the level of capabilities and availability of equipment for all Oblenergos

Chapter 2. INFORMATION APPLICATIONS

Energomarket Operations

Customer Records and "Special Collection Groups"

As pointed out in the Introductory Section of this Report, the critical role of the Oblenergo as the interface between the energy structure and its customers has been the focus of a considerable amount of attention over the last six months In an effort to improve the solvency of the National Dispatch Center (NDC) and to help expedite World Bank lending to the industry, Oblenergos have been the subject of a flurry of activities at the national level, including issuance of Minenergo Orders and Decrees of the Cabinet of Ministers, all intended to help insure that all revenues due to the industry are collected and that they are not diverted to local needs While these recent actions have, in part, attempted to overcome national economic problems at the local level of Oblenergo management, in fact the actions have all recognized the critical role of the Oblenergo in delivering electricity to the ultimate user of the industry's product This role, by it's very nature, implies that the Oblenergo must have the right and authority to monitor customer payments for delivery of electricity and to deprive the customer of these services if the customer fails to pay for these services It is this role of the Oblenergo that has resulted in the recent focus of attention on the formation of "Special Collection Groups," which have been tasked with the collection of debts from customers who have not paid for services (and their disconnection until payments are made), and the implementation of "Transit Accounts," which are intended to insure the distribution of cash assets to all elements of the industry on an appropriate basis

It is obvious that appropriate information systems and record-keeping capabilities are a necessity at the local level, in order to insure that the Oblenergo has appropriate tools to implement these market-based, and nationally-mandated activities There is little question that this is of the highest priority, not only for the Oblenergo, but for the industry as a whole

Energomarket Transactions & Record Keeping

A method of maintaining accurate records on Energy Purchases (from the Energomarket) and Energy Sales (to its customers), or transactions provided for Independent Energy Supply Companies (IES), is also vital to the operations of Oblenergos in the new market-based system Detailed information on hourly load transactions and wholesale tariffs, as well as appropriate credits and offsets for customers who have Subsidy Certificates or who fall into a "Privileged Customer" classification, must all be monitored by the Oblenergo in its dealings with the Energomarket to insure that accurate supply-side information on billing and credits are provided to, and received from the Energomarket

On the other hand, the delivery-side of the Oblenergos operations must also maintain detailed information on hourly transactions for its own major customers and the customers of Independent Energy Supply customers, while also providing a mechanism for detailed monitoring of electricity usage by Subsidized or Privileged customers, in order to insure that appropriate credit requests are submitted to the Energomarket, and to insure that monthly tariff and billing calculations properly reflect these elements

Tariff Calculations and Adjustments

No less important than the information which is required for the proper operations of the "Special Collection Groups" and the transactions between the Oblenergo and the Energomarket, a third requirement of the Oblenergo's Information System is the ability to properly and rapidly calculate changing tariff structures, based on the information provided through the monthly operations of the Wholesale electric market, the appropriate offset and subsidy credits for Subsidized and/or Privileged Customers, and the credits and collection information which is collected by the Special Collection Groups

From the standpoint of providing a sound economic basis for a viable commercial operation, the calculation of retail tariffs at the local level is no less important than wholesale tariffs at the national level While this activity is expected to be phased-in over a one-year period for the Oblenergos, initial Information System elements must recognize these requirements and insure that they are designed into the basic systems

Financial Management Information Systems (FMIS)

In addition to the specific transactions which are necessary in the operations of the Oblenergo as a critical element of the Energomarket, the following elements must also be addressed to insure that the Oblenergo is a viable commercial entity and will be in a position to attract outside investment funds

Customer Transactions

While the establishment of "Special Collection Groups" has overshadowed recent events, the normal day-to-day business of the Oblenergo in dealing with customers should not be forgotten in evaluating the needs of an Information Systems With recent changes in government policy and edicts from the Cabinet of Ministers, the Oblenergo may soon find itself in a position of being able to develop and maintain normal customer relations with a majority of the users of electricity This means that regular billing and payment information must be monitored and, as equipment improvements are made over the next few years, that the Oblenergo will have the capability of expanding its Information System to accommodate this growing data requirement

Banking Transactions

In addition to both the cash flow and data flow represented by an increasing number of customers who have "regular accounts" which will need to be monitored, the Oblenergo, if it is to function properly in a modern market-based environment, must be able to monitor the flow of funds through its own bank accounts and to insure that its creditors are paid in a timely and efficient manner, taking advantage of all available cash-management techniques This is by no means a lower-level priority for Oblenergo management and in fact, may well provide the basis for determining which Oblenergo will be more successful, for future investment planning

Other Financial and Accounting Transactions

Accurate Financial and Accounting records provide the basic information necessary for measuring the overall financial well-being of any business unit Included in these records are the elements which provide for

Tariffs

Monitoring of all financial activities provides the basis for recording operating and maintenance costs, which in turn are to be included in the calculation of proposed tariff structures The accuracy of these records will undoubtably be a specific issue in the determination of whether or not a proposed tariff will be approved by the new National Electric Regulatory Committee (NERC)

Loans and Credit

The general financial and accounting records of the Oblenergo provide the basis for outside creditors and investors to evaluate the net worth of the company and in deciding levels of credit or amounts of investments to be made Again, the accuracy and credibility of these records will be a significant issue in judging the creditworthiness of the Oblenergo

Stock Sales and Equity

The general financial records of a company provide the basis for privatization and sale of stock to future owners The importance of these records is self-evident when developing annual financial reports to the organization's owners and in attempting to attract new equity investments

Long-term Financial Planning

The financial record-keeping of the Oblenergo will also provide the basis for long-term financial planning, including maintenance and repair planning, capital investments, and modernization and expansion planning From a management viewpoint, these records are no less critical than any of those mentioned previously, and a well-reasoned Financial Information System Development Strategy must take all of these elements into account

General Management Information Systems (MIS)

While the concept of local management and long-term planning may be new to many of the management staff of Oblenergos in Ukraine, it should not come as a surprise to the reader of this report, since for the past 75 years, the energy infrastructure has been a "command and control" operation Not only have Oblenergo managers had little to say about the long-term planning of investments, but they have also been educated in a system which had little to do with efficiency of the organization, or the management skills of a specific individual

Human Resource Management and Salary Administration

In market-based operations, there is a need to manage the physical, financial and human resources of an oblenego through use of a comprehensive management information system Such a system may include materials management, work management, transportation, payroll and even automated meter reading systems Wage and salary programs will be needed which recognize the effectiveness and efficiency of individuals The effectiveness of specific operations will become an area of attention, as overall efficiency of the Oblenergo takes on a more important role in determining its long-term success The basis for measurement of any indicator of efficiency will be the ability of the management of an Oblenergo to implement uniform policies and procedures throughout the organization, and then to monitor compliance and results This management information forms the basis for a second level of MIS requirements which are no less important than financial records The long-term success of the Oblenergo will be enhanced by having considered these requirements during the start-up phase, and including their basic elements in the initial systems planning

Operational (Statistical) Information and Reporting

Currently, most statistical information for each division of each Oblenergo is maintained in a handwritten or local database format Little operational information is available to the senior management of the Oblenergo on a day-to-day basis, and the information that is available is presented in a form which has been developed to accommodate the Ukrainian Ministry of Energy or Ministry of Statistics, and does not lend itself to implementation of modern management decision making techniques

Chapter 3. INFORMATION FLOWS

Current Organizational Structures & Information Flows

During the preparation of this report, all of our twelve Oblenergos were contacted and interviewed to obtain specific organizational information and information flows between departments, divisions, districts, and between the Oblenergo and outside entities The following provides a summary of the structural elements which were examined and the type of information flows which were investigated Specific information about individual Oblenergo Organizational structures is shown in Appendix B

Oblenergo Intra-Office Headquarter Operations

A basic piece of information required in the development of a strategic plan for a coordinated information system are the current organizational structure and the working relationships between elements of the organization By defining the structure and the communications which currently take place, either in verbal or written formats, a strategic plan can be developed for the purchase of equipment and the development of appropriate procedures that can increase the effectiveness of communications between various business elements

At the present time, most Oblenergos have all business units located in their main offices and communication between business elements is done on a verbal or written report basis There is currently little emphasis on the development of procedures for electronic communications, thus while the implementation of Local Area Networks (LAN) computer operation is a reasonable approach to improving the flow of information at this level, it would seem to be of a second-level priority

Oblenergo to Division and District Operating Units

Primary means of communication between Oblenergo Headquarters and Division (PEZ) and/or District (REZ) operating units is, in most cases, simply the telephone system Oblenergo operations and decisions are communicated to the General Managers of the REZs by telephone and in some cased by FAX Few REZ locations have installed computer systems with modems, and those that do have equipment are faced with difficulties in successfully communicating via the local telephone network

At this time, it would appear that the most basic strategy of improving communication tools would include bringing the level of communications up to a point of being able to transmit written documents via FAX, with a longer-term objective of installation of Wide Area Networks (WAN) for regular data collection and reporting, and electronic document transmittal, as policies and procedures are developed to support these tools

Oblenergo to Minenergo

The primary mode of communication between Oblenergos and Minenergo, even today, is the morning Conference Call, held at 8 30 each day, with Minenergo, GENCOs, NDC, RDC, and Oblenergo General Directors all on the line at the same time While confusing and lacking a system of written confirmation, this system has been utilized for many years to identify generating capacity and shortages, develop load allocations, report system operational difficulties, and to report on other general information which affect the entire industry

During the past few months, Minenergo has implemented an inter-industry communication (electronic mail) system via the Internet, and utilizing long distance telephone carrier service This system is described in Appendix M and is currently available to all industry entities However, access to the system is limited to those locations which have the computing and communication equipment available, which is not the case at many of the District or Division level operations Since no protocol or procedures have been established for the system's utilization, and due to the generally poor quality of communication lines (telephone), today this system provides a basic backup to FAX communications and, according to Minenergo technical experts, the system is underutilized

Oblenergo to the Energomarket

Current Oblenergo communications with the Energomarket are channeled through the local Regional Dispatch Center (RDC) and from there through the National Dispatch Center (NDC) Communications are transmitted via power-line carrier, microwave, radio and hard wire (dedicated telephone lines) to Minenergo (NDC) While this system has been operating over the last 75 years, the new demands being placed on the Oblenergos for Special Collection Group operations, utilization of Transit Accounts for all customer collections, and hourly and daily market settlement information will require a national approach for their solution and is beyond the scope of this report

CHAPTER 4 - RECOMMENDATIONS

Due to the wide diversity between Oblenergos, there is a vast disparity in the currently available equipment and thus the needs for new computing and communications equipment With this in mind, it is the consensus of the Oblenergo Advisory Team that each Oblenergo should have its own strategy for the development of its Information System There are, however, several priorities which we recommend be addressed by all Oblenergos

Internal Oblenergo Communication Systems

Based on findings of the team in researching this report, there are many locations where current communication capability between the Oblenergo's central offices and it's operating divisions, fall below even minimum standards Given the constraints on financial resources available to this team, there is a unique priority to insure that all operating units have a basic level of communication capability

Where operating divisions have only telephone services, at a minimum FAX communication systems should be installed Where computers are available, modems should be added and, if budgets permit, WAN servers should be installed In headquarter offices, the implementation of LAN systems seems to be of a lower overall priority, since current policies and procedures do not require computer-to-computer communication capabilities This, we believe, can be postponed until other basic information system elements are in place

Customer Records and Special Collections Programs

It is imperative for any successful business to be able to monitor its income and expenditures Therefore, for both sound business and political reasons, it is our recommendation that the first priority for new computing applications should be to implement appropriate systems to monitor the major customer account records for all Oblenergos We believe that this can be done in a cost-effective manner, through the purchase of dedicated hardware and software, specifically designed for customer account usage and payment records We feel that this equipment should initially be dedicated to tracking the usage and payment records of major customer accounts and those accounts which are entitled to government or market subsidization through either Subsidy Certificates or by being categorized as "Privileged" customers This will allow the Oblenergo to focus its efforts on those who make up the largest percentage of nonpaying customers, and thus most directly respond to current efforts aimed at improving cash flow within the industry

With the current system of self-reading of meters by residential customers, there is no practical mechanism for monitoring routine residential customer usage and collection records Specific supplemental programs will need to be implemented to monitor usage of "Privileged" residential customers who are entitled to subsidized electricity rates under current Ukrainian law

Financial Management Information Systems

In order for an Oblenergo to implement the requirements of the new market-based systems, it must have a standardized package of financial and accounting record keeping programs and reporting formats While the current reporting requirements are governed by Minenergo, in order to attract outside investors and future investors, all Oblenergos will need to have financial records that can be recognized and understood by Western accounting practitioners Thus it is our recommendation that a separate system of hardware and software be installed at each Oblenergo, which can be dedicated to the implementation of Western accounting standards

While this may initially appear to be a duplicative effort on the part of the Oblenergo, over the long term, it will provide the basis for training Oblenergo accounting and financial experts in Western-based practices, as well as provide the initial core equipment and systems for the development of new accounting standards to be applied throughout the Oblenergo

Minenergo and Energomarket Communication Systems

While beyond the scope of this project, the importance of having reliable communication links between the Oblenergo and Minenergo, and between the Oblenergo and the Energomarket, is of utmost priority Current methods of holding daily conference calls will not be acceptable in long-term competitive markets, especially as each entity becomes more competitive We thus recommend that the U S Agency for International Development work with the World Bank and other donor countries to develop a strategy for addressing this important issue Without reliable communications between the Energomarket and the Oblenergos, there will be no means of insuring the successful implementation of the Energomarket in Ukraine

Chapter 5 - SUMMARY

The current state of information system technology in Ukraine is widely disparate and is reflected in the disparities which are encountered at various business units of the Oblenergos A small effort and investment designed to improve the basic level of information systems at the Oblenergos can have a significant impact on the entire energy industry, as it may form the basis for improvements in customer collections, metering systems, tariff structures, financial planning, and even short and long-term investments We believe that the purchase of equipment and systems for the various Oblenergos should be implemented as rapidly as possible, within the financial constraints imposed by limited budgets The final step in this process will be to provide direct recommendations for consideration and approval at each Oblenergo, and the issuance of local tenders for the purchase of appropriate equipment Each of these tenders will be submitted for separate approval after the strategic plan for the individual Oblenergo has been agreed upon

The following pages summarize the overall equipment specifications and installations which are being recommend for the initial stages of implementation of this strategy at the twelve Oblenergos sponsored under the USAID assistance program Documentation to support these recomendations is provided in the following Appendixes which show detailed information for each Oblenergo

Chapter 6 - EQUIPMENT RECOMMENDATIONS

RECOMMENDED COMPUTING EQUIPMENT INSTALLATIONS							
	WORK STATION	SERVER UNITS	MODEM	UPS	PRINTER	FAX	Estimated Costs
CHERKASSY	6	1	5	1	1		$22,600
CHERNIGIV	3	2	8	2	5		$31,400
CHERNIVTSI	6	1	3	1	1		$24,300
DNIPRPETROSK	6	1	4	1	2		$23,950
K'HMELNITSKY	3	1	1	1	1	11	$21,000
KIEVENERGO	2	2	4	5	7		$32,000
KIEV OBLENERGO	3	2	6	3	5		$35 600
KIROVOGRAD	6	1	4	1	2		$23 950
TERNOPIL	6	1	8	1	1		$31,450
VINNITSIA	4	2	6	1	1		$27,100
ZAPOROZHYE	6	1	4	1	2		$24,000
ZHITOMIR	4	1	4	1	2		$19 950

SPECIFICATIONS

The following specifications apply to all equipment or services to be provided

All electrical equipment must use 220 Volt input and come equipped with European plugs

Where standard specifications or codes of practice are referred to in the below specifications other national or international standards that ensure an equal or better level of quality and compatibility will also be acceptable Unless specifically indicated to the contrary the latest available edition of any named standards and codes apply

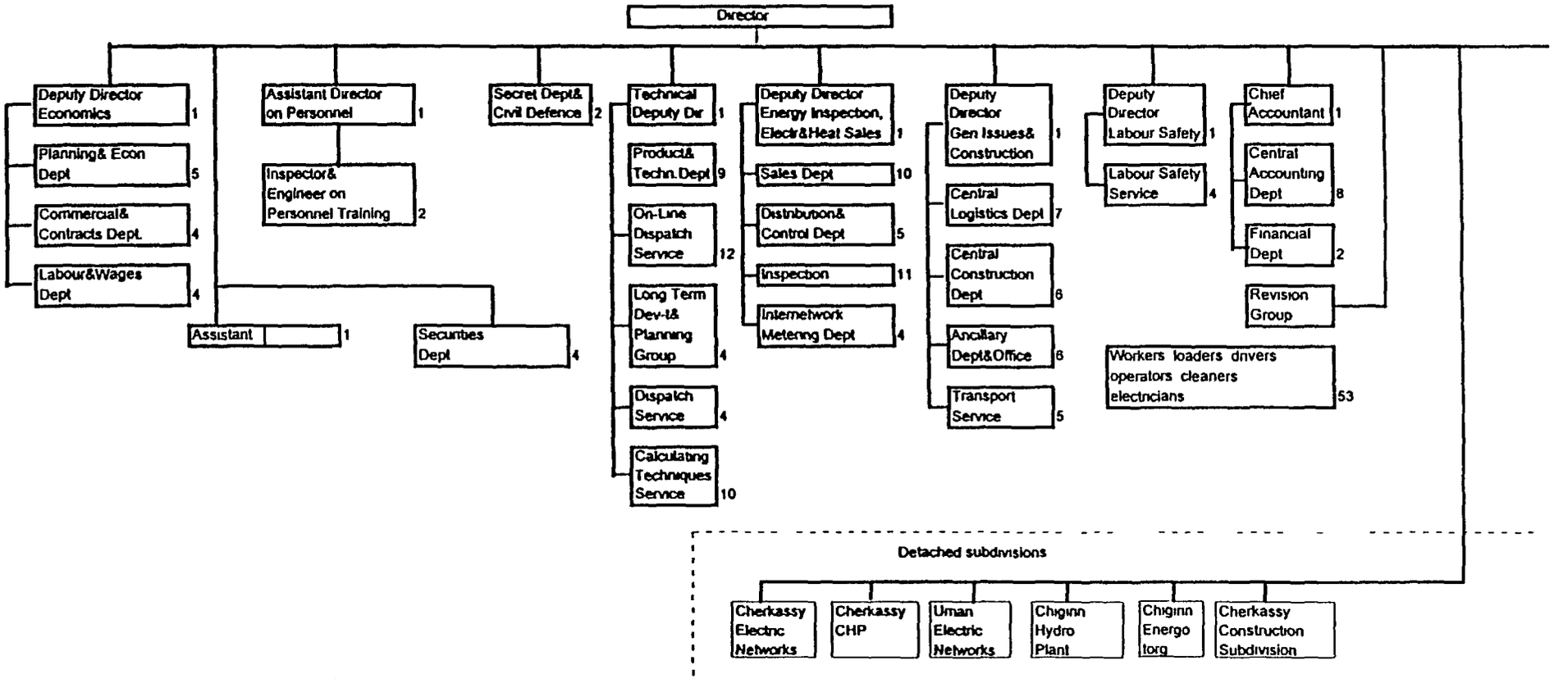
Item No	EQUIPMENT	SPECIFICATION / DESCRIPTION	ESTIMATED COSTING
1	Network Cabling	EIA/TIA certified RG-58 A/U preassembled network cable patch cords (3 meters each) with BNC connectors (quantity 100) EIA/TIA certified 50 ohm BNC terminators (quantity 30) BNC "T" connectors (quantity 70) Female/Female BNC connectors (quantity 30)	Estimated cost $2000-3000 TOTAL

2	File Servers	*Server* • Windows NT certified (server and all components) • Windows NT 3 51 server pre installed, or latest version • 150 megahertz or faster Pentium processor with 256 kilobyte processor cache (could specify 133 megahertz) • 64 megabytes ECC RAM (could specify 48 and save $500) • EISA and/or PCI bus with a total of at least 5 slots EISA or PCI SCSI host adapter Two 2 0 gigabyte SCSI hard disk drives, average seek time of 10ms or less (could reduce to one and save perhaps $500) Color SVGA monitor, 220 volt with 1024 x 768 resolution, 0 28 dp • SCSI quad speed CD-ROM drive • EISA or PCI Ethernet 10/100 network adapter cards supporting TCP/IP protocol and both UTP and BNC connections • 220 volt power supply, 200 watts or more Tape backup subsystem providing 2 gigabytes of uncompressed backup capacity with compression up to 4 gigabytes • 101 key Cyrillic keyboard • Database server software (Informix or MS-SQL server -- to be specified) *Backup Power* • 600 VA, 220 volt, APC SmartUPS or equivalent Power management software for Windows NT supporting automatic server shutdown • User replaceable battery *Required supplies and spares.* • 10 tape cartridges for each server, two gigabytes each (uncompressed tapes supporting compression to 4 gigabytes) • One spare power supply (for all servers combined) • Two spare UPS batteries (for all servers combined)	12 units * $8,000 each
3	Printers	• Duty cycle rating of 12,000 pages per month • Print engine speed of 6 A4-size pages per minute • 2 megabytes RAM • 600 dot per inch resolution • Input tray holding at least 250 sheets of paper • 220 volt, Energy Star compliant or equivalent • Surge suppressor Manufacturer or dealer representatives located in Ukraine which stock supplies of any toner or maintenance kits required *Supplies (for each printer)* 8 toner cartridges (could reduce to 6 or 4)	HP Laserjet 5P, 12 units * $1500 each

4	PC's	• 100 megahertz or faster Pentium processor • 1000 megabyte or larger EIDE hard disk, average seek time of 12ms or less • 16 megabytes RAM • 256 kilobyte level 2 processor cache PCI architecture with at least one ISA slot • 200 watt, 220 volt power supply, should meet Energy Star or equivalent standards for low energy usage Network certified for use with Windows NT servers (optional) • Microsoft Office 95 Russian version (optional) Microsoft Windows 95 (Russian version), or equivalent with Ukrainian Russian, and English fonts preloaded Any additional workstation software for networking under TCP/IP must also be provided and installed "Plug and Play" compliant PC and adapter cards • 14" 0 28 dot pitch low radiation (MPR II certified or equivalent) VGA monitor (220 volt) with 1 megabyte PCI video card supporting 256 colors at 1024 x 768 non-interlaced screen resolution Monitor should meet Energy Star standards for low energy usage • BNC/UTP 16 bit Ethernet adapter supporting TCP/IP, Windows 95, and Windows NT with SNMP manageability • 101 key Cyrillic keyboard with 3 year manufacturer's warranty • Mouse with mousepad • 3 5" disk drive • 400 VA uninterruptible power supply (220 volt) providing network-grade line conditioning, lightning and surge protection, and supporting user replaceable batteries (optional, could replace with surge suppressors) • 2 or more free drive bays and 2 or more free adapter slots	$2,000 each * Up to 80 units (Average 2 5 computers per oblenergo plus 50 computers for REZ usage)
5	Modems	• Data transmission speed of 28 8 kilobaud • Data compatibility with V 34, V 32, V 32bis, V 22, and V 21 • Data compression (hardware enabled) V 42bis / MNP5 • Error correction V 42, MNP 2-4 (hardware enabled) • Self-tests power on, remote digital loop, analog • Supports autorenegotiation for speeds from 28,800 to 1200 baud • External, 220 volt SERVER MODEM - U S Robotics "Courier" type "V Everything", 28 8 kBaud WORKSTATION MODEM - U S Robotics "Sportster SI", 14 4 kBaud	$400-500 ea * 12 $100-$150 ea * 50
6	Phone- Fax Machines	• Phone / FAX - Thermal paper type • Two Boxes - (6) rolls of spare thermal paper / box / machine	$300-500 * perhaps 20 UNITS

APPENDIX A. - CHERKASSY OBLENERGO

CHERKASSYOBLENERGO ORGANIZATION CHART



Total number of staff in Cherkassyoblenergo	192 persons
including workers	53 persons
in detached subdivisions	4944 persons
including engineers&technicians	1250 persons

figures indicate the personnel number retailor for workers of power industry

Current Computing and Communication Capabilities

Cherkassy Oblenergo identified the following as their currently available computer hardware and software capabilities for performing the customer collection and payment activities

The head office has 20 computers 10-486, 5-386, and 5-286, 1 server 486, and 5 modems

Cherkassy Electric Network Division has 4 Pentium 100, 4-386, 8-286, 2 modems

Uman Division has 12 computers 7-386, 5-286

7 RESs have 7 computers (1 in each RES) 3-386, 2-286, and 2-XT, 7 modems

CHP plant has 10 computers 2-486, 2-386, 5-286 and 1-XT, and 1 modem

Chigrin steam and gas plant has 5 computers 1-486, 2-386, 3-286

Printers HP laser jet 2 in number

Printers Epson 5 in number

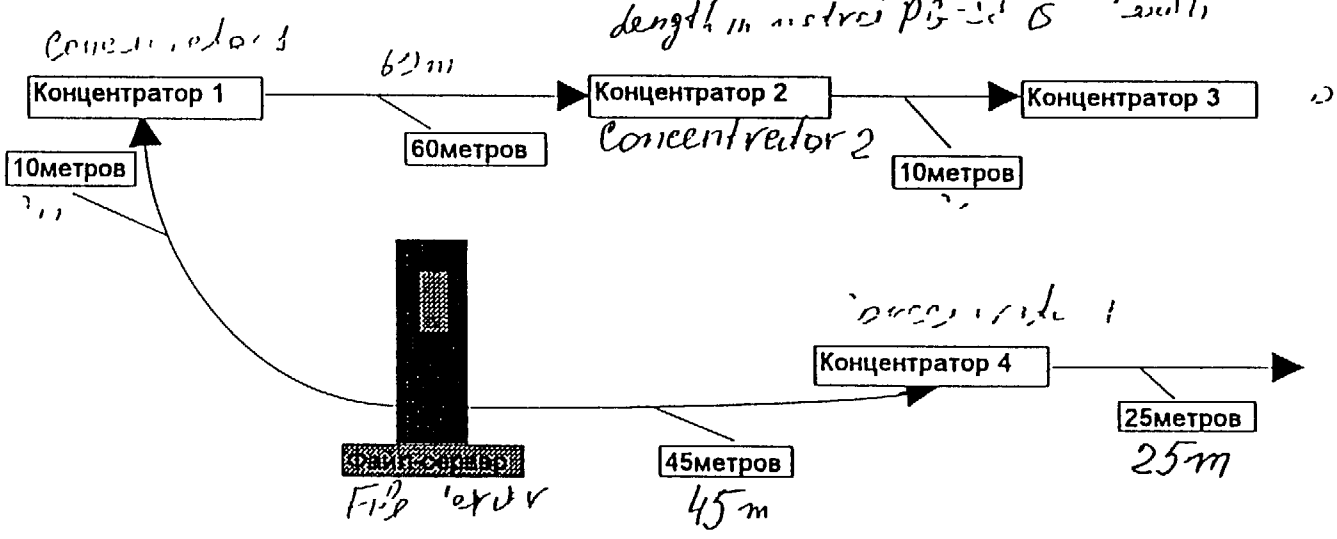
Printers Star Nx 1500 48 in number

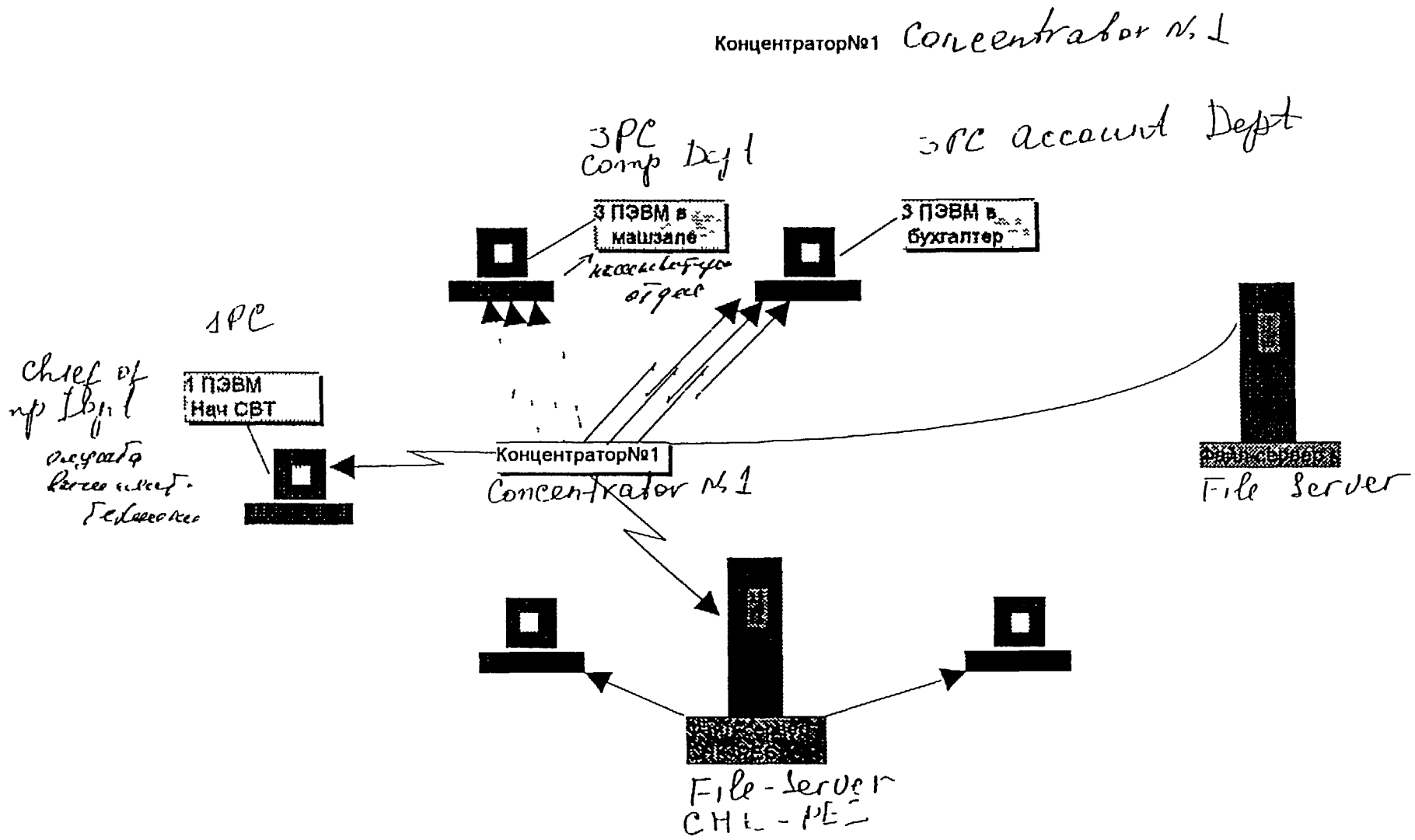
Comp Структура

Local Network Short

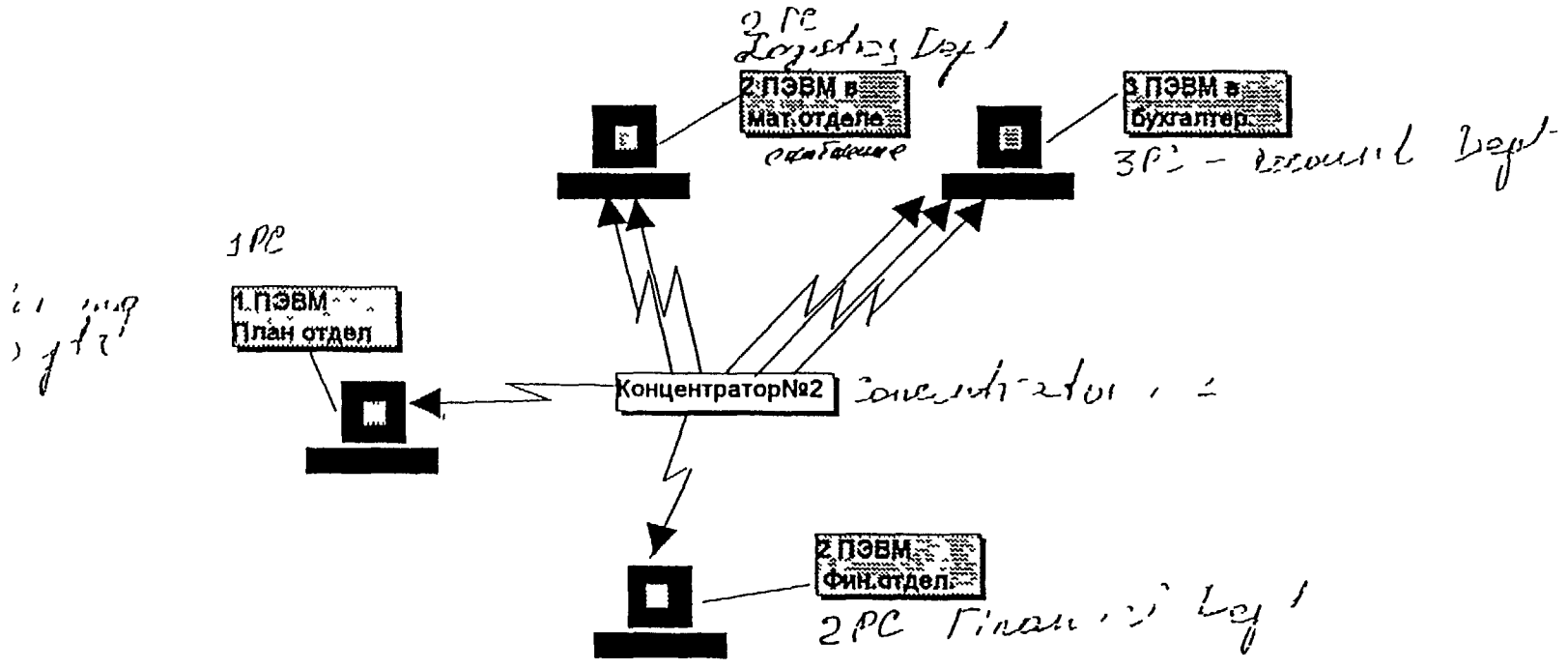
Структурная схема ЛВС ГАЭК"Черкассыоблэнерго"

(указан метраж RG-58)




КонцентраторN1
Concentrator N.1
3PC
Comp Dep 1
3PC account Dept
3 ПЭВМ в машзале
3 ПЭВМ в бухгалтер
1PC
Chief of
1 ПЭВМ
Нач СВТ
КонцентраторN1
Concentrator N.1
File Server
File-Server

Концентратор№2 concentrator N. 2



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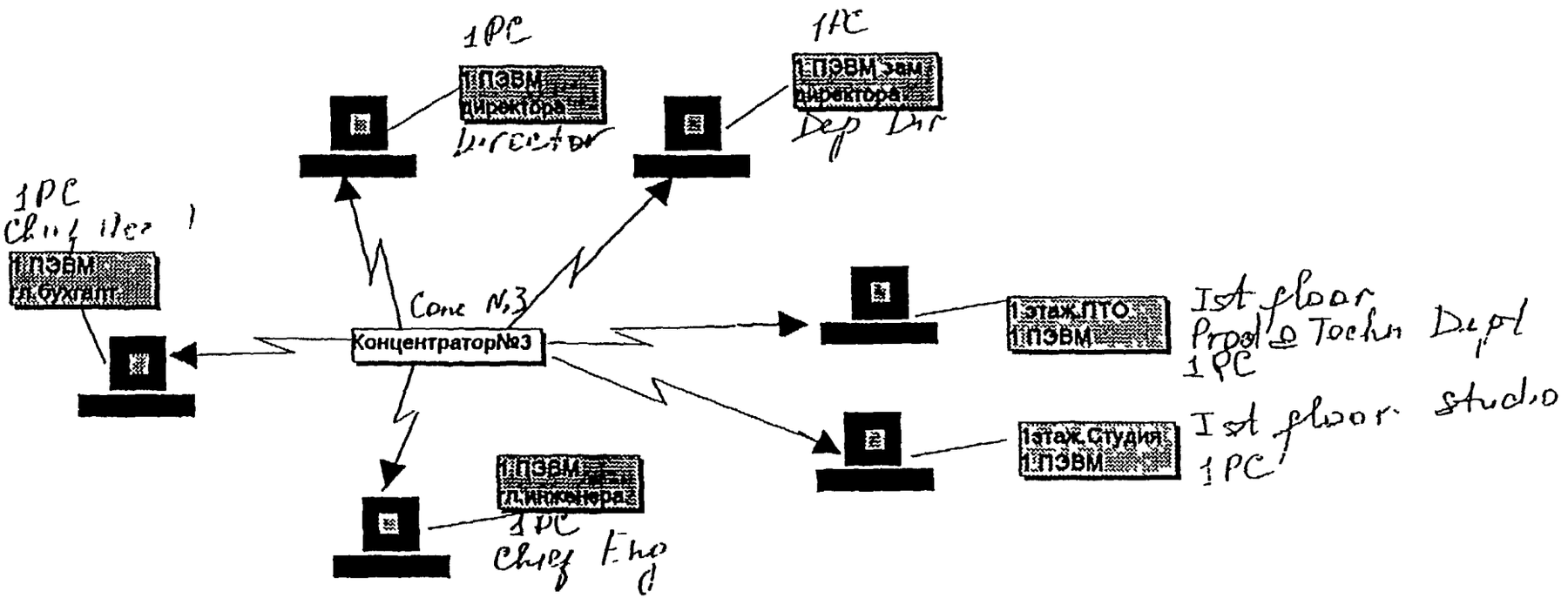
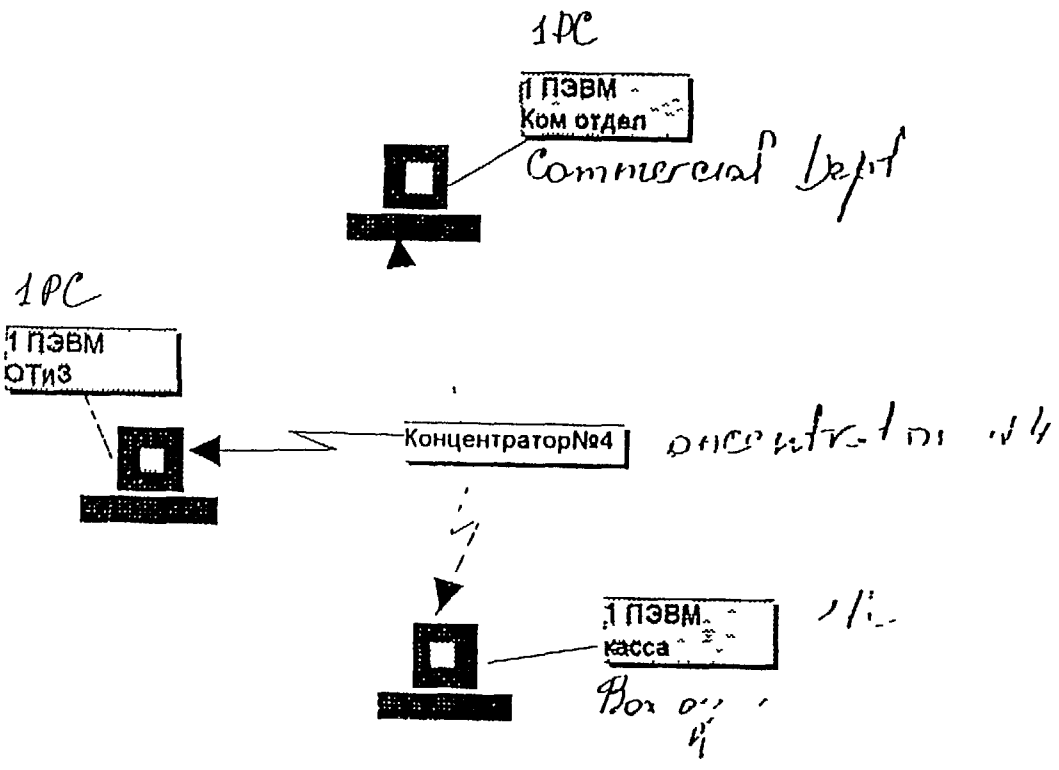
Концентратор№3 Concentrator № 3



Концентратор№4 concentrator



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Requested Computing and Communication Equipment

rkassy Oblenergo computer department identified the following as the minimum needs of hardware and software for performing the customer collection and payment activities

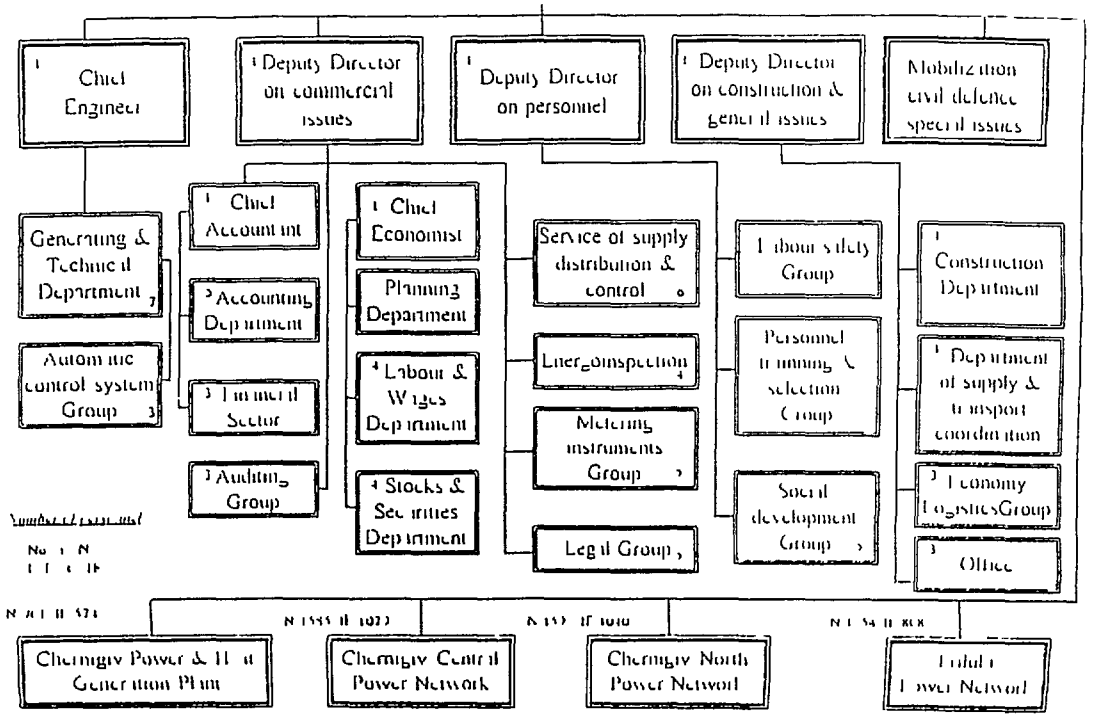
- For processing, transmitting and receiving the sales information for industrial customers, they need
  - •Stage 1 Cherkassy Electric Network, and 14 RESs 17- 486 PCS with 14 modems
  - •Stage 2 Uman Electric Network, and 9 RESs 9-486 PCs with modems
  - •Stage 3 Oblenergo Sales 6-486 PCs, server and a Local Area Network (LAN)
- For processing, transmitting and receiving the sales information for residential customers, they need
  - •Stage 4 Cherkassy Electric Network and 14 RESs 51-486 PCs, plus 1 server and LAN in each RES
  - •Stage 5 Uman Electric Network and 9 RESs 27-486 PCs, plus 1 server and LAN in each RES
  - •Stage 6 Oblenergo Sales 5-486 PCS

Proposed Strategy for Information System Development

Cherkassy Oblenergo has limited computer and communication capabilities and they are making good use of those facilities for the customer collections and payment activities While their needs are enormous, they can make effective use of what we can provide with our budget The folowing is the recommended list of computer and communication equipment that would help to enhance the capabilities to address the collection and payment issues

1	(3)	PC with 8MB RAM, 1 GB HDD, mono VGA monitor for entering customer receipts
2	(1)	PC with 8MB RAM, 1 GB HDD, SVGA monitor for administering the accounts
3	(2)	PC with 8MB RAM, 1 GB HDD, SVGA monitor for performing customer book exchange functions
4	(1)	DFX 5000 Net Printer (or something similar)

APPENDIX B - CHERNIGIV OBLENERGO



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iputing and Communication Capabilities

iergo Computer aide systems group identified the following as their currently available ommunication capabilities for performing the customer collection and payment activities

ce they have 9 486 PCS 2 Pentium 100 1 Pentium 60 a LAN Motorola 3400 Modem 2 pson Printers and 2 DJ 600 printers

has 7 PCs(286 386) 2400 modem 3 matrix printers and 1 jet printer

n has 5 PCs (2 486 1 386 2 286) 2400 modem 3 matrix printers

i has 3 PCs (386) 1 2400 modem and 3 printers

c 25 RES has 2 PCs each (286 or 386) Chernigiv RES has 3 computers (486) for ners and 7 computers (486) for residential customer accounts

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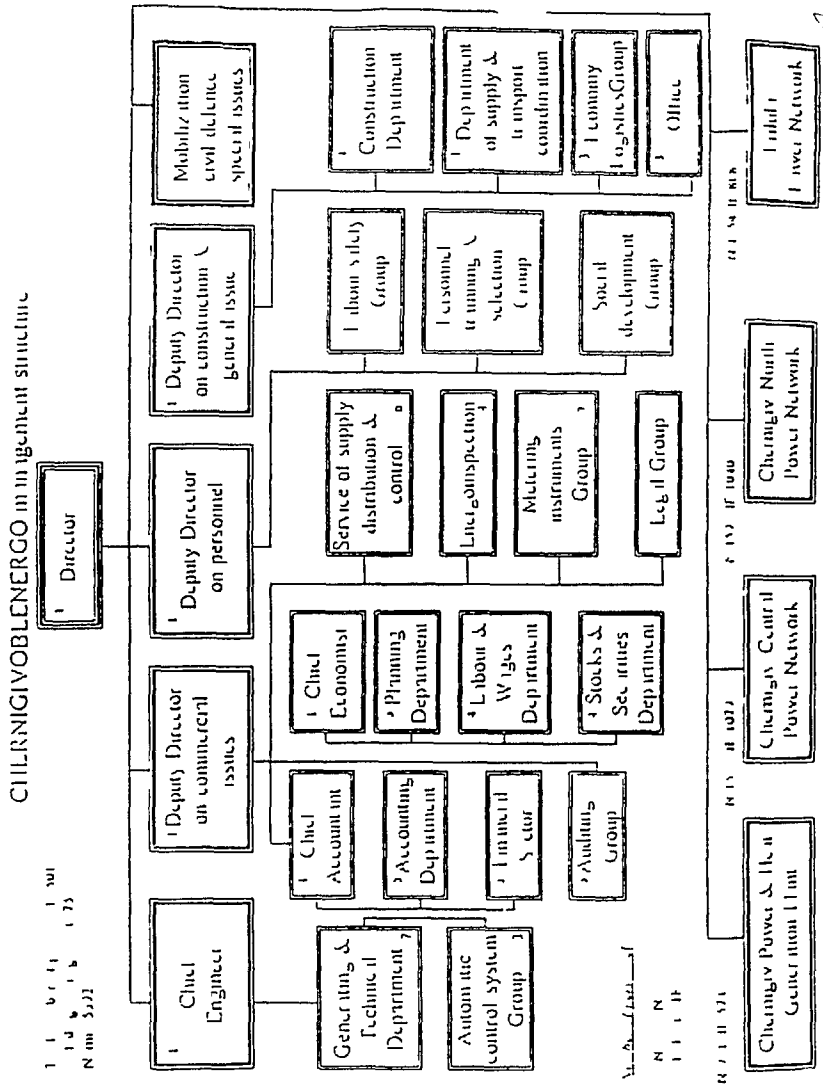

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ıested Computing and Communication Equipment

ıigıv Oblenergo Computer Aide Systems group identified the following needs for ·ming the customer collection and payment activities

stations Pentium 100 16 MB RAM 1 GB HDD 111 in number (3 in each of RLSs and 36 at the head office)

rs Netserver 5/100LC Pentium 100MHz, 256 KB cache 32 MB RAM 1 GB 25 in number (1 per each of 25 RESs)

r Netserver 5/133LS Pentium 133MHz, 512 Kb cache 64 MB RAM 8 4 GB

ms 43 Modems to connect the head office with the 25 RESs and the 3 ons

rs HP Laser Jet 4 Plus 600 dpi 2 MB RAM 40 in number (1 printer at each RLSs 2 at each of 3 divisions 7 at the head office and 2 at the CHP plant)

in jet 3P 5 in number

Current Computing and Communication Capabilities

Chernigiv Oblenergo Computer aide systems group identified the following as their currently available computer and communication capabilities for performing the customer collection and payment activities

At the head office they have 9-486 PCS 2 Pentium 100 1 Pentium 60 a LAN Motorola 3400 Modem 2 HP printers 6 Epson Printers and 2 DJ 600 printers

Priluki Division has 7 PCs(286 386) 2400 modem, 3 matrix printers and 1 jet printer

Severny Division has 5 PCs (2-486 1 386 2 286) 2400 modem 3 matrix printers

Central Division has 3 PCs (386) 1 2400 modem and 3 printers

Only 5 out of the 25 RESs have 2 PCs each (286 or 386) Chernigiv RES has 3 computers (486) for industrial customers and 7 computers (486) for residential customer accounts

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Справка
о необходимом аппаратном и программном обеспечении
I АЕК «Черниговоблэнерго»
Chernigiv

[illegible] сбора [illegible] Черн [illegible] необходимо установить

ЭСах по 3 компьютерных рабочих станции конфигурации
Pentium 100MHz, 16Mb RAM 1Gb HDD (EIDE) 3 5 HDD , (Total 75 pieces)

по одному серверу конфигурации
– NetServer 5/100LC Pentium-100MHz, 256Kb cache 32Mb RAM HDD 1Gb (SCSI 2)
(всего 25 шт) (total 25)

с средствами коммуникации и соответствующим программным обеспечением
unication facilities & appropriate software

становить на предприятия электросетей и ТЭЦ по 10 компьютерных рабочих станции
онфигурации
Pentium 100MHz 16Mb RAM, 1Gb HDD (EIDE) 3 5 HDD
(всего 40 шт) (total 40)

по одному серверу конфигурации
NetServer 5/100LH Pentium 100MHz 256Kb cache, 32Mb RAM ECC HDD 1Gb Hot Swap
(всего 4 шт) (total 4)

Установить в управлении «Черниговоблэнерго» 36 компьютерных рабочих станции
о фигура и
Pentium 100MHz, 16Mb RAM, 1Gb HDD (EIDE) 3 5 HDD

Установить в управлении «Черниговоблэнерго» мощный сервер конфигурации
NetServer 5/133LS Pentium 133MHz 512Kb cache, 64Mb RAM
HDD 8400Gb (2 4 2Gb Hot Swap)
с соответствующим программным обеспечением

Установить для обеспечения компьютерной связи с РЭСами и предприятиями электросетей
[illegible] ТЭЦ –
10 в управления «Черниговоблэнерго» modems
(всего 43 шт)

Устано ить принтеры Printers 1 in each RES, 2 at each division CHP & 7 in headquarters
HP LaserJet 5L (A4) 600 dpi 1Mb RAM
по 1 на РЭС по 2 на предприятия электросетей и ТЭЦ и 7 в управлении (total 40)
«Черниговоблэнерго»
(всего 40 шт)

А также принтеры Printers 1 at each div and CHP + 3 in headquarter
HP LaserJet 4Plus (A4) 600 dpi 2Mb RAM
по 1 на предприятия электросетей и ТЭЦ и 3 в управлен «Черниговоблэнерго»
(всего 7 шт) (total 7)

Установить в управлении «Чер иговоблэнерго» электросетях и ТЭЦ по 1 сканеру 1 scanner in
HP ScanJet 1P the headquarters, div RES CHP
1 cariner in the headquart (всего 5 шт) (total 5)
И один скан ер HP ScanJet 4Si в управления «Черниговоблэнерго»
+ 1 plotter
У [illegible] в управлении «Черниговоблэнерго» plotter DesignJet 230 — in the headquart

Установить в управлении «Черниговоблэнерго» на центральном сервере систему резервного
копирования 1 2Gb tape drive и к ней 5 кассет 12Gb
ying system + 5 cassettes
central server

Директор /Дворковой/ /П.С.Дворковой/

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Requested Computing and Communication Equipment

Chernigiv Oblenergo Computer Aide Systems group identified the following needs for performing the customer collection and payment activities

Workstations Pentium 100 16 MB RAM 1 GB HDD 111 in number (3 in each of the 25 RESs and 36 at the head office)

Servers Netserver 5/100LC Pentium 100MHz, 256 KB cache 32 MB RAM 1 GB HDD 25 in number (1 per each of 25 RESs)

Server Netserver 5/133LS Pentium 133MHz, 512 Kb cache 64 MB RAM 8 4 GB HDD

Modems 43 Modems to connect the head office with the 25 RESs and the 3 divisions

Printers HP Laser Jet 4 Plus 600 dpi 2 MB RAM 40 in number (1 printer at each of 25 RESs 2 at each of 3 divisions 7 at the head office and 2 at the CHP plant)

HP scan jet 3P 5 in number

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ES (in cus w ne2s)

ready 2 comp (386 x 2 + 486)

d 1 modem

LAN equipment

ES (in head office)

1 ready 7 comp in LAN (2x486 + 386 286)

ed LAN connect on to main server

ad Office

1 ready 10 comp + 2 serv (1 files + 1 commun.c) in LAN

ed 1 database server

modems

1 comp + 1 modem for bank-client system

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Справка

о необходимом аппаратном и программном обеспечении

ГАЕК «Черниговобленэнерго»

Chernigiv

1 Для создания сети сбора информации в ЧерниговОблЭнерго необходимо установить в РЭСах по 3 компьютерных рабочих станции конфигурации:

3 workstations each RES — Pentium 100MHz, 16Mb RAM, 1Gb HDD (EIDE), 3.5 HDD (Total 75 pieces)

и по одному серверу конфигурации:

1 Server in each RES — NetServer 5/100LC Pentium-100MHz, 256Kb cache, 32Mb RAM, HDD 1Gb (SCSI_2) (всего 25 шт) (total 25)

со средствами коммуникации и соответствующим программным обеспечением

with the communication facilities + appropr ate software

2 Установить на предприятия электросетей и ТЭЦ по 10 компьютерных рабочих станции конфигурации:

10 workst ns at div sions & CHP — Pentium 100MHz 16Mb RAM, 1Gb HDD (EIDE), 3.5 HDD (всего 40 шт) (total 40)

+ 1 server at div ns & CHP — и по одному серверу конфигурация NetServer 5/100LH Pentium-100MHz, 256Kb cache, 32Mb RAM ECC, HDD 1Gb (4 pcs Swap) (всего 4 шт) (total 4)

3 Установить в управлении «Черниговобленэнерго» 36 компьютерных рабочих станции конфигурации

in headquarters 36 workstations — Pentium 100MHz, 16Mb RAM, 1Gb HDD (EIDE), 3.5 HDD

+ security server with the software

4 Установить в управлении Черниговобленэнерго» мощный сервер конфигурации NetServer 5/133LS Pentium-133MHz, 512Kb cache, 64Mb RAM HDD 8400Gb (2 4.2Gb Hot Swap) с соответствующим программным обеспечением

5 Установить для обеспечения компьютерной связи с РЭСами и предприятиями электросетей Черниговобленэнерго модемы [illegible] 10 в управлении «Черниговобленэнерго» (всего 43 шт)

modems

6 Установить принтеры HP LaserJet 5L (A4), 600 dpi, 1Mb RAM по 1 на РЭС, по 2 на предприятия электросетей и ТЭЦ и 7 в управлении «Черниговобленэнерго» (всего 40 шт)

Printers 1 in each RES, 2 at each division CHP + 7 in headquarters (total 40)

А также принтеры HP LaserJet 4Plus (A4), 600 dpi 2Mb RAM по 1 на предприятия электросетей и ТЭЦ и 3 в управлении «Черниговобленэнерго» (всего 7 шт)

Printers 1 at each div ns CHP + 3 in headquarters (total 7)

7 Установить в управлении «Черниговобленэнерго» электросетях и ТЭЦ по 1 сканеру HP ScanJet 3P и один сканер HP ScanJet 4Si в управлении «Черниговобленэнерго» (всего 5 шт)

1 scanner in the headquarters, div ns & CHP + 1 scanner in the headquarters (total 5)

8 Установить в управлении «Черниговобленэнерго» плоттер DesignJet 230

1 plotter — in the headquarters

9 Установить в управлении «Черниговобленэнерго» на центральном сервере систему резервного копирования 1 20Gb tape drive и к ней 5 кассет по 20Gb

backup copying system + 5 cassettes at the central server

Директор /Л.С.Дворовой/

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CHERNIGOVOBLENERGO

TERMS OF REFERENCE

for the LAN in the headquarters building

Chernigov 1996

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1 RES ~~#~~ (and ~~custo~~ ...)
already 3 comp (386x2 + 486)
need 1 modem
LAN equipment

2 RES (in head office)
already 7 comp in LAN (2x486 + 386 28
need LAN connection to ~~the~~ main ~~fo~~ sezrez

3 Head Office
already 10 comp + 2 serv (1 files + 1 commun
in LAN
need 1 ~~[redacted]~~ database sezrer
modems
1 comp + 1 modem for bank-client
system

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CHERNIGOVOBLENERGO

TERMS OF REFERENCE

for the LAN in the headquarters building

Chernigov 1996

tion

) employees are working in the headquarters of Chernigovoblenergo Practically all of dealing with the paper information which is received and sent by mail teletype fax e /voice/ etc It is impossible to automate in full the work of the personnel without p LAN which would have the outlet to the territory data transmission networks /of the Energia type/ and other automated sector networks

n criteria for establishing local area network should be reliability durability minimum rsonnel to serve it modulness openness possibility for expantion and modernization.

interface and topology

lly all the personnel is located on the second floor of the building As it is shown on the working places are concentrated in the two wings of the building each of the wings has idor 25 meters long The places where the network equipment can be installed is d by the grey color

oaxial cable PK 50 or four D cable of the third or fifth grade can be used for the . The comparative analysis of the two options is shown in the table

	coaxial cable	paired cable
ly	sequential linking /chain/	"star /connection to the concentrator/
lity	low since break or bad contact in one place results in non working condition of the whole circuit	high since disorder in the cable system affects the work of a separate computer
ility for	to make a repair it is necessary to switch off the network it is difficult to find a disorder because of the sequential linking	repair can be done while the network is in operation each concentrator s port has the light indicator showing a disorder
ility for sion	when laying the cable it is necessary to consider future users connections when the network expands its reliability dramatically declines	the network is easily expands by means of new concentrators installation
ility for rnization	no	conversion to 100 Megabit or commutated net
	low	high /because of the concentrators and longer cable network/

seen from the table coaxil cable network due to its low cost can be recommended only ll working groups located on the small territory For Chernigovoblenergo LAN paired etwork is more suitable

ogically the network can be divided into two clusters one in each wing Concentrators can talled in the rooms A2 and B1 /on the plan/

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requirements

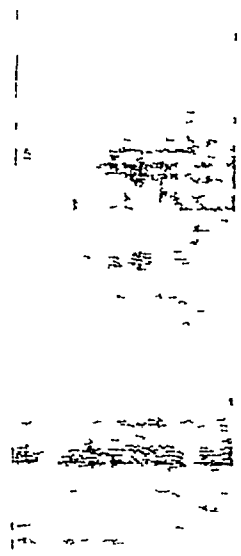
of the users are working in Windows that s why Windows95 or Windows for ups /less preferrable/ can be used as the operational system at the working places To messages files faxes and E mail via Energia net one can use Microsoft Exchange et of appropriate services
ct to Energia net the support of the TCP/IP Protocol by the workstations is needed. ıvoblenergo has been allocated 10 nets of class 10 which constitutes 2540 addresses rc s the possibility to use TCP/IP Protocol instead of IPX/SPX in the local area network e transport protocol
voblenergo automated dispatch control system is still in the stage of study and working ible approaches to its establishment but there is the tendency to use the powerful rs on the basis of Alpha processors and SQL servers
ıperational system it is necessary to use Windows NT Advanced Server which complies se requirements in full and can be used as a platform for the mentioned software s NT Advanced Server can also be administered via the corporate net by the ication channels and this is of extreme importance when installing such a server in the where qualified personnel for its administration is lacking

nents to the net equipment

pment has to be homogeneous i e it must consist of the limited set of range of products roducer Net equipment has to be fully compatible with the net operational system and administration software It has to allow small replacement expansion modernization c reliable in operation

/stem installation

st rational is to install the cable system in the cable channels set in the corridor of the two meters up from the floor Setting the cable channel in the corridor facilitates the ı the cable and lessens the necessity in wall holing In the rooms and offices the cable can l along the plinth with or without fixing Such cable system is quite aesthetic and allows placement and even temporary cable installation



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Introduction

About 50 employees are working in the headquarters of Chernigovoblenergo Practically all of them are dealing with the paper information which is received and sent by mail teletype fax telephone /voice/ etc It is impossible to automate in full the work of the personnel without setting up LAN which would have the outlet to the territory data transmission networks /of the internet "Energia" type/ and other automated sector networks
The main criteria for establishing local area network should be reliability durability minimum of the personnel to serve it, modulness openness possibility for expantion and modernization

Network interface and topology

Practically all the personnel is located on the second floor of the building As it is shown on the plan, the working places are concentrated in the two wings of the building each of the wings has the corridor 25 meters long The places where the network equipment can be installed is indicated by the grey color
Either coaxial cable PK 50 or four D cable of the third or fifth grade can be used for the interface The comparative analysis of the two options is shown in the table

	coaxial cable	paired cable
topology	sequential linking /chain/	"star" /connection to the concentrator/
reliability	low since break or bad contact in one place results in non working condition of the whole circuit	high since disorder in the cable system affects the work of a separate computer
possibility for repair	to make a repair it is necessary to switch off the network it is difficult to find a disorder because of the sequential linking	repair can be done while the network is in operation each concentrator s port has the light indicator showing a disorder
possibility for expansion	when laying the cable it is necessary to consider future users connections when the network expands its reliability dramatically declines	the network is easily expands by means of new concentrators installation
possibility for modernization	no	conversion to 100 Megabit or commutated net
cost	low	high /because of the concentrators and longer cable network/

As it is seen from the table coaxil cable network due to its low cost can be recommended only to small working groups located on the small territory For Chernigovoblenergo LAN paired cable network is more suitable
Topologically the network can be divided into two clusters one in each wing Concentrators can be installed in the rooms A2 and B1 /on the plan/

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ine dispatch service
omated Control systems
ountancy
ncial dept
' accountant
f of Planning and Economic dept

ef of on line dispatch service
es Dept
ıstics Dept
ıal Dept
vice of distribution and control
nning and Economic dept
sonnel dept

pying techniques
ıef engineer
ception
ector

puty Director Economy
puty Director Capital constr n
pital construction dept
ıor Dept Corporatization dept
puty director Labor safety
neration and Technical dept

patch Service
ımputer dept

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Software requirements

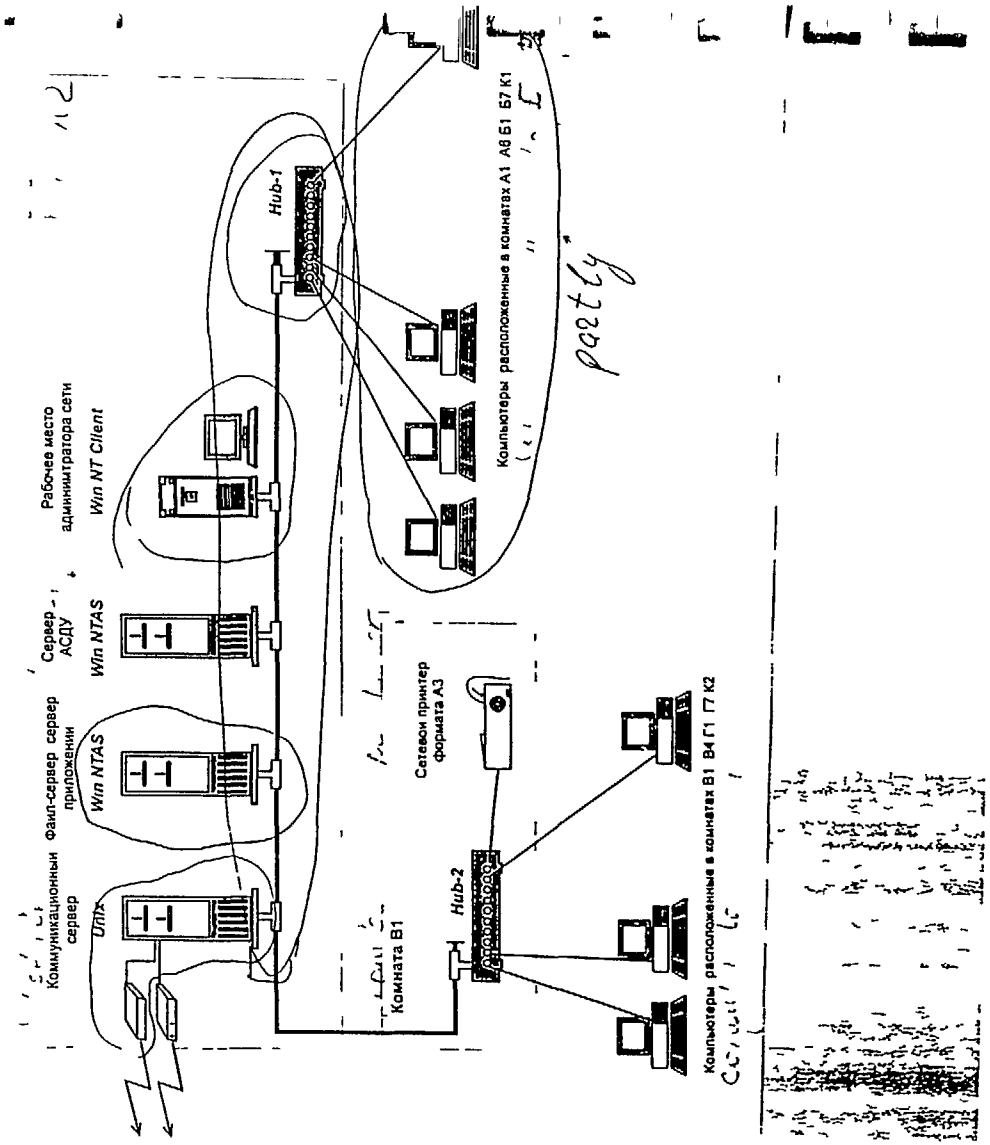
Majority of the users are working in Windows that s why Windows95 or Windows for Workgroups /less preferrable/ can be used as the operational system at the working places To exchange messages, files faxes and E mail via "Energia" net one can use Microsoft Exchange with the set of appropriate services
To connect to "Energia" net the support of the TCP/IP Protocol by the workstations is needed Chernigovoblenergo has been allocated 10 nets of class 10 which constitutes 2540 addresses Thus, there s the possibility to use TCP/IP Protocol instead of IPX/SPX in the local area network as the base transport protocol
Chernigovoblenergo automated dispatch control system is still in the stage of study and working out possible approaches to its establishment, but there is the tendency to use the powerful computers on the basis of Alpha processors and SQL servers
As a net operational system it is necessary to use Windows NT Advanced Server which complies with these requirements in full and can be used as a platform for the mentioned software Windows NT Advanced Server can also be administered via the corporate net by the communication channels, and this is of extreme importance when installing such a server in the location where qualified personnel for its administration is lacking

Requirements to the net equipment

Net equipment has to be homogeneous i e it must consist of the limited set of range of products of one producer Net equipment has to be fully compatible with the net operational system and with net administration software It has to allow small replacement, expansion modernization of net, be reliable in operation.

Cable system installation

The most rational is to install the cable system in the cable channels set in the corridor of the buildingtwo meters up from the floor Setting the cable channel in the corridor facilitates the access to the cable and lessens the necessity in wall holing In the rooms and offices the cable can be wired along the plinth with or without fixing Such cable system is quite aesthetic and allows small replacement and even temporary cable installation.



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A1 on line dispatch service
A2 Automated Control systems
A3 Accountancy
A4 Financial dept
A5 Chief accountant
A6- Chief of Planning and Economic dept

Б1 Chief of on line dispatch service
Б2 Sales Dept
Б3 Logistics Dept
Б4 Legal Dept
Б5 Service of distribution and control
Б6 Planning and Economic dept
Б7 Personnel dept

В1 Copying techniques
В2 Chief engineer
В3 Reception
В4 Director

Г1 Deputy Director Economy
Г2 Deputy Director Capital constr n
Г3 Capital construction dept
Г4 Labor Dept Corporatization dept
Г5 Deputy director Labor safety
Г6 Generation and Technical dept

К1 Dispatch Service
К2 Computer dept

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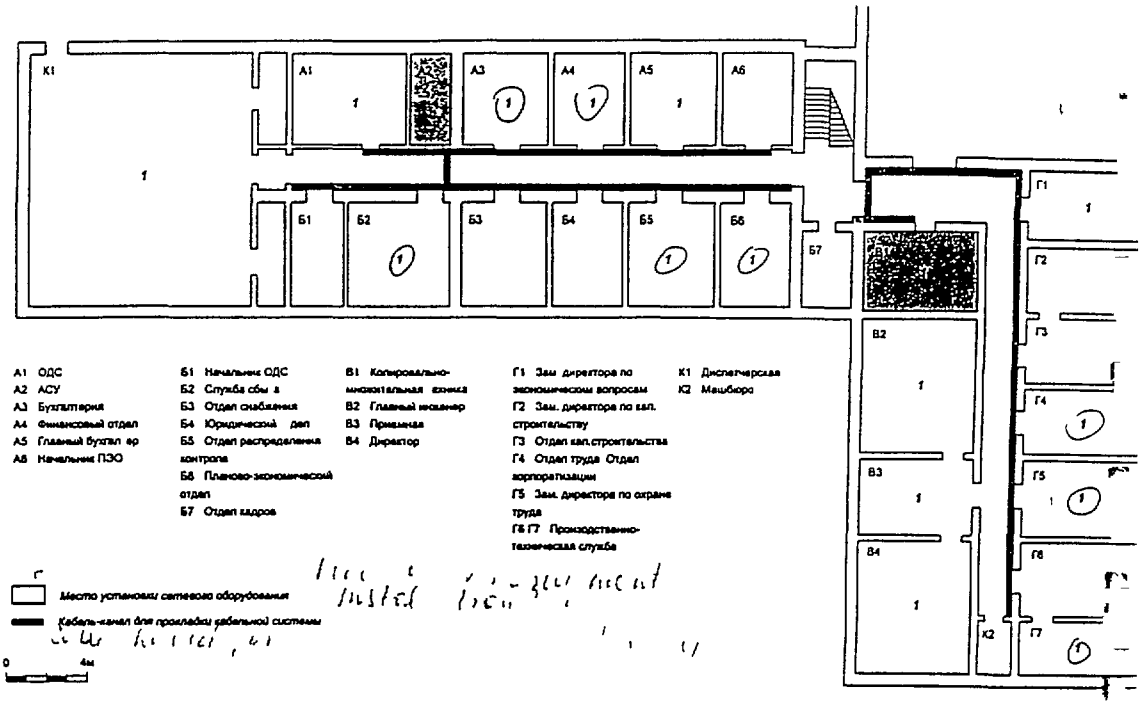

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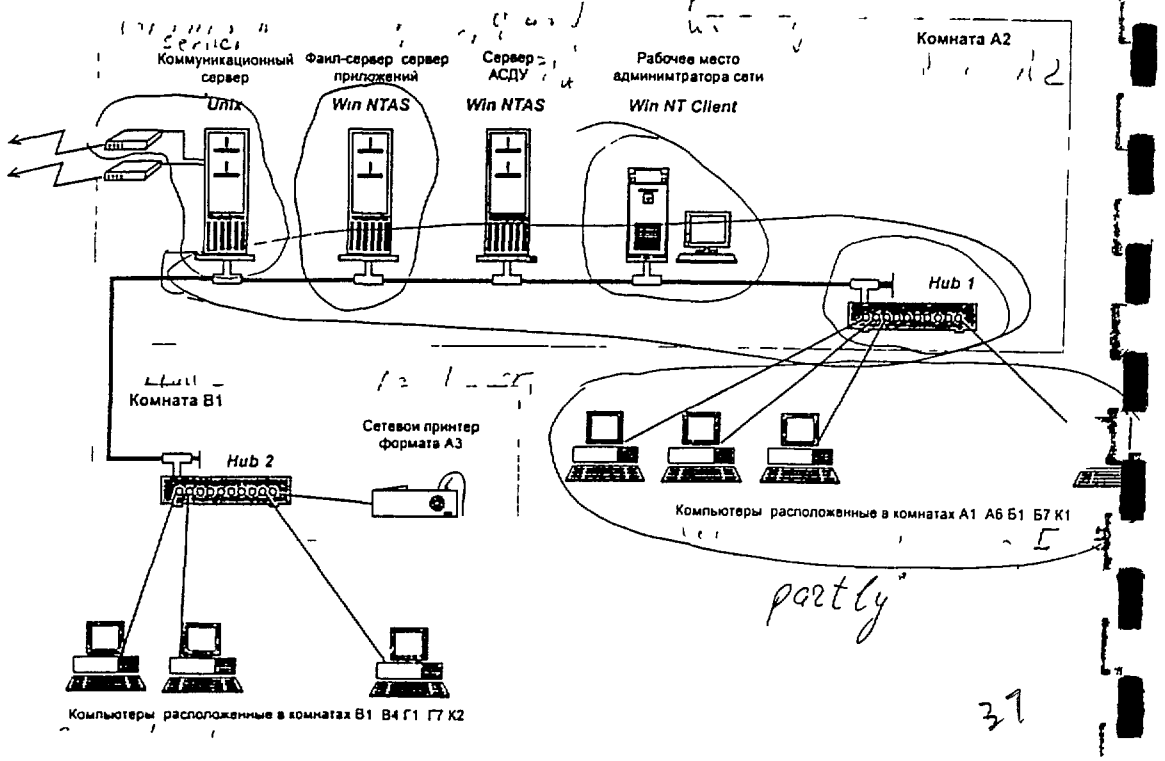
Обобщенная схема локальной сети



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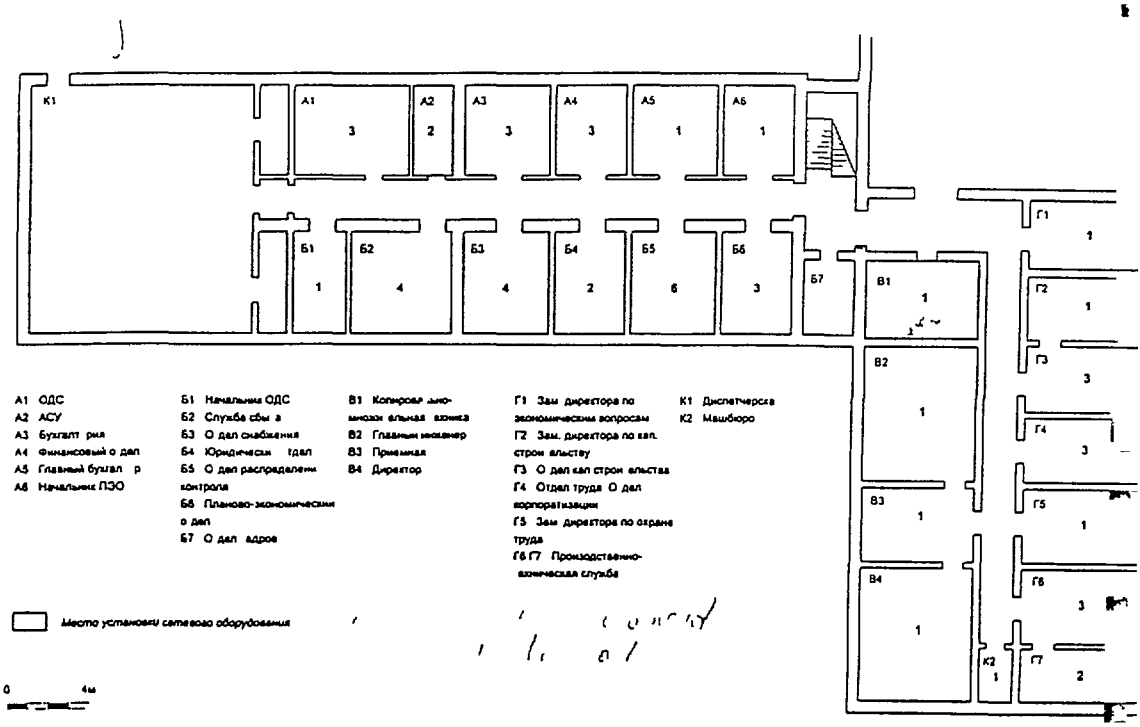

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Расположение компьютеров

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ıosed Strategy for Information System Development

ıigıv Oblenergo has moderate computer and communication capabilities and they aking good use of those facilities for the customer collection and payment ties While their needs are enormous they can make effective use of what we can le within our budget The following is the recommended list of computer and ıunication equipment that would help to enhance the capabilities to address the tion and payment issues

r Netserver 5/100LC Pentium 100mhz, 256 KB cache 32 MB RAM 1 GB 1 in number (at the pilot RES)

r Netserver 5/133 LS Pentium 133 Mhz, 512 KB cache 64 MB RAM 8 4 GB 1 in number (at the head office)

stations Pentium 100 16 MB RAM 1GB HDD 3 in number (1 at the pilot and 2 at the head office)

ms 8 Modems to connect the head office with the 3 divisions and the pilot RES

rs HP Laser Jet 4 Plus 600 dpi 5 in number (1 each at the head office 3 ons and 1 pilot RES)

are Novell Netware and Oracle Data Base

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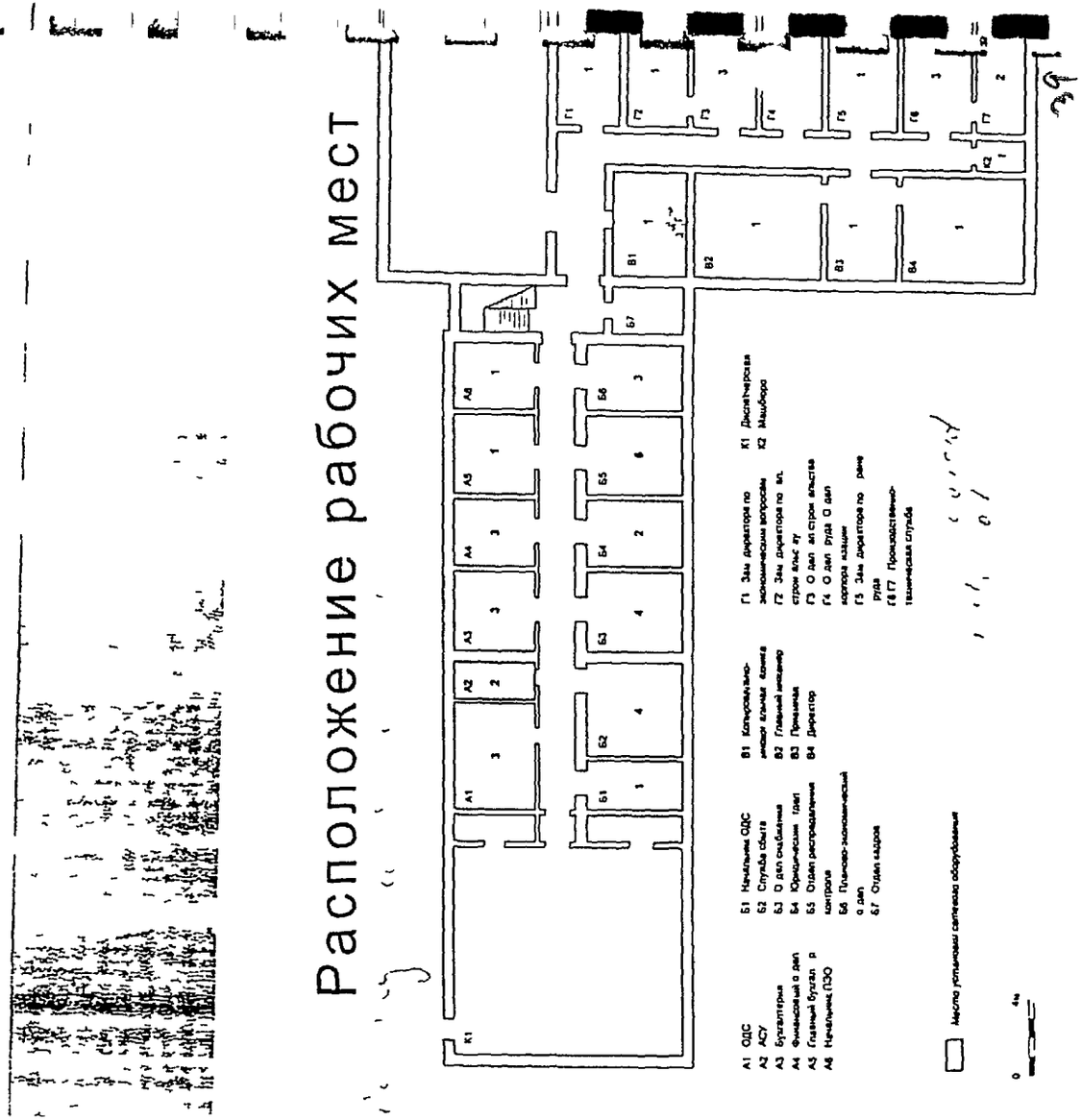

Proposed Strategy for Information System Development

Chernigiv Oblenergo has moderate computer and communication capabilities and they are making good use of those facilities for the customer collection and payment activities While their needs are enormous, they can make effective use of what we can provide within our budget The following is the recommended list of computer and communication equipment that would help to enhance the capabilities to address the collection and payment issues

Server Netserver 5/100LC Pentium 100mhz, 256 KB cache, 32 MB RAM 1 GB HDD 1 in number (at the pilot RES)

Server Netserver 5/133 LS Pentium 133 Mhz, 512 KB cache 64 MB RAM 8 4 GB HDD 1 in number (at the head office)

Workstations Pentium 100 16 MB RAM 1GB HDD 3 in number (1 at the pilot RES and 2 at the head office)

Modems 8 Modems to connect the head office with the 3 divisions and the pilot RES

Printers HP Laser Jet 4 Plus, 600 dpi 5 in number (1 each at the head office 3 divisions and 1 pilot RES)

Software Novell Netware and Oracle Data Base

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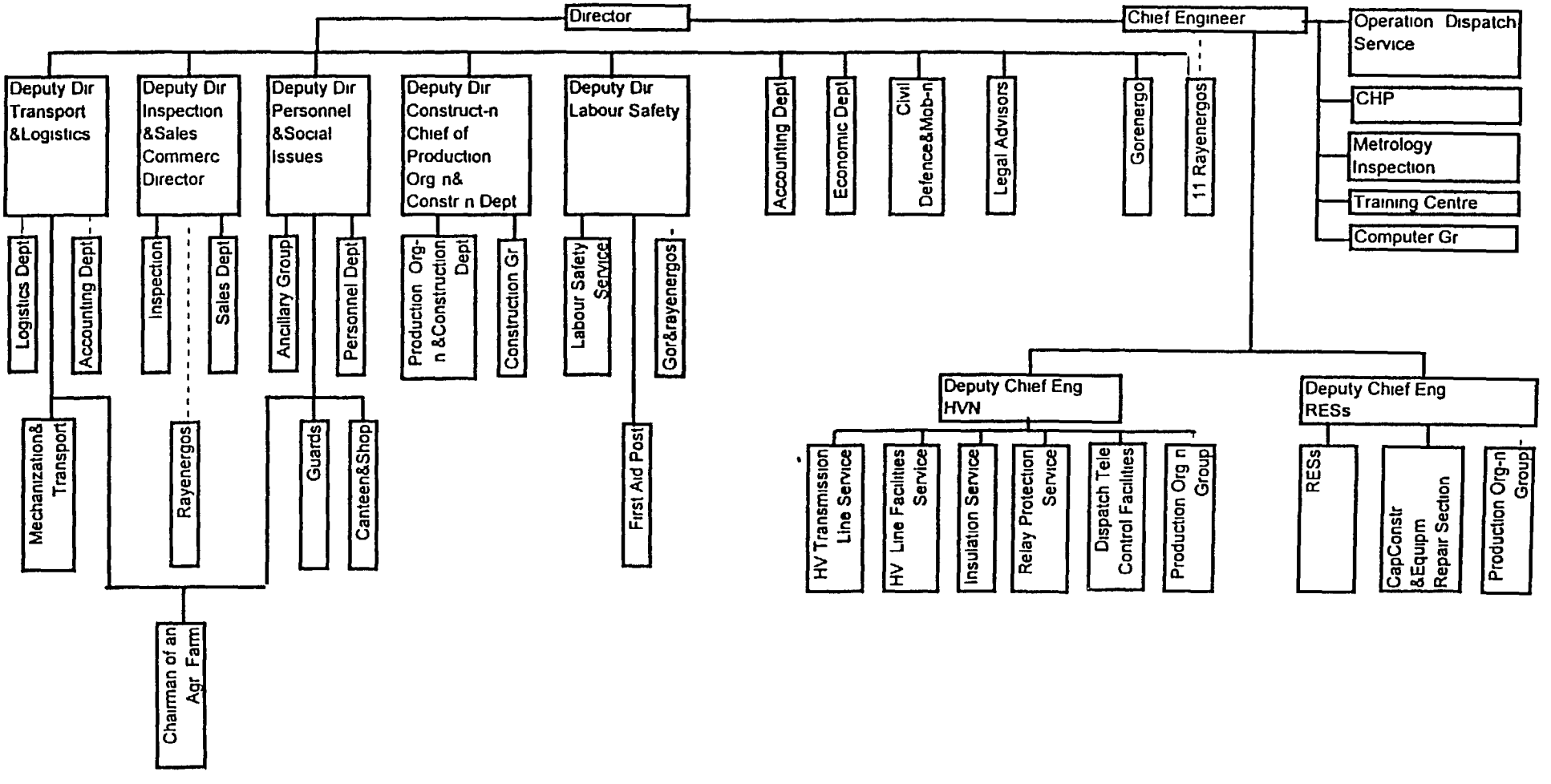
APPENDIX C - CHERNIVTSI OBLENERGO

PROPOSED CHERNIVTSIOBLENERGO ORGANIZATION CHART



Current Computing and Communication Capabilities

Chernivtsioblenergo currently has a total of 37 PCs

IBM 286 SX 16, 20Mb - 1
IBM 286 SX 20, 130Mb - 1
IBM 386 DX 20, 130Mb -2
IBM 386 SX 16, 40Mb - 10
IBM 386 DX 40, 40Mb - 1
IBM 386 DX 40, 130Mb -2
IBM486 DX 25, 200Mb -12
IBM 486 SX 40, 200Mb - 6
IBM 486 DX2 80, 200Mb -2

Out of the total amount, 16 PCs are located at the main office, and 21 PCs in RESs

For the time being there is modem communication to the RESs, E-mail connection to the bank and a leased line to Kiev

Requested Computing and Communication Equipment

Chernivtsi has a highly competent computer operations departent which has requested specific equipment in order to carryout their strategic plan for computerization and modernization The following equipment has been requested

A total of (87) PCs consisting of (31) units to be installed in the main office and (56) units for the RESs The computers will be used in the area of information flows and procesing on the LEC wide basis (in the main office and the RESs), Collection and processing of the information on the industrial, non-industrial and residential customer billing, collection and processing of substation information and telecontrol of the substations, Carryingout accounting, personnel, labor safety, legal, technological and other tasks

The main office currently processes the information on

- Energy Sales
- Bank Transactions (via e-mail)
- Accounting
- Labor Safety
- Legal
- Dispatch
- Technological issues

The RESs process information on energy sales

Proceeing from the requirements of complete information collection and processing it is necessary to install at
the RESs 56 PCs and software for the analysis of industrial and non-industrial customer biling settlements with
banks, and a complete set of accounting software

The following pages show specifcally identified computers and new proposed installations

Location of PC	Available PC	Pc to be installed	
Director	IBM 286 SX16, 20 Mb	IBM 486 DX4,100	Applications for collecting and analizing information
Chief Engineer		IBM 486 DX4,100	A set of applications
Deputy Director, Logistics & Transportation		IBM 486 DX4,100	An application to keep track of inventories
Deputy Director , Energy Inspection		IBM 486 DX4,100	Set of applications on energy inspection (connection to all RESs)
Deputy Director, Economics		IBM 486 DX4,100	A set of economic applications
Deputy Director, Personnel & Social Issues		IBM 486 DX4,100	A set of software on personnel and legislation
Deputy Chief Engineer, Environment & HV lines		IBM 486	A set of technological applications
Deputy Chief Engineer, Electric Networks		IBM 486	A set of technological applications
Deputy Director, Labor Safety		IBM 486	A set of technological softrware on labor safety
Secretary-typist		IBM 486	Software on filing

Peraonnel Group		IBM 486	Software on personnel issues
Labor Safety Service	IBM 486 DX2-80, 850Mb		Software "Tests on labor safety"
Chief Accountant		IBM 486	A set of accountiing software
Deputy Chief Accountant		IBM 486	A set of accounting software
Accounting Department	IBM 286, SX20,150Mb IBM 386,DX20, 150Mb IBM 386, DX20, 150Mb IBM 486, DX2-80, 200Mb IBM 486	IBM 486, DX4-100 (4 pieces)	Accounting software (on inventories, business trips, accounting and etc)
Economic Department		IBM 486 (4 pieces)	A set of planning & economic software
Logistics Department	IBM 486, SX25, 200Mb	IBM 486	Software on keeping track of inventories
Production & Tecnical Department		IBM 486 (2 pieces)	A set of applications
Operational & Dispatch Service	IBM 386, DX40, 150 Mb IBM 386, DDX40, 40Mb	IBM 486 (2 pieces)	A set of applicadtions (ЦТ-5000, ЭМУ and other)
Insulation & Overvoltage Counteraction Service		IBM 486 (I piece)	A set of applications
Relay Protection Service	IBM 486, SX40, 220Mb		A set of applications

Line Service		IBM 486	A set of applications
Substation service		IBM 486 (2 pieces)	A set of applications
CHP Plant	IBM 486, SX40, 200Mb	IBM 486	A set of applications
Energy Inspection		IBM 486	A set of software on energy inspection
Customer Group	IBM 486, SX40, 200Mb	IBM 486 (2 pieces)	A set of software on settlements analysis & work with customers
Metrology Laboratory		IBM 486	A set of applications
Garage		IBM 486	A set of applications
Computing Center	IBM 386, DX40, 150Mb IBM 486,DX2-80,840Mb	PENTIUM-PRO, 150Mhz PENTIUM-200	Communications to Kiev and the bank A set of start-up programs & facilities
Computer Center	IBM 486, SX40, 200Mb	IBM 486	A set of calculating software
Chernovtsy RES	IBM 386, sx20, 130Mb IBM 386,SX20, 130Mb IBM 486, SX25, 200Mb IBM 486, SX25, 200Mb IBM 486, SX40, 200Mb	IBM 486 (14 pieces) PENTIUM	Software "Analysis of setllements with residential customers" (KRABS) (1 computer for 9,000 customers) Software "Analysus of settlements with industrial customers" (STAS) (1 computer for 200 customers) Making settlements with banks ("BANK")
Novoselitsky RES	IBM 386 SX16, 40Mb IBM 486, SX25 200Mb IBM 486, SX25, 200Mb	IBM 486 (3 pieces)	KRABS, STSAS, BANK Software
Glyboksky RES	IBM 386, SX16, 40Mb IBM 486, SX25, 200Mb	IBM 486 (3 pieces)	KRABS, STAS, BANK

Kitsmansky RES	IBM 386, SX16, 40Mb IBM 486, SX25, 200Mb	IBM 486 (3 pieces)	KRABS, STAS, BANK
Zastanovsky RES	IBM 386, SX16, 40Mb IBM 486, SX25, 200Mb	IBM 486 (3 pieces)	KRABS, STAS, BANK
Kelmenetsky RES	IBM 386, SX16, 40Mb IBM 486, SX25, 200Mb	IBM 486 (3 pieces)	KRABS, STAS, BANK
Vizhnitsky RES	IBM 386, SX16, 40Mb	IBM 486 (4 pieces)	KRABS,STAS, BANK
Putilsky RES	IBM 386, SX16, 40Mb	IBM 486 (2 pieces)	KRABS,STAS, BANK
Khotinsky RES	IBM 386, SX16, 40Mb	IBM 486 (4 pieces)	KRABS,STAS, BANK
Starozhinetsky RES	IBM 386, SX16, 40Mb	IBM 486 (4 pieces)	KRABS,STAS, BANK
Sokiriansky RES	IBM 386, SX16, 40Mb	IBM 486 (4 pieces)	KRABS,STAS, BANK
Gertsayevsky RES		IBM 486 (5 pieces)	KRABS,STAS, BANK

Proposed Strategy for Information System Development

With the high quality of computer planning capability at Chernivsti Oblenergo, we believe that they have identified appropriate equipment for their future application Given that budget contraints will limit assistance, we believe that assistance should be provided to the degree possible, with a minimum of (6) workstations, (1) server with UPS and LAN capability, remote modem capabilities and at least one printer

Aug 16, 1996

Settlements of residential customers for the electricity utilisation

The average number of customers in the regions of Oblast is about 20-28 thousand Three PCs are required for such number of customers One computer is used for reference purposes to operate with customers and the other two - to input and process the receipts To accelerate the receipt processing it is desirable to process, at the each working position, regional villages attached to this computer To prevent information ageing in the reference computer it is necessary to make copies of archives from operating computers every two day

Minimum set of technical means

- processor with the capacity of operative memory not less than 640 KB,
- one storage on magnetic disks with a memory capacity not less than 20 MB,
- one storage on floppy magnetic disks with a capacity of 360 KB,
- video terminal,
- alphanumeric printing device

Work organisation

On receiving batch of receipts from savings banks they are valued and recorded in the batch registration log

Date of payment	Batch number for the day of payment	Code of savings bank	Sum	Date of batch receiving

In case of errors on making complete set we continue our work in the savings bank or input labels into the register In case of errors on labels input we update batch register and on necessity print it out on printing device

On receiving abstracts of billing from the savings bank they are valued and recorded in the registration log for abstracts of billing

Date of payment	Abstract number for the day of payment	Code of savings bank	Sum	Date of abstract receiving

Hereafter, we input each receipt from the batch The program monitors batch of receipts, compares control sums with a sum inputted by batch label In case of errors there is a possibility to print out list of them or update contents of batch Then we carry out separation of payments by the regional villages for the fully completed batches /when we have abstract for the batch/ At the end of the month it is necessary to close the period /clearing of operating files/ Then carry out separation of payments by personal accounts into the file of personal accounts for regional villages The program carries out calculation of implementation and inputs it into the file and also calculates payments by the type of payments Then we operate with a file of personal accounts, selecting one of operation mode

- bring together the data base of personal accounts /additions, deductions, customers update, printing out personal accounts/
- planning of control rounds /issue of the necessary sheet for the control rounds/ Each sheet of control round has it own printed number This sheet /file/ is stored at the Winchester disk till the moment the inspector will fill up the sheet during his round and process the results of round /input received data into the machine/,

- movement of registration means /issue of pay lists, processing of meter change/,
- complaints operation /input the data base of debtors, extinguishing of debts, issue the sheets of debts extinguishing/,
- sheet of implementation

List of coders.

1 Table of REC code accordance to the customer code

- REC HOA code
- district code
- book code
- customer code

2 Coder of payment types for residential customers

- payment type code
- name of payment type
- tariff /krb /
- discount /%/
- limit of use /kW/h/
- increased tariff /krb /
- discount to increased tariff /%/

3 Coder of work types for the inspector-fitter

4 Table of accordance the processing "nodes" and codes of customers

- "node" code
- initial code of customer
- final code of customer
- "node" name

5 Table number of inspector-fitter

6 Coder of savings bank branches /mail/

7 Coder of meter types

- meter type code
- meter type
- serviceability term
- current /A/
- meter's constant
- voltage /V/
- error

8 Substations coder

9 Coder of territorial units and electricity realisation registration

- data
- sum for electricity /krb / without fine - per day
- fine /krb/ - per day
- number of kWh - per day
- number of kWh by increased tariff - per day
- number of messages - per day
- month
- sum for electricity /without fine/,krb - from the beginning of month

"Розрахунки з абонентами побутового сектора за електроенергію".

В районах області нараховується в середньому 20-28 тисяч абонентів. Для такої кількості абонентів необхідно використовувати три персональних комп"ютера. Один комп"ютер використовується в столі справок для роботи з абонентами, а два других - для введення і оброблення квитанцій. Для більш скорішого оброблення квитанцій бажано на кожному робочому місці обробляти закріплені за комп"ютером села району. Для того, щоб інформація на комп"ютері в столі справок не старіла, необхідно кожних два дні копіювати архіви з працюючих комп"ютерів.

Мінімальний склад технічних засобів:

- процесор з оперативним запам"ятовуючим пристроем ємкістю не менше 640 КБАЙТ;
- один накопичувач на магнітних дисках з об"ємом пам"яті не менше 20 МБАЙТ;
- один накопичувач на гнучких магнітних дисках ємкістю 360 КБАЙТ;
- відеотермінальний пристрій;
- алфавітно-цифровий друкувальний пристрій.

Організація роботи.

При одержанні пачок квитанцій із збіркас, виконуємо їх токсировку і реєстрацію в журналі реєстрації пачок:

Дата оплати	Номер пачки на дату оплати	Шифр ощадкаси	Сума	Дата одержання пачки

Якщо є помилки комплектації, то продовжуємо роботу в ощадкасі, або вводимо ярлики пачок в реєстр. Якщо є помилки при вводі ярликів, то коректуєм реєстр пачок, при необхідності роздруковуємо його на друкувальному пристрої.

При одержанні виписок із каси виконуємо їх токсировку і реєстрацію в журналі реєстрації виписок:

Дата оплати	Номер виписки на дату оплати	Шифр ощадкаси	Сума	Дата одержання виписки

В подальшому вводиться кожна квитанцІя Із пачки. Програма здІйснює контроль пачки квитанцІй, зрІвнює контрольнІ суми з сумами, введеними по ярлику пачки. Якщо є помилки, то є можливІсть надрукувати вІдомІсть або вІдкоректувати вмІстиме пачки. В подальшому виконуємо розноску платежІв по селам району для повнІстю укомплектованих пачок /коли для пачки є виписка/. В кІнцІ мІсяця необхІдно виконувати закриття перІоду /очистка працюючих файлІв/. Виконуємо розноску платежІв по особистим рахункам в файл особистих рахункІв сІл району. Програма виконує розрахунок реалІзацІІ І заносить в файл, а також пІдраховує платежІ по видам оплати. В подальшому працюємо з файлом особистих рахункІв, вибираючи один Із режимІв роботи:

- зведення бази даних особистих рахункІв /добавки, зняття, коректировка абонентІв, друкування особистих рахункІв/,
- планування контрольних обходІв /видача потрІбноІ вІдомостІ контрольного обходу/. На кожнІй вІдомостІ контрольного обхода друкується ІІ номер. ВІдомІсть /файл/ зберІгається на "вІнчестер"-диску до того момента, коли контролер заповнить вІдомІсть при обходІ І виконає ІІ оброблення /введе одержанІ Ім данІ в машину/ результатІв обхода;
- рух приладІв облІку /видача вІдомостей, оформлення замІни лІчильника/;
- претензІйна робота /ведення бази даних боржникІв, погашення боргІв, видача вІдомостей погашення боргІв/;
- вІдомІсть реалІзацІІ.

ПерелІк шифраторІв:

І. Таблиця вІдповІдностІ шифра ЕРК шифру абонента:

- шифр ЕРК ЖЕУ
- шифр района
- шифр книги
- номер абонента.

2. Шифратор видів оплат побутових абонентів:

- код вида оплати
- назва вида оплати
- тариф /крб./
- скидка /%/
- гран. споживання /кВт.год./
- повиш. тариф /крб./
- скидка з повиш. тарифа /%/

3. Шифратор видів робіт контролера-монтера.

4. Таблиця відповідності "вузлів" опрацювання і шифрів абонентів:

- код вузла
- шифр абонента початковий
- шифр абонента кінцевий
- назва "вузла".

5. Табельні номери контролерів-монтерів.

6. Шифратор філій ощадбанку /пошт/.

7. Шифратор типів лічильників:

- шифр типа лічильника
- тип лічильника
- строк пригодності
- струм /А/
- постійна лічильника
- напруга /В/
- похибка

8. Шифратор підстанцій,

9. Шифратор територіальних одиниць і обліку реалізації електроенергії:

- дата
- сума за електроенергію /крб./ без пені - за день
- пеня /крб/ - за день
- кількість кВт.год. - за день
- кількість кВт.год. по повиш. тарифу - за день
- кількість повідомлень - за день
- місяць
- сума за електроенергію /без пені/,крб. - з початку місяця

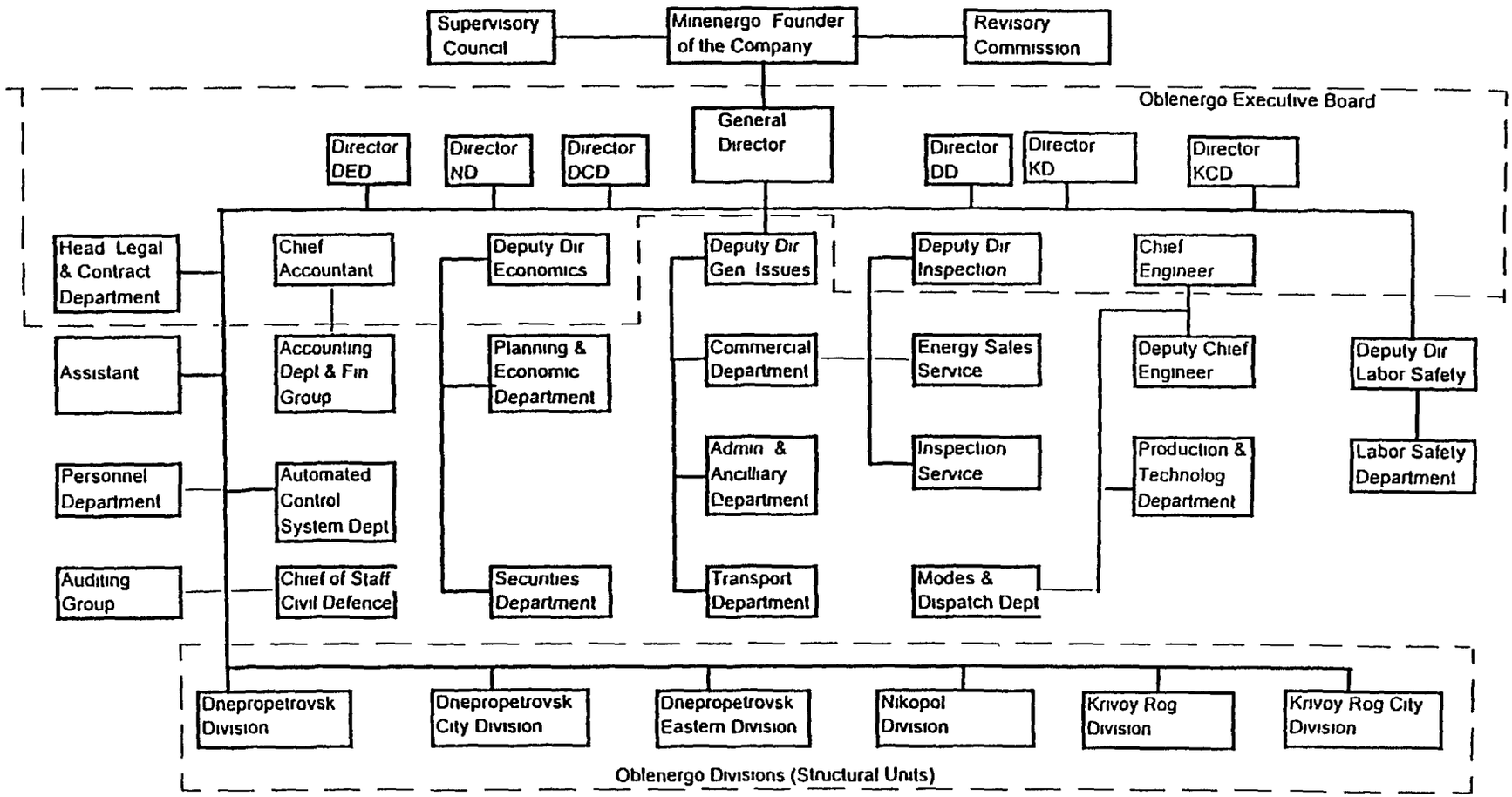
- пеня /крб./ - з початку мІсяця
- кІлькІсть кВт.год. - -"-
- кІлькІсть кВт.год. по повиш. тарифу - за день мІсяця
- кІлькІсть повІдомлень - з початку мІсяця
- рІк

ВІдомІсть неплатникІв:

Шифр абонента	Адрес	ПрІзвище, Ім"я, по батьковІ	Номер лІчильника	Дата послІдньоІ оплати	ПослІд. показн. по квитанцІІ	Оплачені показники

APPENDIX D - DNIPRO OBLENERGO

DNEPROOBLENERGO ORGANIZATION CHART



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Current Computing and Communication Capabilities

Dniprooblenergo is the biggest LEC in the country and by our observations is one of the best equipped in terms of computers We made a request to supply us with the detailed information concerning availability of computers in the company But due to the certain circumstances like June-July was the time for preparation of the half a year report, there are was not enough human resources to make computer investigation for us As we found out there is no one inventory book for the whole company

We got information that each of eight Dniproenergo divisions has two faxes and the headquarters possesses four fax machines So the amount of faxes totals to 24 units Apart of that there 30 REZes and some of them are equipped with fax machines

Requested Computing and Communication Equipment

To improve the setttlements process Subcriber Services of Dneproooblenergo and the eight structural units (divisions) need the following software and hardware

	Configuration	Pieces
Computers	Pentium-100 /RAM 16Mb/ Video SVGA PCI 1MbHDD 1Gb FDD 3 5"/Color Monitor 0 28 NI& LR Ethernet- 3COM 3C5X9 Parallel Tasking/	20
Printers	Epson EPL-5200 RAM 3Mb	10
	Epson Stylus Color PRO XL	10
Modems	Motorola Codex (28800 or Dial Up & Leased Line)	20
Microrouters	Cisco 2509 (1Ethernet, 2Sync, 8 Async)+ Software	8
	Cisco 2511 (1 Ethernet, 2Sync, 16 Async) + Software	2

Proposed Strategy for Information System Development

In our opinion it will be reasonable to order for Dniprooblenergo the following equipment

1 Server with UPS and a Local Area Network
6 Work Stations
4 Modems
2 Printers

We are sure that nevertheless that Dniprooblenergo did not respond in time for our request we cannot deprive them of new computers since it is the biggest LEC in the country

Equipment need!

1 Computers

1 1 Workstation - **20 units**

Premiere Pentium -66
/16Mb RAM
/1Gb HDD Seagate
/Video - ATI Mach 1Mb
/ SVGA 15" LR NI Daewoo

1 2 Programmer workstation - **5 units**

Endeavour Pentium-133
/32Mb EDO RAM
/2Gb HDD Seagate Wide-SCSI-2 Adaptec
/Video - Diamond Stealth 968 PCI VRAM 2Mb
/ SVGA 17" LR NI Daewoo

2 Server - **1 unit**

Xtended Xpress Pentium-133 PCI
/32Mb RAM
/ 2*2Gb HDD Seagate Ultra Wide SCSI Adaptec
/ MonoSVGA 14"

3 LAN equipment

LAN adepter 3COM PCI (BNC / TP) - **26 units**
LAN adepter 3COM ISA (BNC / TP) - **10 units**
Hub 3COM - 16TP/1BNC - **4 units**
Unshield twisted pair level 5 - **2000 м**
Cable coaxial - **300 м**
TP connectors - **100 pcs**

4 Uninterruptible power source

UPS APC SMART 1000VA + software - **1 units**
UPS APC SMART 400VA + software - **25 units**

5 Printers Epson Stylus Color Pro - **5 units**
Epson FX-1170 - **15 units**

6 External device Plasmon PD/CD PD2000e - **3 units**

7 Cartridge for Plasmon PD/CD PD2000e - **15 pcs**

8 Modem Motorola 28800 (for 4-wire lised line) - **1 unit**

9 Mini data cartridge Sony QD2120 - **20 pcs**
(or other analog for Colorado Jumbo 250)

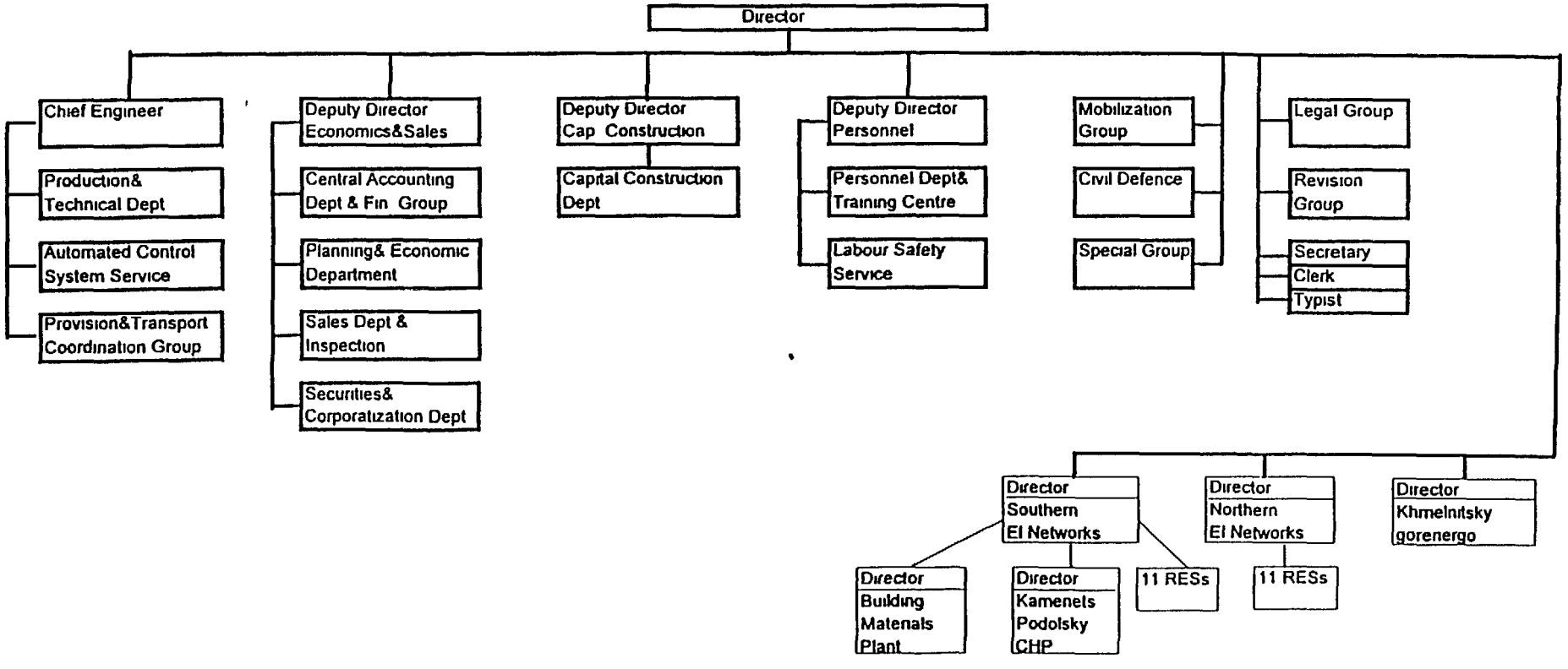
10 Floppy disks Verbatium Teflon 3,5" - **500 pcs**

11 Fax Panasonic KX-F130B - **15 units**

12 Copying device Xerox - **4 units**

APPENDIX E - K'HMELNITSKY OBLENERGO

KHMELNITSKYOBLENERGO ORGANIZATION CHART



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Proposed Strategy for Information System Development

Due to the current lack of communications equipment available at K'hmelnitsky Oblenergo for the transfer of information between it's headquarters offices and those of the District offices in it's Southern Division, the priority request and suggested equipment to be installed is as follows

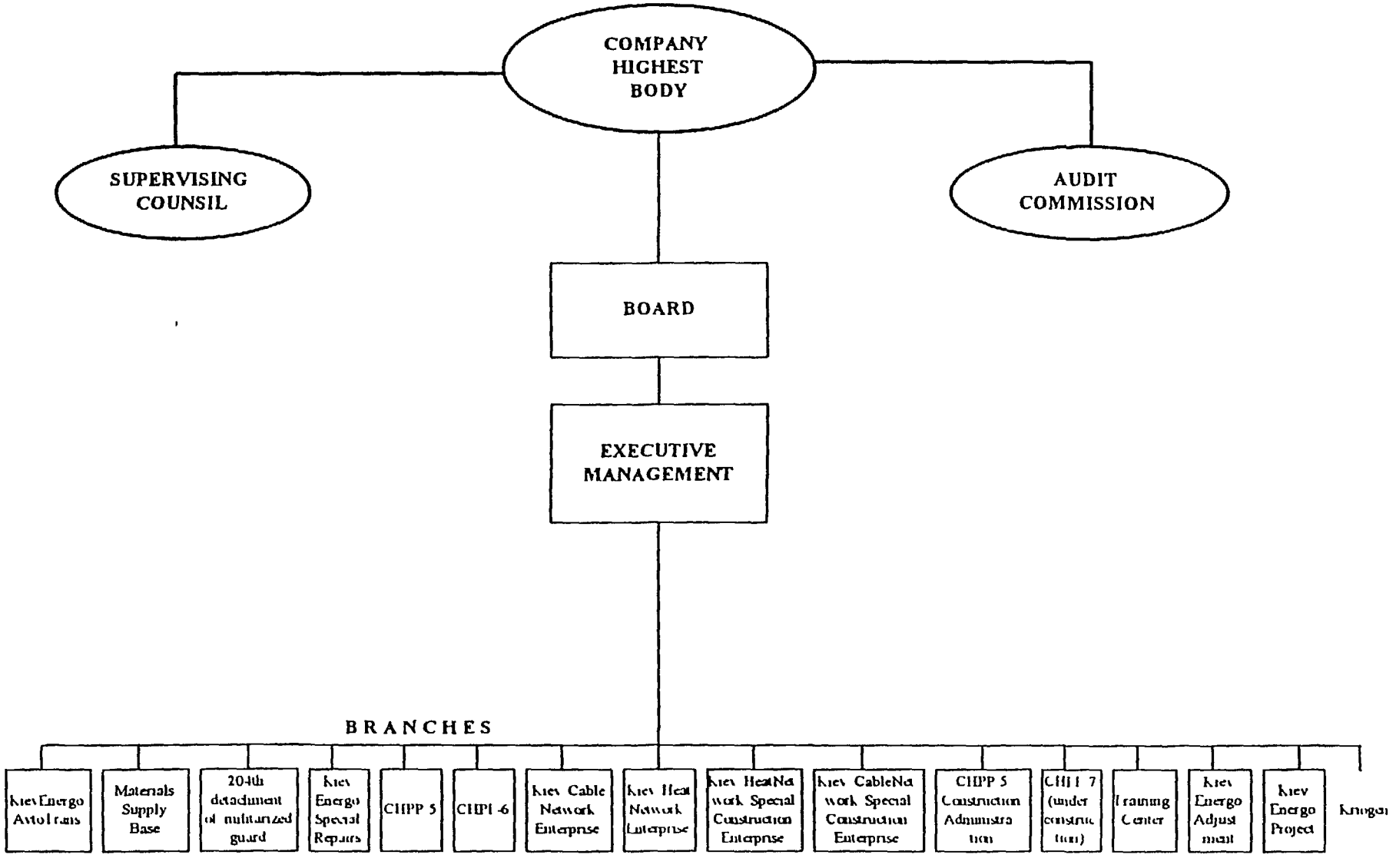
(11) FAX / Telephone with thermo-paper FAX capabilities for installation at each of the Southern Division District offices

(1) Server - Headquarters Installation for monitoring customer account usage and payment records

(2) Computer - Headquarters installation for input of customer records and financial record-keeping and Minenergo / Energomarket communications

APPENDIX F - KIEVENERGO

KIEVENERGO JOINT-STOCK COMPANY ORGANIZATION STRUCTURE



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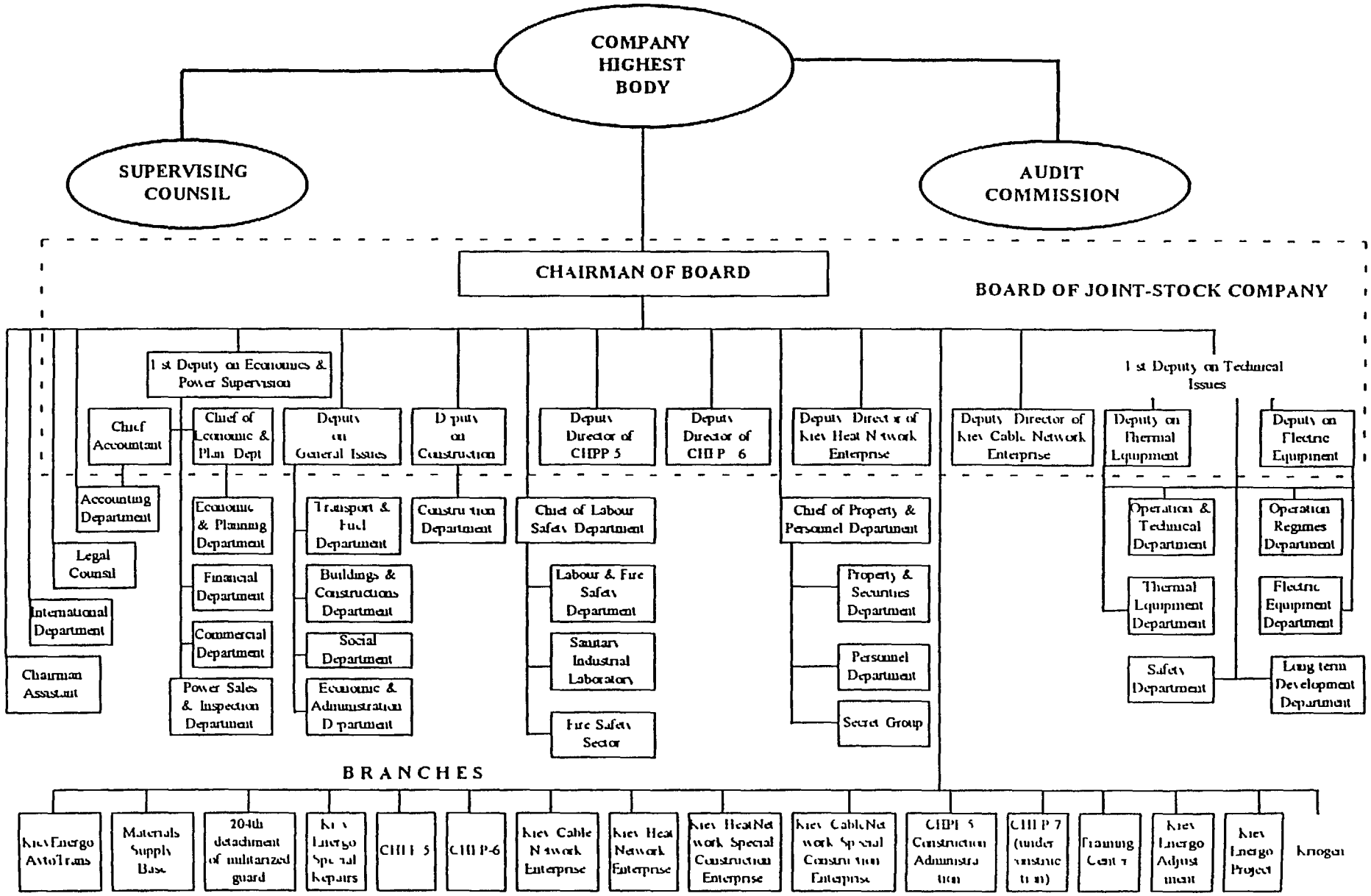
KIEVENERGO JOINT-STOCK COMPANY ORGANIZATION STRUCTURE



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Current Computing and Communication Capabilities

Kievenergo Computer Service Department identified the following as their currently available computer hardware and software capabilities for performing the customer collection and payment activities

- At the Zapadny pilot district (RES) , they have a LAN, and one 486 PC, seven 286 PCS, and one server
- The other 4 cable network districts have two- 286 PCs, and 1 modem per district
- At the head office they have eight 486 PCs, and 14 286 PCs, and 4 HP Desk Jet printers

Requested Computing and Communication Equipment

Kievenergo Computer Service Department identified the following as the hardware and software needs for performing the customer collection and payment activities

A Hardware

- Server-Pentium P-100 PC with 32 MB RAM, 2 GB HDD 6 in number (1 for each of 5 cable network districts, and 1 for the head office)
- Workstations- 486 PC with 8 MB RAM, 1 GB HDD 110 in number (30 PCS in the head office, and 16 PCS for each of the 5 districts)
- SMART UPS (Uninterruptible Power Supply) 600 VA rating 5 in number (1 for each district)
- Printers- HP Laser Jet 5P 10 in number (5 in the head office , and 1 for each district)
- Printers- HP Desk Jet 850c 30 in Number (6 at each of the 5 districts)
- Printers- EPSON Stylus 1000 5 in number (at the head office)

B Software

- Novell Netware for 25 users in 5 cable network districts
- Windows NT for 5 cable network districts
- Oracle Data Base
- Virus Protect for Netware 4 1

Proposed Strategy for Information System Development

Kievenergo has moderate computer and communication capabilities and they are making good use of those facilities for the customer collection and payment activities While their needs are enormous, they can make effective use of what we can provide within our budget constraints The following is the recommended list of computer hardware and software equipment that would help to augment the capabilities to address the collection and payment issues

A Hardware

1 Server Pentium P-100 PC with 32 MB RAM, 2 GB HDD 2 in number (1 at the pilot district and 1 at the head office)

2 Workstations 486 PC with 8 MB RAM, 1 GB HDD 2 in number (1 at the head office and 1 at the pilot district)

3 SMART UPS (Uninterruptible Power Supply) 600 VA rating 5 in number (1 for each district)

4 Printers HP laser Jet 5P 2 in number (1 for head office and 1 at the pilot district)

5 Printers HP Desk Jet 850c 5 in number (1 for each of the 5 districts)

B Software

1 Novell Netware 5 copies (1 for each district)

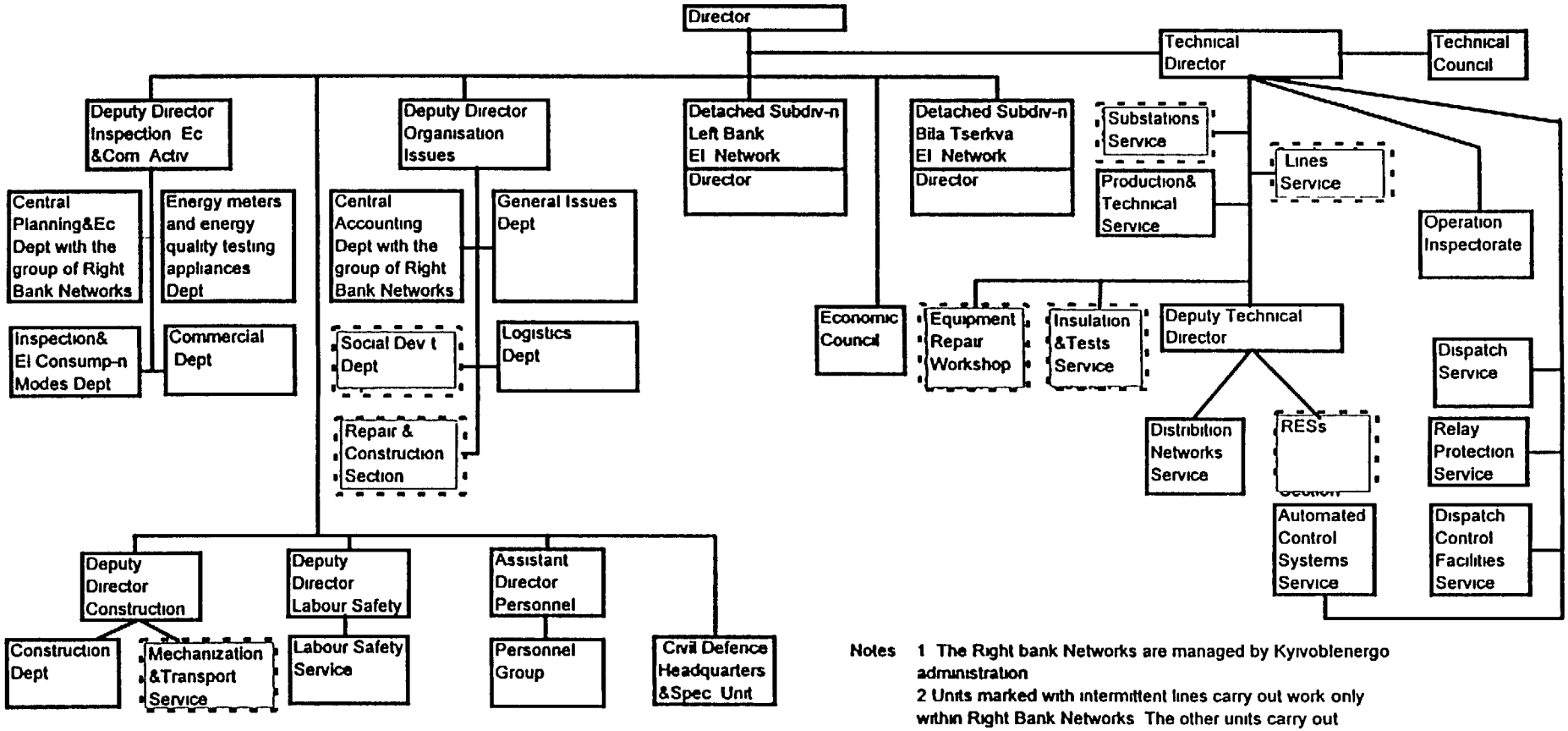
2 Windows NT 5 (1 for each district)

3 Oracle Data Base

4 Virus Protect for Netware 4 1

APPENDIX G - KIEV OBLENERGO

KYIVOBLENERGO ORGANIZATION CHART



Notes 1 The Right bank Networks are managed by Kyivoblenergo administration
2 Units marked with intermittent lines carry out work only within Right Bank Networks The other units carry out centralized functions within Kyivoblenergo

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Current Computing and Communication Capabilities

Kiev identified the following as their currently available computer hardware and software capabilities for performing the customer collection and payment activities

Vasylkiv RES has 5 PCs, 4-286 and 1-486 Out of these 2 PCs are for use in the Collections Department, 1-486 PC is used to process data of residential customers, and 1-286 PC is used for industrial customer data Vyshgorod RES has 1-486, 2-286s, and 1 modem

Only 7 out of the 28 RESs have 2 computers each (286)

Bila Tserkva Electric Network division has 6-286s, 6-386s, and 3-486s and 4 modems The left bank network division has 6-286s, 7-386s, and 5-486s, and 4 modems The right bank network division has a total of 54 PCs (a combination of 286s, 386s, and 486s)

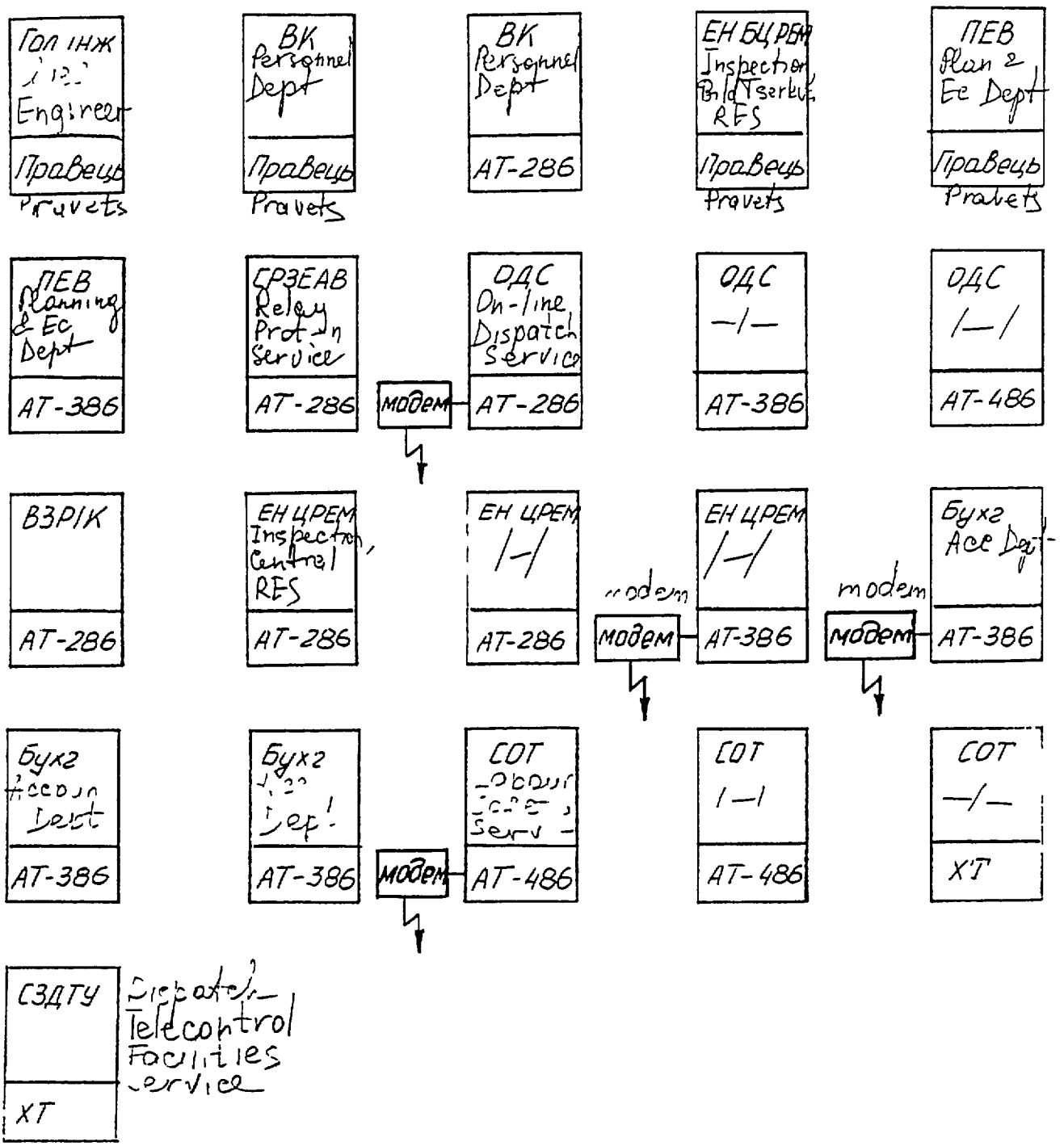
The LEC head office has 22-286s, 9-386s, 11-486s, 5 modems and Ethernet communication link

Available PC in Kievoblenergo

RES		486	386	286
RIGHT BANK El N Borodyanka Vasylkov Vyshgorod Ivankov Makarov Polesskoye Chernobyl	 1 4 3 1			
TOTAL	54			
BILA TSERKVA Bila Tserkva Boguslav Volodarsk Rokitno Skvira Stavishcha Tarashchansk Tetiev Fastov Centr RES				
TOTAL	21			
LEFT BANK EN Baryshevka Borispol Zgurov Irpen Kagarlyk Kiev-Svyatoshin Mironovka Obukhov Per-Khmelnitsky Yagotin El Transmission Lines Control				
TOTAL	20			
Total number	**95**			

Схема розміщення персональних ЕОМ в Білоцерківських електро мережах

Hardware location in Bila Tserkva Electr. networks



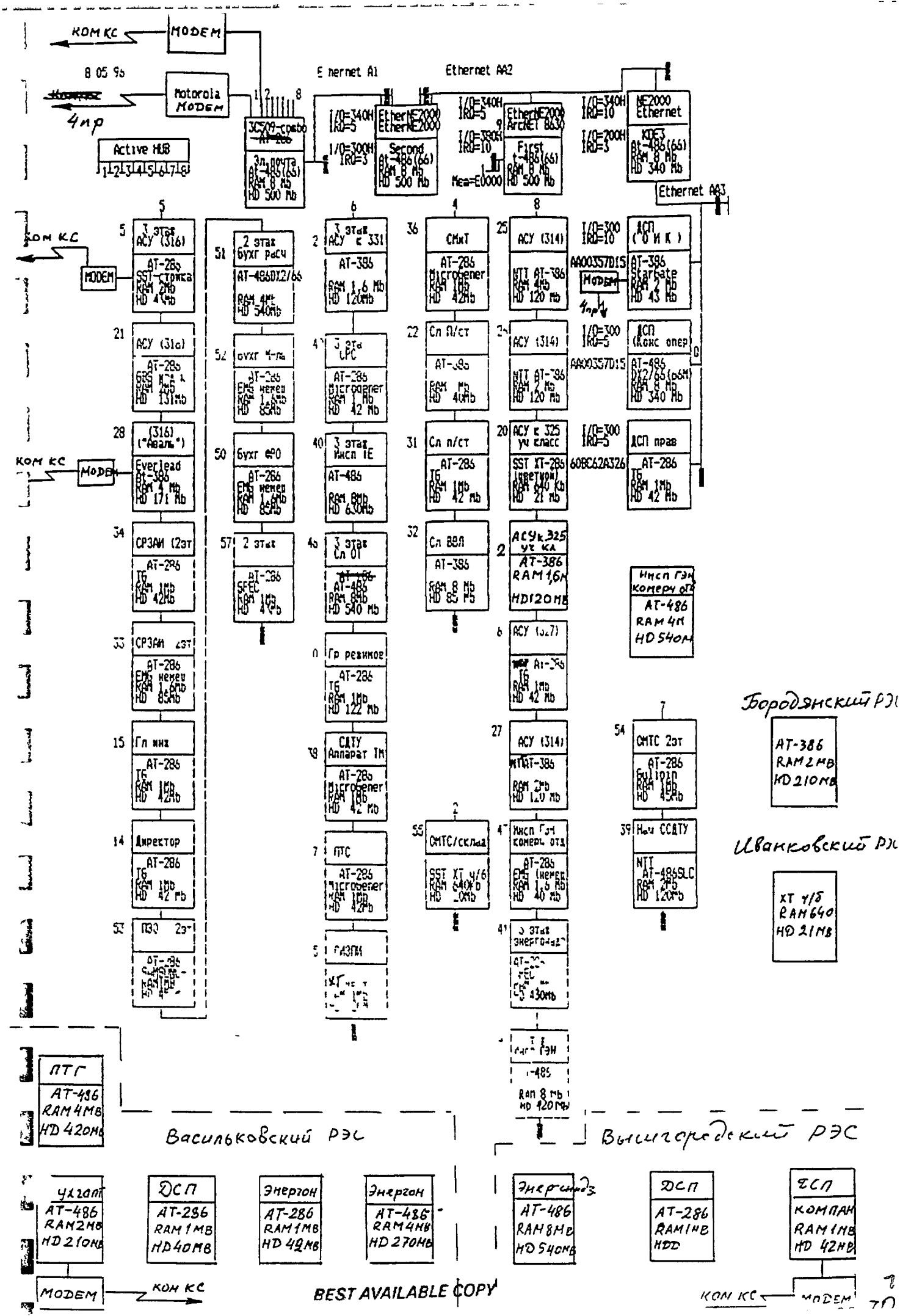
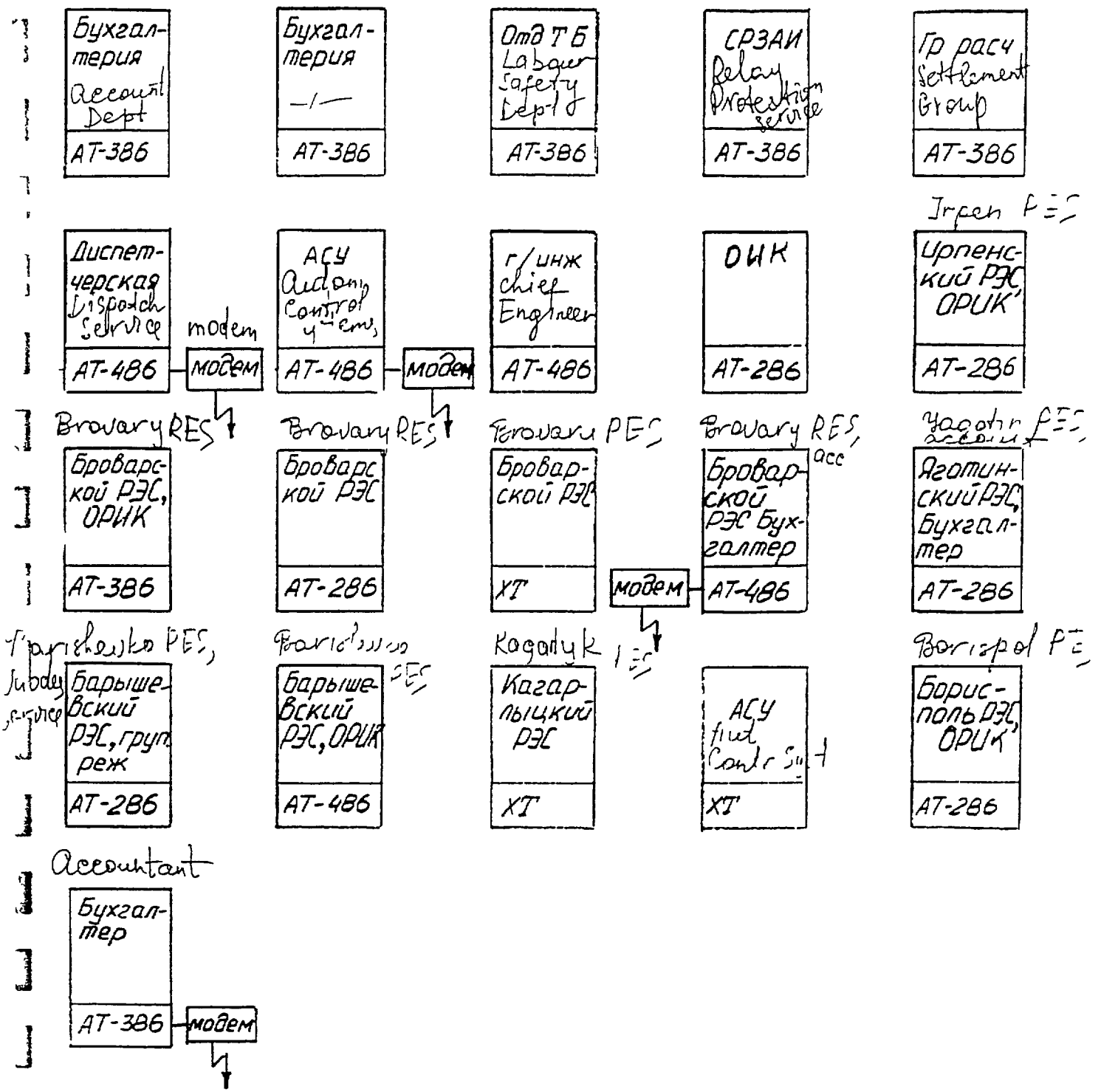

MODEM
Motorola MODEM
Active HUB
Ethernet A1
Ethernet A2
Ethernet A3
Second
First
Бородянский РЭС
Иванковский РЭС
Васильковский РЭС
Вышгородский РЭС
ПТГ
AT-486
RAM 4MB
HD 420MB
ДСП
AT-286
RAM 1MB
HD 40MB
Энергон
AT-286
RAM 1MB
HD 42MB
Энергон
AT-486
RAM 4MB
HD 270MB
Энергонадз
AT-486
RAM 8MB
HD 540MB
ДСП
AT-286
RAM 1MB
HDD
ДСП
КОМПАН
RAM 1MB
HD 42MB
MODEM
BEST AVAILABLE COPY

Схема размещения персональных ЭВМ в Левобережных электро сетях

PC location in Left Bank EN



Requested Computing and Communication Equipment

Kiev Oblenergo identified the following as the hardware and software needs for performing the customer collection and payment activities

Workstations

IBM 486 Dx4, 100 MHZ, 8 MB RAM, 540 MB HDD 56 total in number(2 at each of 28 RESs)

IBM 486 Dx4, 100 MHZ, 8 MB RAM, 540 MB HDD, 3 COM TP 20 in number(10 at each of 2 Divisions)

IBM 486 Dx4, 100 MHZ, 8 MB RAM, 540 MB HDD, 3 COM TP 40 in number at the headquarters

Server Pentium P-100, 16 MB RAM, 1GB HDD 7 in number (5 at the headquarters, 1 at each of 2 divisions)

Alpha Server 2100 4/275, DecHub 90 for connection 1 in number at the head office

Modem Motorola Modem 28 in number (1 per RES)

Printers A3 Format 116 in number (10 at each of 2 divisions, and 2 at each of 28 RESs, 40 at the Headquarters)

Printers Mannasman MT-6000 2 in number at the headquarters

Ethernet BNC , 8 inlet repeater 1 in number

Ethernet BNC, 8 inlet HUB TP 5 in number

Proposed Strategy for Information System Development

Kiev Oblenergo has moderate computer and communication capabilities and they are making good use of those facilities for the customer collection and payment activities While their requested needs are enormous, they can make effective use what we can provide within our budget constraints at 1 or 2 pilot RESs

Server Pentium P-100, 100MHz, 32 MB RAM, 2 GB HDD 2 in number (1 at the pilot RES, and 1 at the head office)

Server Alpha server 1 in number at the head office

Workstations 486 PC with 8 MB RAM, 1 GB HDD 3 in number (2 at the head office, and 1 at the pilot RES)

Modems 5 modems connecting 3 divisions and 2 pilot RESs with the head office

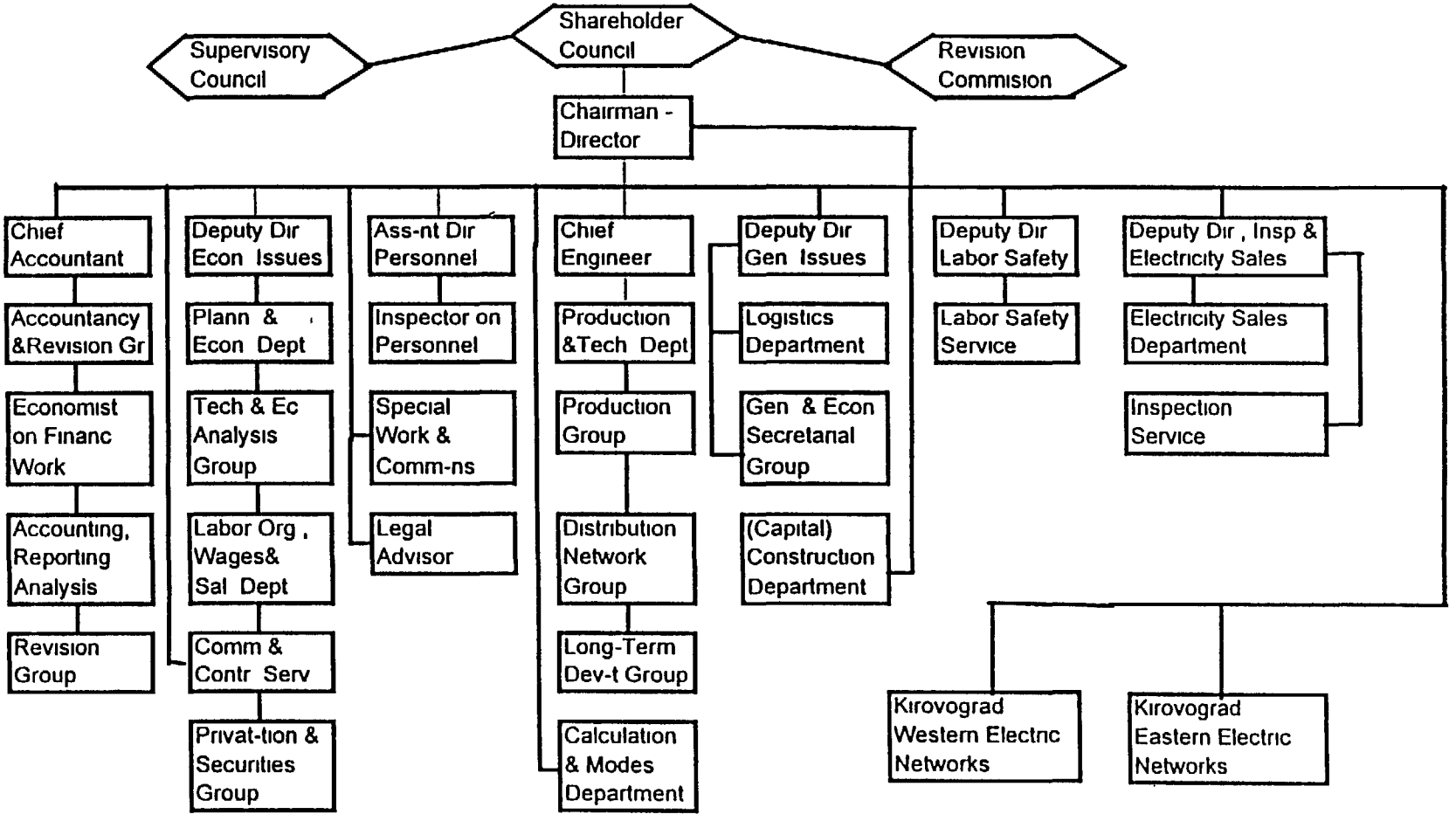
Printers HP laser jet 5P 2 in number (1 for head office and 1 for pilot RES)

Software Oracle Data Base , and Novell Netware I copy each

The above is the minimum set of equipment required to demonstrate the customer collection and payment issues at one pilot RES

APPENDIX H - KIROVOGRAD OBLENERGO

KIROVOGRADOBLENRGO ORGANIZATION CHART



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Current Computing and Communication Capabilities

In Kirovogradenergo the following computer hardware was identified

In Eastern Electric Network
- 486 DX - 2 units,
- 386 DX - 1 unit,
- 386 SX - 2 units,
- 286 AT - 8 units,
- 8088 XT - 2 units

Total 15 unit

In Western Electric Network
- PENTIUM - 2 units,
- 486 DX - 2 units,
- 386 DX - 12 units,
- 286 AT - 12 units

Total 34 units
In addition to that in the organization there are 34 fax machines

Главному инженеру
ГАЗК 'Кировоградобленерго'
Янишевскому Н П
Начальник службы АСУ ТП
Панасенко П И

С П Р А В К А

о наличии и использовании вычислительной техники на КЗЭС

1 Наличие компютерной техники на КЭЭС

Персональные компютеры по типам процессора

- PENTIUM - 2шт
- 486 - 8шт
- 386 - 12шт
- 286 - 12шт

ИТОГО 34шт

2 Реализовано на персональных компютерах задачи по подсистемам

) подсистема бухгалтерского учет
- учет труда и зар платы
- учет основных средств,
- учет материальных ценностей
- учет финансовых операций'
- учет рассчетов с подотчетными лицами
- составление бух баланса предприятия
- рассчет и анализ плановых показателей
- Пофакторный анализ прибыли,
- Штатное расписание,

прочие мелки задачи упрощаю

б подсистема материально-технического снабжения
- Учет и движение материалов по центральному складу,
- Учет неликвидов'
- Учет договоров;
- Сетевая комерческая рыночная информация

г подсистема ТБ и охраны труда
- Учет и анализ заболеваемости персонала предприятия,
- Комплекс обучения и проверки знаний правил эксплуатации и техники безопасности,
- Динамические модели для обучения и проверки знании эксплуатации и ТБ при работе с эл оборудованием и оборудованием ТЭЦ
- Комплексная система диагностики физического состояния человек

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д подсистема сбыта энергии
- Учет оплаты за эл энергию абонентами бытового сектора
- Учет оплаты за эл энергию абонентами промышленого сектора,
- Оперативно-информационный комплекс по потреблению эл энергии для диспетчерски служб

е технические задачи
- Учет работы устойчивости релейной защиты
- Паспортизация оборудования
- Построение и оперативный поиск эл схем
- Расчеты нормативов ТРЭ

прочие мелкие задачи упускаю

7 Используются на КЗЭС след стандартные пакеты
- " БЕЗОПАСНОСТЬ " - обучение и проверка знании правил ТБ.
- "КЛИЕНТ-БАНК" - позволяет контролировать расчетный счет предприятия, проводить платежи по безбумажной технологии,
- "ГРОСБУХ" - Свод законов, постановлений и пр по бухгалтерскому учету с постоян обновлением через комп сеть

4 Планы по приобретению новой техники

До конца 1996г
- СЕРВЕРЫ типа A/R PENTIUM 2шт
- Скоростной принтер
- Лазерный принтер
- Персональные компютеры с процессором 486 2шт

5 Информационные потоки к внешним организациям
- Подключены к отраслевой комп сети "ЭНЕРГИЯ"
- Прямой канал с выходом на НДЦ и Минэнерго
- Модемная связь с РДЦ
- Подключены к международной комп сети ИНТЕРНЕТ

20.06.96

Главному инженеру
ГАЗК "Кировоградоблэнерго"

Янишевскому Н П

С П Р А В К А

о наличии использовании и планах по внедрению компьтерной техники в Восточных электросетях

1 Наличие компьютерной техники – 15 ед

486 DX – 2,
386 DX – 1,
386 SX – 2,
286 AT – 8,
8088XT – 2

2 Эксплуатируемые комплексы и задачи

"Расчет заработной платы", "Учет счетов оплаты за э/э бытовым сектором", "Учет и контроль энергопотребления госсектором", "Учет материалов", "Учет основных фондов", "Учет работы автотранспорта", "Учет расчетно-финансовых операции", "Штатное расписание", "Учет кадров", "Расчет токов короткого замыкания", "Контроль исполнения задании", АРМ телемеханика, АРМ диспетчера, AUTOCAD-10,

Общее количество внедренных задач – 156, фактическая среднемесячная полезная загрузка ПЭВМ – 102 часа

3 Предполагаемые объемы приобретения компьютерной техники

Pentium-75,90 – 3,
486DX4-100 – 4,
486SX-40 – 35,
сканер – 2,
плоттер – 3

4 Информационные связи с сторонними организациями – один канал модемной связи с РДЦ

Начальник ИВО
/ Слесарь В И /

20 05 96

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Requested Computing and Communication Equipment

Requested Computing Equipment

The management of Kirovogradenergo wants to create a computer network to improve the process of obtaining of the information on cash collection from the customers and to make the process of obtaining of the information on the status of the bank accounts much quicker

The Head of Automated Control System Service of Kirovogradenergo identified the following needs

1	Server	1 unit
2	Uninterrupted Power Supply Unit	1 unit
3	Network Cards	20 units
4	Notebook	1 unit
5	Local Network Amplifier	3 units
6	Static RAM Electronic Disk	1 unit
7	Equipment for Ingul Complex Radio Path at Dobrovilechkovsky RES	9 units

Explanation to the list of equipment
required to set up a computer
network at Kirovogradoblenergo

1 Advantages of setting up of the computer network on the basis of Novell server
A single computer network at the company will provide additional opportunities , for example

a pportunity to operatively obtain information on cash collection from the customers for electricity supplied
b opportunity for the management to quickly obtain information on the status of bank accountsand to quickly influence the making /delaying of payments
c opportunity to obtain information on energy consumption by Kirovogradoblenergo
d opportunity to directly send/ obtain information through Energia network
e opportunity to quickly replace out of date software versions with updated ones
f opportunity to considerably save disk space
g opportunity to gradually move to network versions of major accounting software programs

All theabove mentioned opportunities canbe used only by those users that will be connected tothe local network To be connected to the network each computer requires one networkcard The cable to connect individual computers into a single network has been already prepared and laid properly But since there are already a number of clients (currently fifteen clients) in the network and the capacity of the available server is not sufficient to connect new users, it is necessary to perchase a computer that would meet the following requirements

a It would be suufficiently powerful to serve up to 50 persons at a time
b Would allow reserving the data in case of break-down

Since the total lengh of network cables laid in the building is more than 1,000 meters, amplifying equipment is needed Amplifier/branching device can be the solution to this problem Three pieces are needed
To achieve 100% guarantee that the data is not lost and the network operates uninterruptedly, it is necessary to install the second server which will take up some portion of tasks and will work as the main server of the network in case the first server breaks down UPS units should be installed at the servers so that jamproofness of the network is enhanced

2 A notebook is necessary for technical servicing while operating the automated control system network which is set up on the basis of mikro PC network controller and Alpha meters

3 Electronic static disk, 4 Mb, would allow making background interrogation of the electricity consumption objects That excludes the loss of information received from the object which is being interrogated in case the object is out of order

4 The equipment for the communication radiochannels of telemechanics will allow making telecontrol, telemeasuring and telesignaling network

V K Prokopenko
Head of Automated Control
System Service

Equipment required to set up
a computer network for the automated
control system at Kirovogradoblenergo

Equipment	Short technical characteristics or configuration	Estimated price per piece	Quantity
Server	Prioris MX 5133DP, 2x Pentium 133, 512 KB cache, 32MB EEC mem, SCSI-2 CD, 4 x 2SB wide HDU, on board video, 2 ch RAID adap, 1 ch, Fast and wide SCSI-2 cont	$19,194	1
Uninterrupted power suply unit	UPS -800	$500	1
Network cards	WE 2000	$50	20
Notebook	Digital HiNote Ultra II 120Mhz, 1 08Gb, 8 Mb mem, 10 4" SVGA active matrix	$5,000	1
Local network amplifier	4-ray ones	$500	3
Static RAM electronic disk	mikro PC 4 Mb	$1,200	1
Equipm for Ingul complex radio path at Dobrovelichkkovsky RES	Radiochannels, data transmission speed 1,200 bod	$1,000	9

The list prepared by

V K Prokopenko
Head of Automated Control
System Service

Proposed Strategy for Information System Development

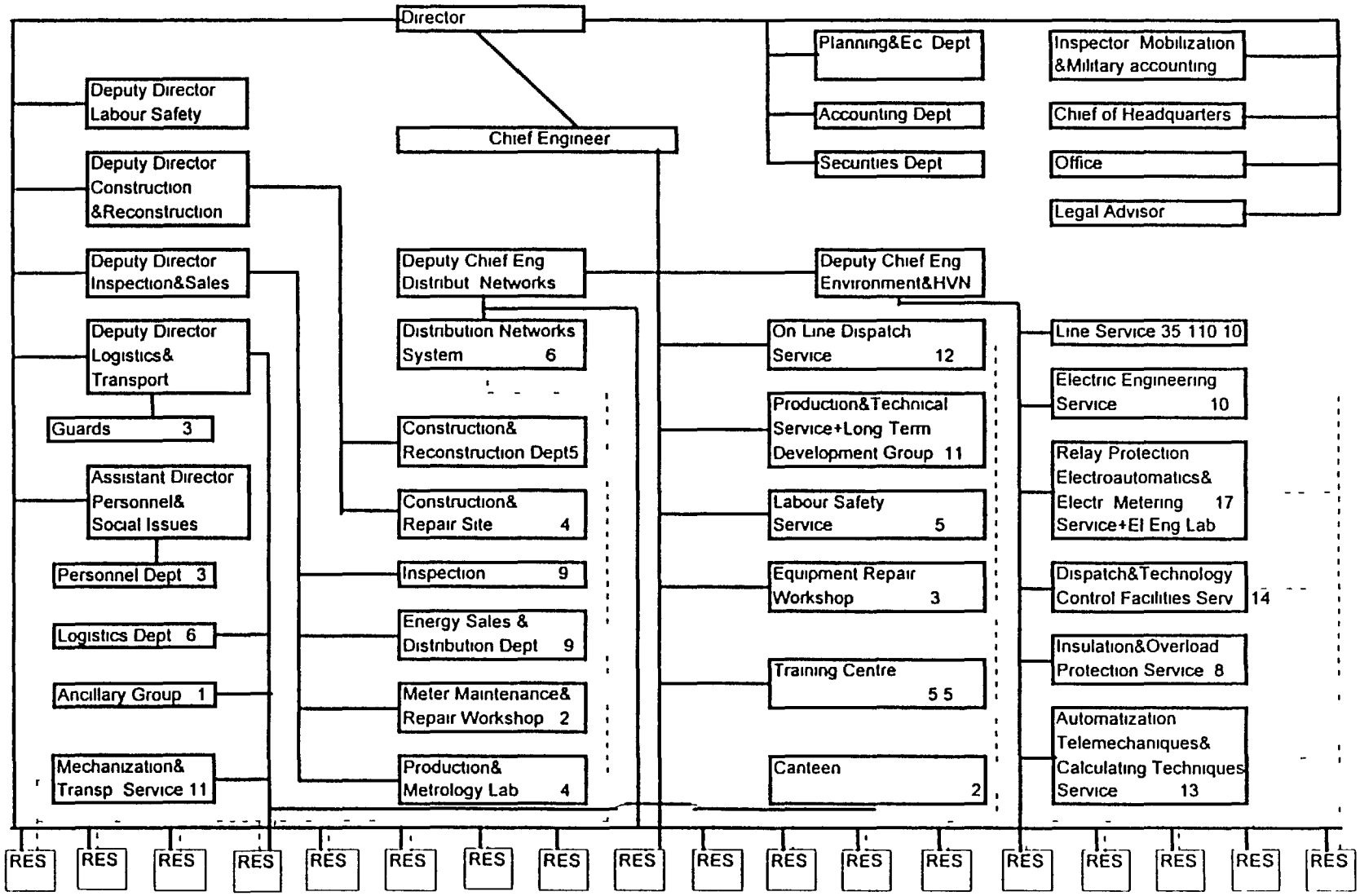
Advisor's Recommendations

We believe that Kirovogradenergo automated control equipment falls outside the scope of the USAID-funded project, but that the computer department of Kirovograd is quite competent and capable of utilizing the basic Customer Account Monitoring and Aging package of Hardware and Software which we are also providing to other Oblenergos We recommend providing the following equipment

(1) Server with UPS and LAN
(6) Workstations
(4) Modems for remote operations
(2) printers

APPENDIX I - TERNOPIL OBLENERGO

TERNOPILOBLENERGO ORGANIZATION CHART



Notes 1 Technical management of the RESs from technical services side

2 Figure in the corner of the box shows the number of engineers and technicians in the subdivision

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Current Computing and Communication Capabilities

The following computing equipment is currently available at the Ternopil Oblenergo central office

386SX/1MB/200MB - 2
386SX/1MB/40MB - 3
Pentium/8MB/540MB - 1
486DX/4MB/420MB - 2
486/4MB/400MB - 1
486/4MB/250MB - 1
286/1MB/40MB - 6
486/4MB/420MB - 2
486DX/4MB/540 - 1

A complete survey of Ternopil Oblenergo's RES equipment installations has not yet been completed

Requested Computing and Communication Equipment

Server - Pentium/16MB/2*1GB/150 MHz
15-in SVGA color monitor

19 computers - Pentium/16MB/1GB/120 MHz
15-in SVGA color monitor

19 printers - Epson LX 1170+

19 modems - ZyXEL U-1496 Plus, 4LL

1 UPS - UPS APS BACK 1250 VA

Software

NetWare 4 20 for 25 users, Russian version - 1 copy
Windows 95, Russian - 20 copies
MS Office for Windows 95, Russian - 20 copies
Access 2 1 (or Access for Windows 95) Russian - 1 copy
PARS/U (Lingvistika 91, Kharkiv) - 1 copy

Хеглер Бай Консалтинг
пану Девіду Р Волкотту
пану Еріку Хаскінсу
252023, Київ,
вул Еспланадна, 20,
10-й поверх

Про впровадження комп'ютерної
системи збору інформації

Державна акціонерна енергопостачальна компанія "Тернопільобленерго" дуже вдячна Хеглер Бай Консалтинг за кваліфіковану допомогу, яку надають її спеціалісти в проведенні ринкових реформ

Однак, уже на першому етапі реформування ми відчуваємо серйозні труднощі у кваліфікованому прийнятті рішень через відсутність своєчасної і об'єктивної інформації

Для усунення цих недоліків просимо надати допомогу, виділивши

1) комп'ютер Pentium, 150 MHz, 16 MB RAM, 2*1 Gb hard disks, 1 44 MB 3 5-inch diskette drive, 15-inch SVGA color monitor -1 шт (3500$)
2) комп'ютери Pentium 120 MHz, 16 MB RAM, 1 GB hard disk, 1 44 MB 3 5-inch diskette drive, 15-inch SVGA color monitor -19 шт (27000$)
3) UPS ARS BACK 1250 VA -1 шт (600$)
4) модеми ZyXEL U-1496 Plus, 4LL -19 шт (7500$)
5) принтери EPSON LX-1170+ -19 шт (14700$)
6) NetWare 4 20 x 25-Users, Russian version -1 копія (3000$)
7) Windows 95, Russian version -20 копій (3000$)
8) Microsoft Office for Windows 95, Russian Version -20 копій
9) Access 2 1 (Access for Windows 95,inavailable), Russian version -1 копія (210$)
10) PARS/U (фірма "Лінгвістика 93", Харків) (400$) -1 копія

Це дасть можливість централізувати облік споживання електроенергії, визначити зони підвищених втрат електроенергії, в тому числі і комерційних, проводити оперативний аналіз оплати за електроенергію

Впровадження комп'ютерів потрібно провести в 18 районах електричних мереж Компанії з виходом інформації на керівництво і бухгалтерію, а також впровадити електронний зв'язок із банками

З повагою і вдячністю до Вас,

Директор _____ Костюк Б Я

Головний бухгалтер _____ Кицкай Я М

Примітка В дужках після кожної позиції вказані орієнтовні ціни в $ USA на ринку України станом на 05-20-96

Tender for technical equipment
to be used by Ternopiloblenergo

Technical spesifications

1 computer (server)	Pentium, 150 MHz, 16 MB RAM, 2*1 GB hard disks, 1 44 MB 3 5-inch diskette drive, 15-inch SVGA color monitor
19 computers	Pentium, 120 MHz, 16 MB RAM, 1 GB hard disk, 1 44 MB 3 5-inch diskette drive, 15-inch SVGA color monitor
19 printers	Epson LX 1170+
19 modems	ZyXEL U-1496 Plus, 4LL
1 UPS	UPS APS BACK 1250 VA

1 copie of NetWare 4 20 x 25 users, Russian version

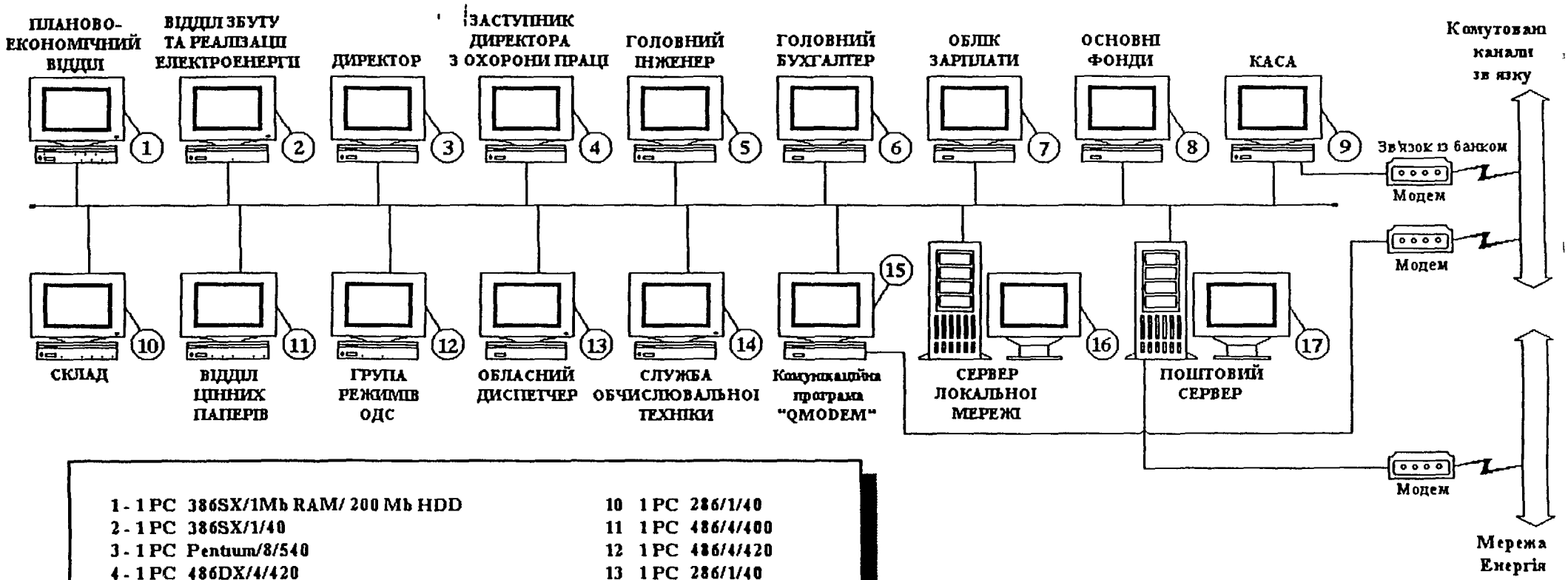
20 copies of Windows 95, Russion version

20 copies of Microsft Offise for Windows 95, Russion version

1 copie of Access 2 1 (or Access for Windows 95, if available), Russian version

1 copie of PARS/U (by "Lingvistika 93" Kharkiv)

Проект
обладнання обчислювальною технікою ДАЕК "Тернопільобленерго", центральний офіс



1 - 1 PC 386SX/1Mb RAM/ 200 Mb HDD
2 - 1 PC 386SX/1/40
3 - 1 PC Pentium/8/540
4 - 1 PC 486DX/4/420
5 - 1 PC 486DX/4/420
6 - 1 PC 486DX/4/420
7 - 7 PC 486/4/250 1, 386SX/1/40 2, 286/1/40 4
8 1 PC 386SX/2/200
9 - 1 PC 286/1/40
10 1 PC 286/1/40
11 1 PC 486/4/400
12 1 PC 486/4/420
13 1 PC 286/1/40
14 1 PC 486DX/4/420
15 1 PC 386SX/1/200
16 1 PC 486DX2/16/1Gb
17 1 PC 486DX/4/540

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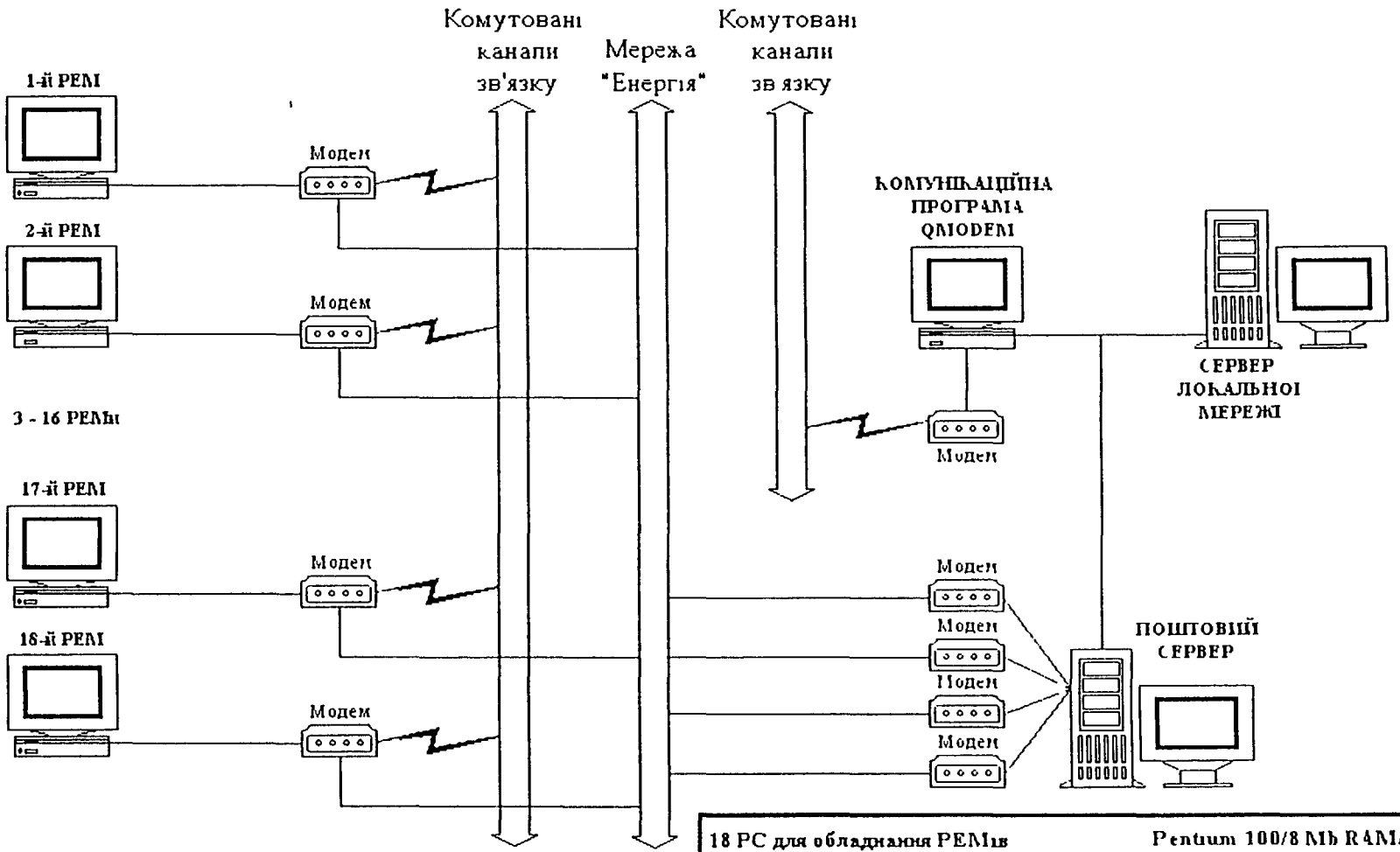
ПРОЕКТ
оснащення обчислювальною технікою РЕМ і ДАЕК "Тернопільобленерго" для потреб обміну потоками інформації



18 PC для обладнання РЕМів	Pentium 100/8 Mb RAM/1 Gb HDD
1 PC для прийому й обробки інформації в ДАЕК Тернопільобленерго	Pentium 100/16/1
1 PC для обробки/аналізу інформації в ДАЕК Тернопільобленерго	Pentium 100/16/1

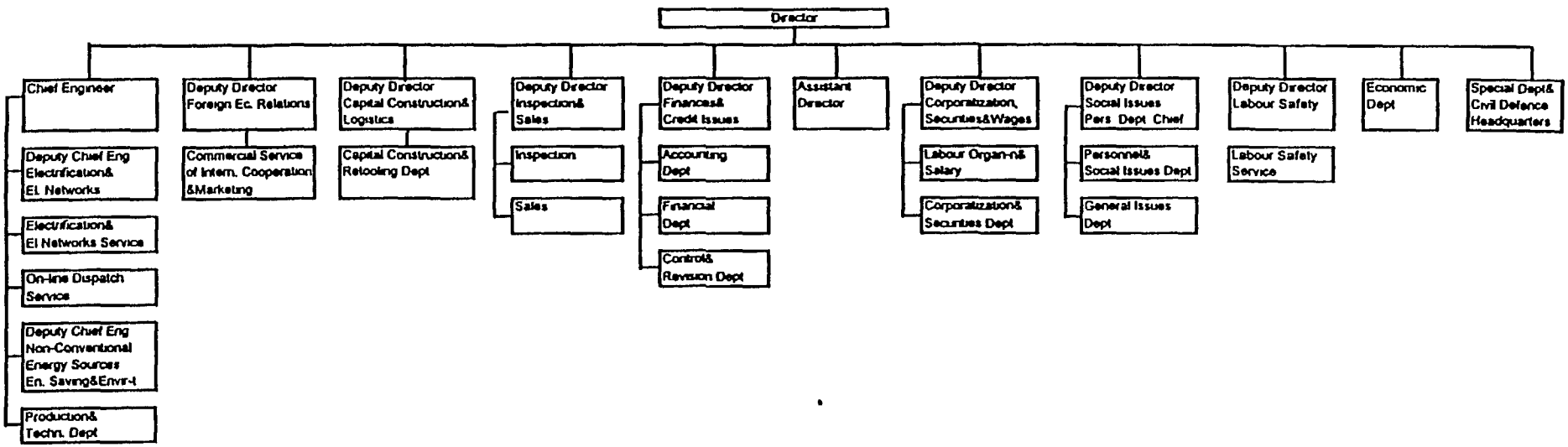
26 авод

Proposed Strategy for Information System Development

While Ternopil Oblenergo has a very competent computing department, and a detailed long-term plan for implementation of computing capability, the scope of the current USAID assistance program does not provide sufficient budget for all requested equipment We recommend however that we provide as much of the request as possible

APPENDIX J - VINNITSIA OBLENERGO

VINNITSIAOBLENERGO ORGANIZATION CHART



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Current Computing and Communication Capabilities

The following pages detail the computing capability of Vinnitsia Oblenergo

Державна податкова інспекція

Обласне статистичне управління

Промінвестбанк

Міністе[illegible] енерге[illegible] та електрифікації

Дер[illegible]на адміністрація

[illegible]ржа[illegible]о інформаційно-обчислювального центру м Київ)

Затверджую
Директор
ДАЕК "Вінницяобленерг
В К Волков

modem

Управління ДАЕК "Вінницяобленерго"(Упр.ДАЕК)

Державна акціонерна енергопостачальна компанія (ДАЕК) "Вінницяобленерго

ДТОШ([illegible])

Вінницькі центральні електричні мережі (ВЦЕМ)

Вінницькі східні електричні мережі (ВСЕМ)

Вінницькі теплові мережі (ВТМ)

Вінницяенерго-автотранс (ВЕАТ)

Вінницяенерго-наладка (ВЕН)

Вінницяенерго - постачання (ВЕП)

Енергорембуд (ЕРБ)

modem

modem

modem

Фіндонесення кожнии день

Звіт (місяць)

Регіональний диспетчерський центр (РДЦ)

Державна податкова інспекція

Промінвестбанк

Інші організації

[illegible] по комутованим [illegible] лініям (I черга)

Зв'язок по швидкісним каналам зв'язку (оптоволокно, radioethernet, виділена лінія) (II черга)

*статистична звітність згідно переліка форм державної статистичної звітності

Примітка ✉ -пошта ☎ -телефон 🖫 дискета М - модем

Рис 1 Структура ДАЕК "Вінницяобленерго та основні інформаційні зв язки між підприємствами ДАЕК та зовнішними організаціями

Заст гол інженера
С В Шкулепа
Нач відділу АСУ
А В Берегеля

Арк 97 102

Директор
цяос рго
В К Волков

Д ЕКТОР

2 відділ та штаб ЦО

Помічник директора

Голсеч н н кенер
486DX2 80/4м/365м

Заст гол інженера по електрифікації та електр мережам

Служба електриф ції та електр мереж
286 16/1м/43м

Оперативно диспетчерська служ
486DX2 80/4м/365м

Заст гол інженера по нетрад джерелам енергозбереженню та екології

Виробничо технічна служба
486DX2 80/4м/348мб
386SX 33/1м/43мб

Заступник директора по зовнішньо-економ зв язкам

Комерційна служба міжнародного співробітництва і маркетингу
486SX 25/4м/204м
486SX 25/8м/204м
486SX 25/4м/204м
486DLC-40/4м/125м

Заступник директора по охороні праці

Слу кба охорони праці
486DX2 80/8м/540м
486SX 25/4м/204м

Заст д ректора по кап будівництву і мат техн ресурсам

Відділ капітального будівництва та технічного переозброєння
286 16/1м/43м

Економічний відділ
386DX-40/4м/200м
386SX 33/1 7м/43м
286 16/1м/40м
286 16/1м/40м

Заст директора по енергонагляду та збуту енергії
486DX2 80/4м/365м

Слу кба енергонагляд /
486SX-40/4м/270м
486SX-40/4м/270м

Слу кба збуту енергії
486DX2 80/4м/365м
486DX2 80/4м/365м
486SX 33/4м/249м
386DX-40/2м/201м
386SX 16/2м/40м

Заст директора по фінансам та кредитно банківським питанням

Бухгалтерія
486SX-40/3 7м/401м
386DX-40/3 7м/105м
386SX 16/1м/43м
286 16/1м/40м

Фінансовий відділ
386DX-40/3 7м/213м
386DX-40/1 6м/100м
386SX-40/1 9м/85м
386SX-40/1 6м/85м

Контрольно ревізійний відділ

Заст директора по акціонуванню роботі з цінними паперами та оплаті праці

Відділ організації та оплати праці
486SX 25/4м/204м

Відділ акціонування та роботі з цінними паперами
386SX 20/1м/43м

Заст директора по соціальн питанням начальник ВК

Відділ кадрів та соціальних питань
486DX2 66/4м/365м

Загальний відділ

МАРШРУТИЗАТОР

modem

ВЦЕМ | ВСЕМ | Інші підприємства ДАЕК | Податкова інспекція | Промінвестбанк | Статистичне управління | РДЦ | Інші організації

ЛОКАЛЬНА МЕРЕЖА УПРАВЛІННЯ ДАЕК (I черга)

ЗВ'ЯЗОК ПО ШВИДКІСНИМ КАНАЛАМ ЗВ'ЯЗКУ С ЛОКАЛЬНИМИ МЕРЕЖАМИ ПІДПРИЄМСТВ ДАЕК (II черга)

★ статистична звітність згідно переліка форм державної статистичної звітності

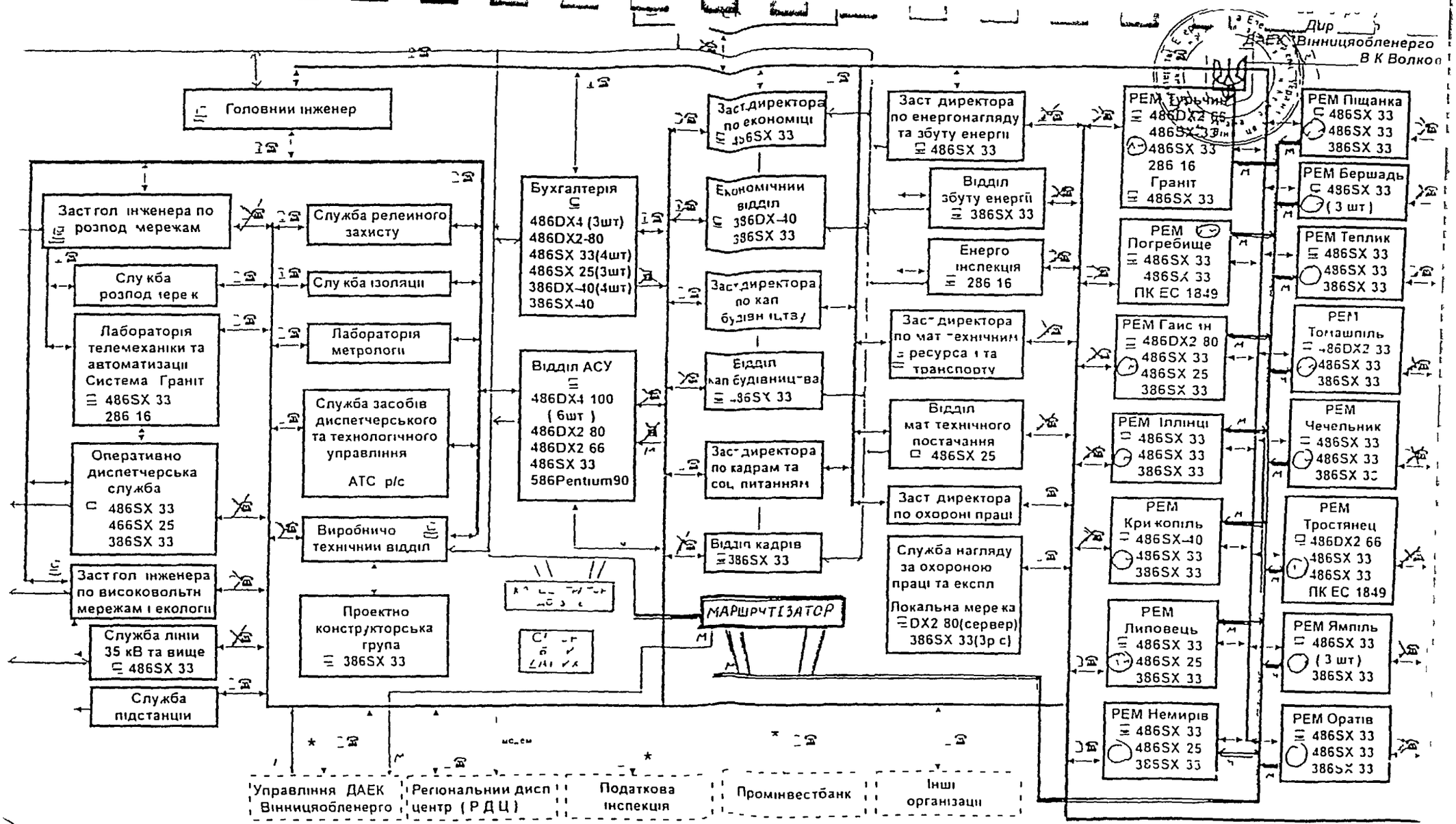
Примітка ✉ пошта ☎ телефон 🖳 комп ютер 🖫 дискета м – модем

Заст гол інженера
С В Шкулепа

Нач відділу АСУ
А В Берегеля

Рис 2 Структура Управління ДАЕК Вінницяобленерго та основні інформаційні зв язки між підрозділами Управління та іншими організаціями

Розділ 98 ТВ 3



* статистична звітність згідно переліка форм державної статистичної звітності

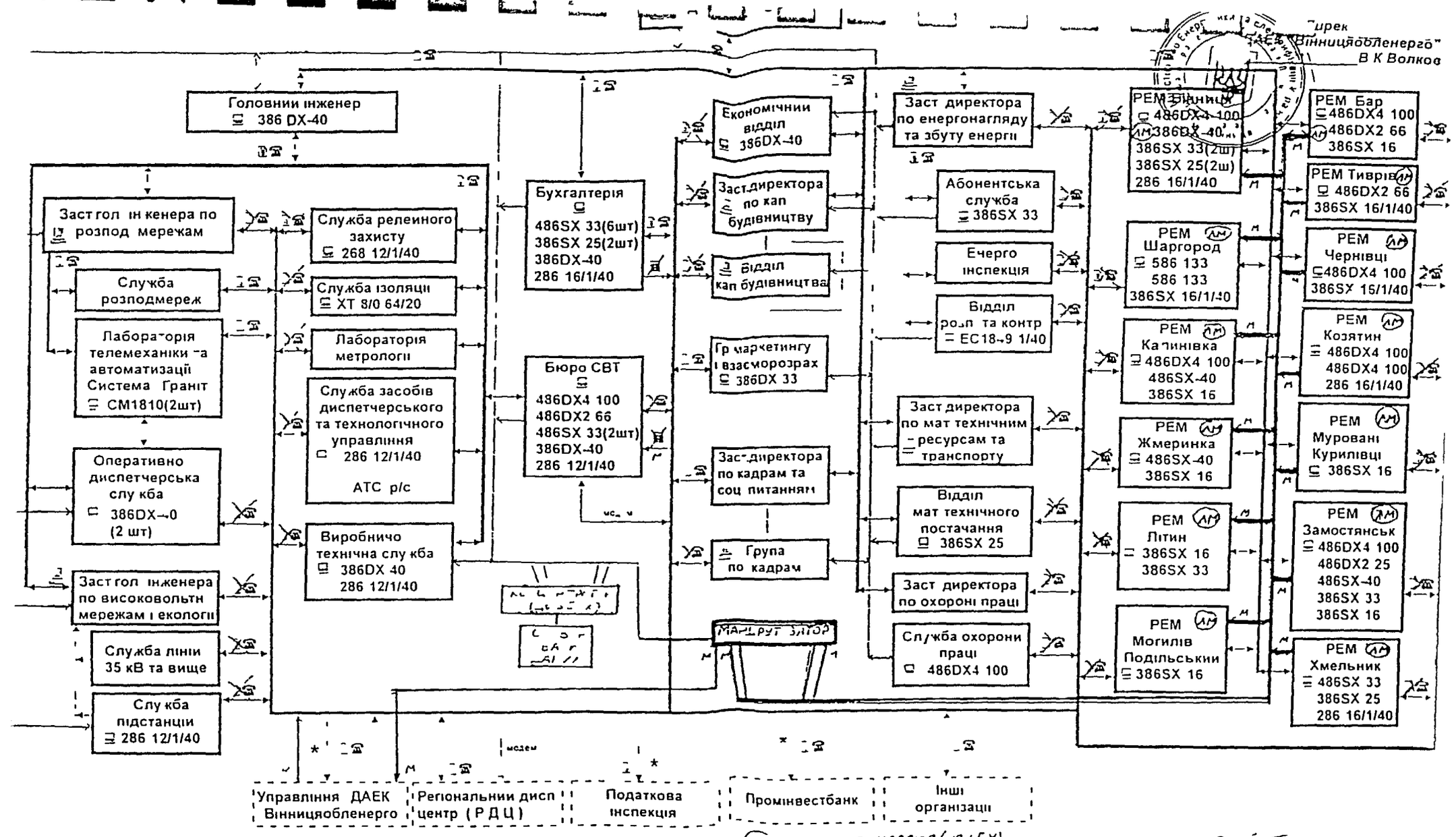
Позначка: пошта, телефон, комп'ютер, дискета РЕМ, ряди електричних мереж

Рис 3 Структура підприємства Вінницькі східні електричні мережі (ВСЕМ) та основні інформаційні зв'язки між підрозділами та іншими організаціями

Заст.гол. інженера
С.Б. Шкулепа

Нач. відділу АСУ
А.Б. Берегеля

Page 96



Директор "Вінницяобленерго" В К Волков

(ЛМ) – локальна мережа (по РЕМ)
локальна мережа (ЗАЕМ)
об'єднання локальних мереж на базі ЗЕМ ВЦЕМ для ЗАЕК

* статистична звітність згідно переліка форм державної статистичної звітності

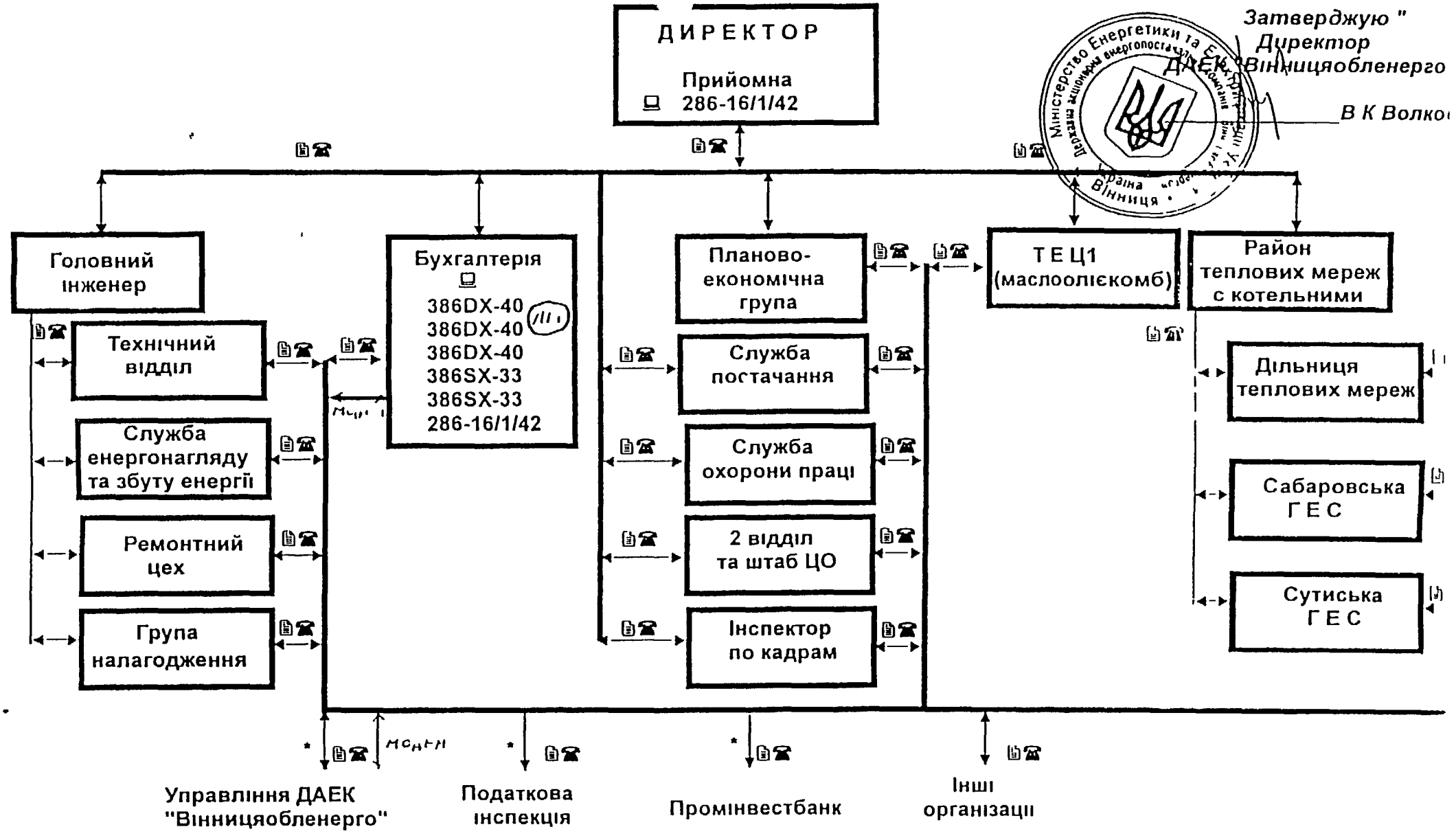
Примітка пошта ☎ телефон ▭ комп'ютер дискета РЕМ район електричних мереж — модем

Заст гол інженера С В Шкулепа

Нач відділу АСУ А В Березовля

Рис 4 Структура підприємства Вінницькі центральні електричні мережі (ВЦЕМ) та основні інформаційні зв'язки між підрозділами та іншими організаціями

Погоджено



Затверджую "
Директор
ДАЕК "Вінницяобленерго
В К Волко

* статистична звітність згідно переліка форм державної статистичної звітності
Примітка 🗎 - пошта ☎ - телефон

(ЛМ) – локальна мережа

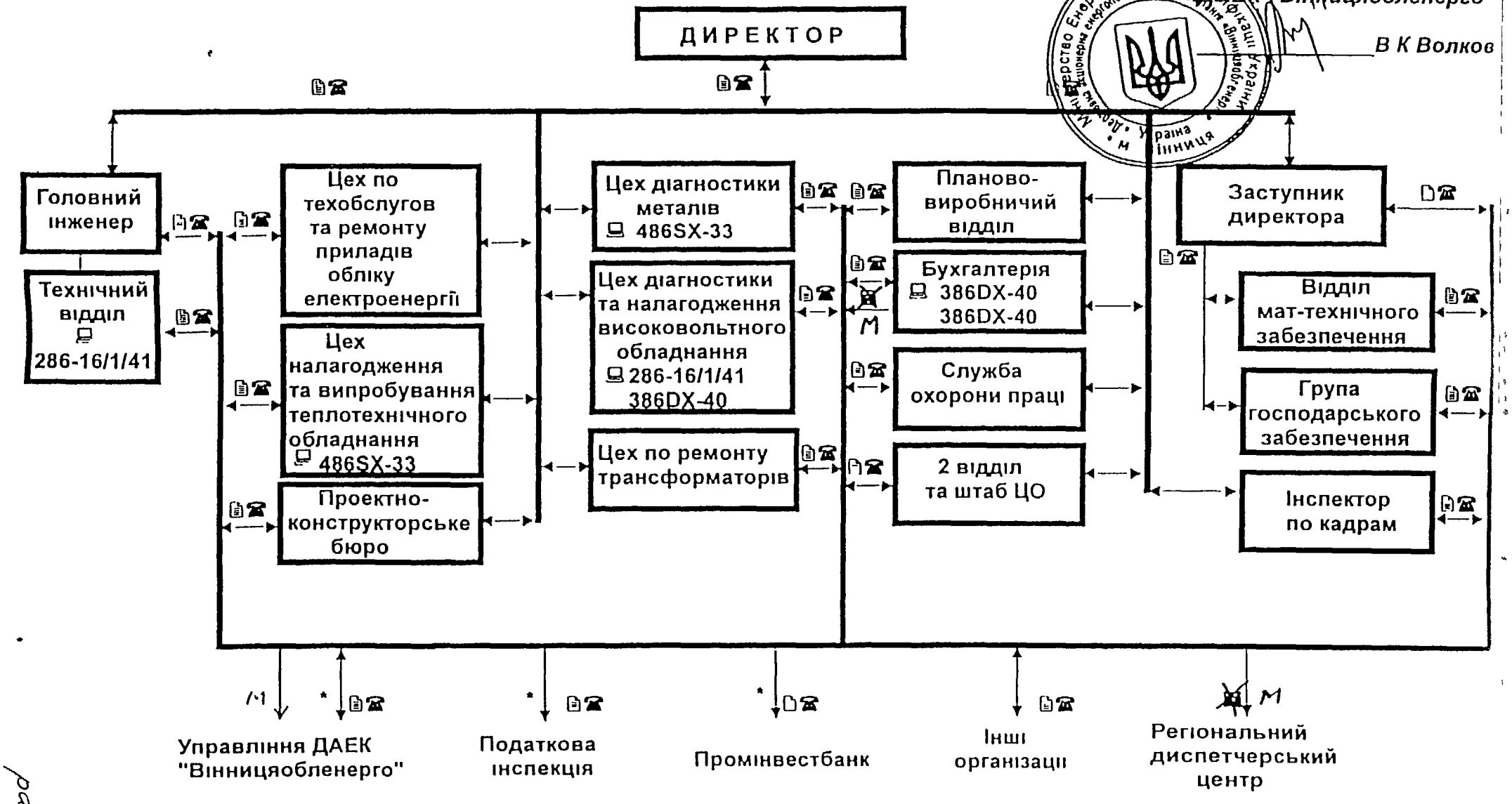
Рис 5 Структура підприємсва "Вінницькі теплові мережі" та основні інформаційні зв'язки між підрозділами підприємства та іншими організаціями

Заст гол інженера
Є В Шкулеп

Нач відділу АСУ
А В Берегел

Розділ 3

Затверджую "
Директор
ДАЕК "Вінницяобленерго"
В К Волков



* статистична звітність згідно переліка форм державної статистичної звітності

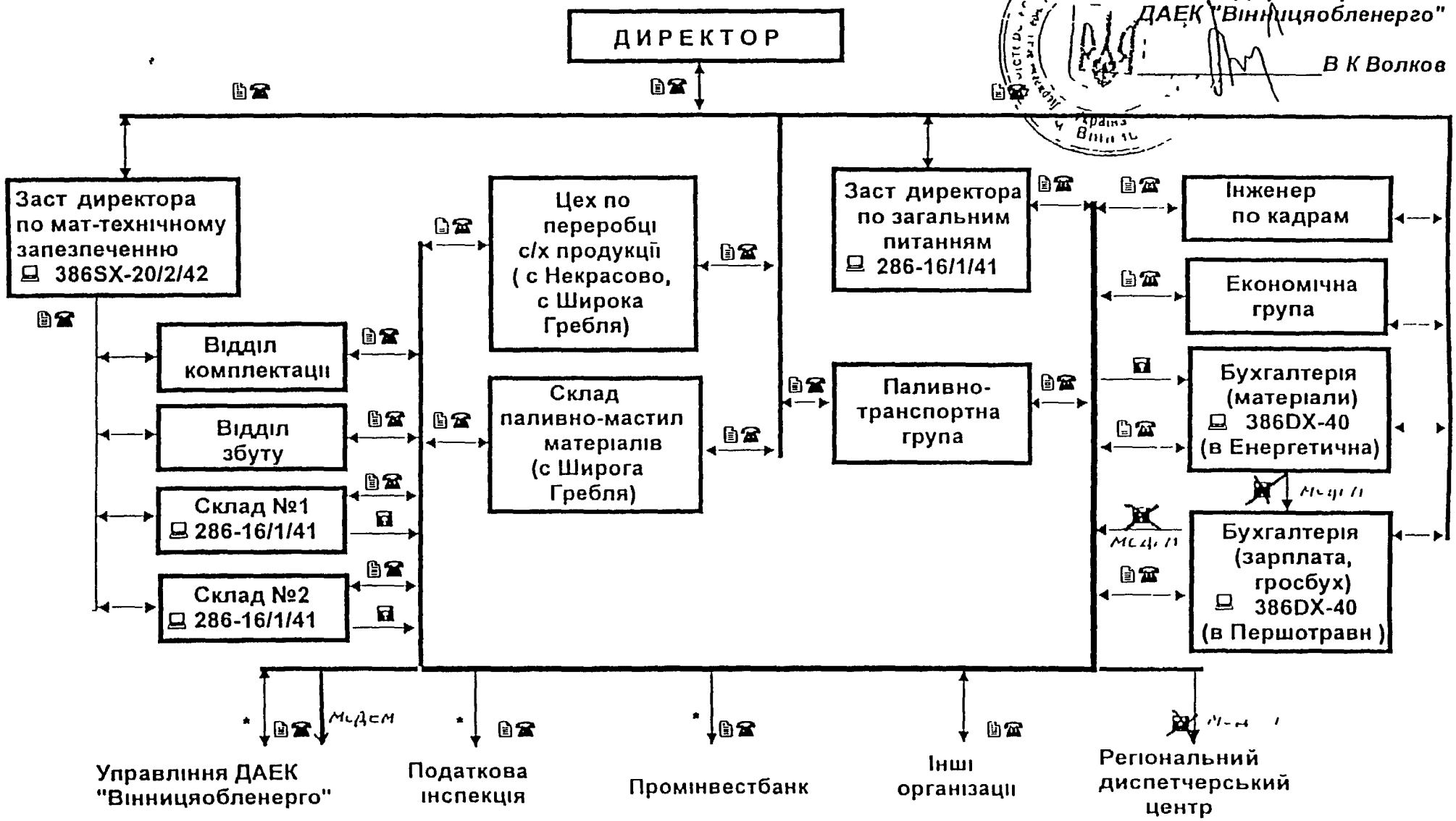
Примітка - пошта - телефон дискета

М — модем

Рис 6 Структура підприємсва "Вінницяенергоналадка" та основні інформаційні зв'язки між підрозділами підприємства та іншими організаціями

Заст гол інженера
С В Шкулепа
Нач відділу АСУ
А В Берегелі

" Затверджую "
Директор
ДАЕК "Вінницяобленерго"
_____ В К Волков

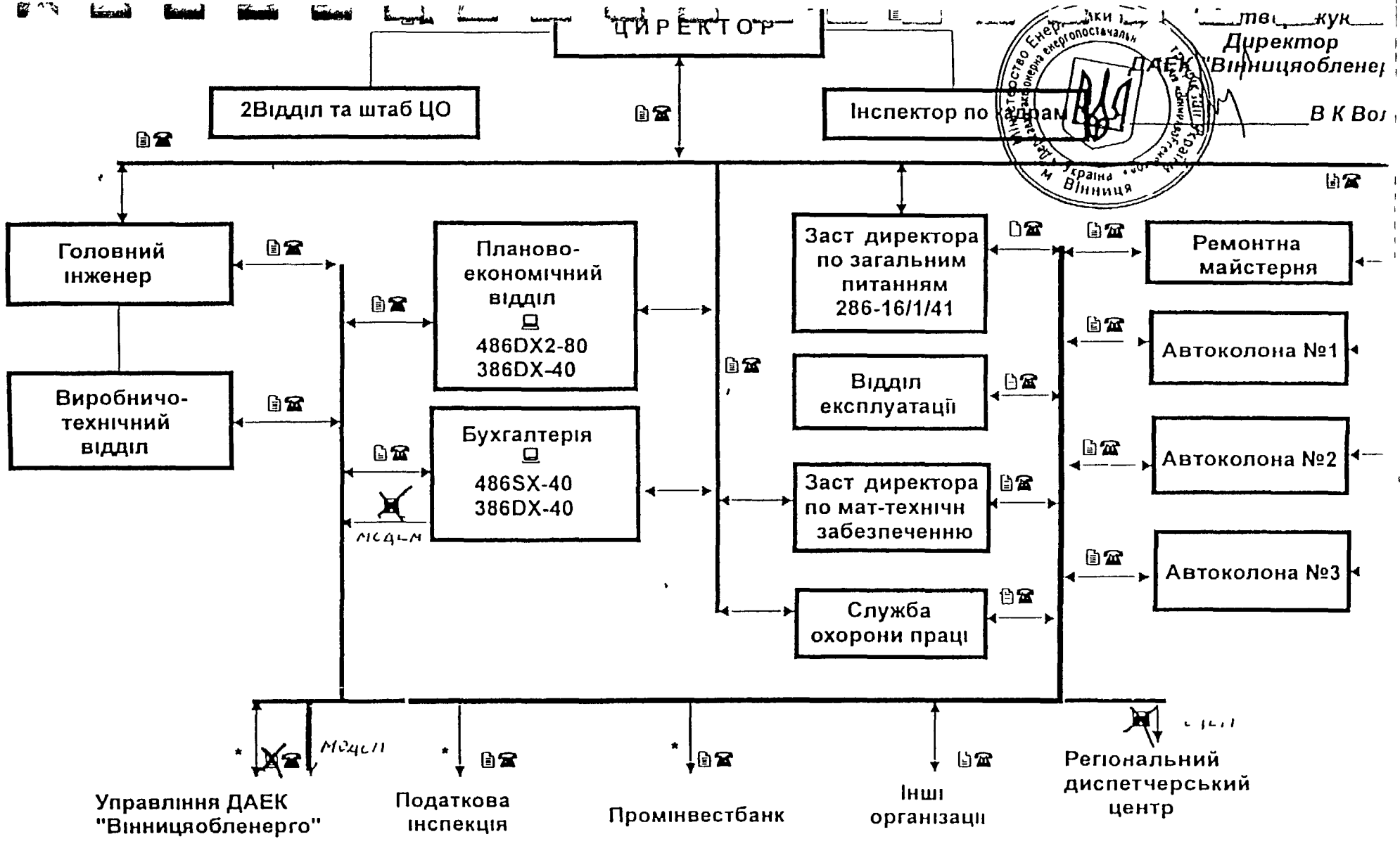


* статистична звітність згідно переліка форм державної статистичної звітності
Примітка - пошта - телефон - дискета

Рис 7 Структура підприємсва "Вінницяенергопостачання" та основні інформаційні зв'язки між підрозділами підприємства та іншими організаціями

Заст гол інженера
_____ С В Шкулепа
Нач відділу АСУ
_____ А В Берегеля

Лист 103



Директор
ДАЕК "Вінницяобленер
В К Вол

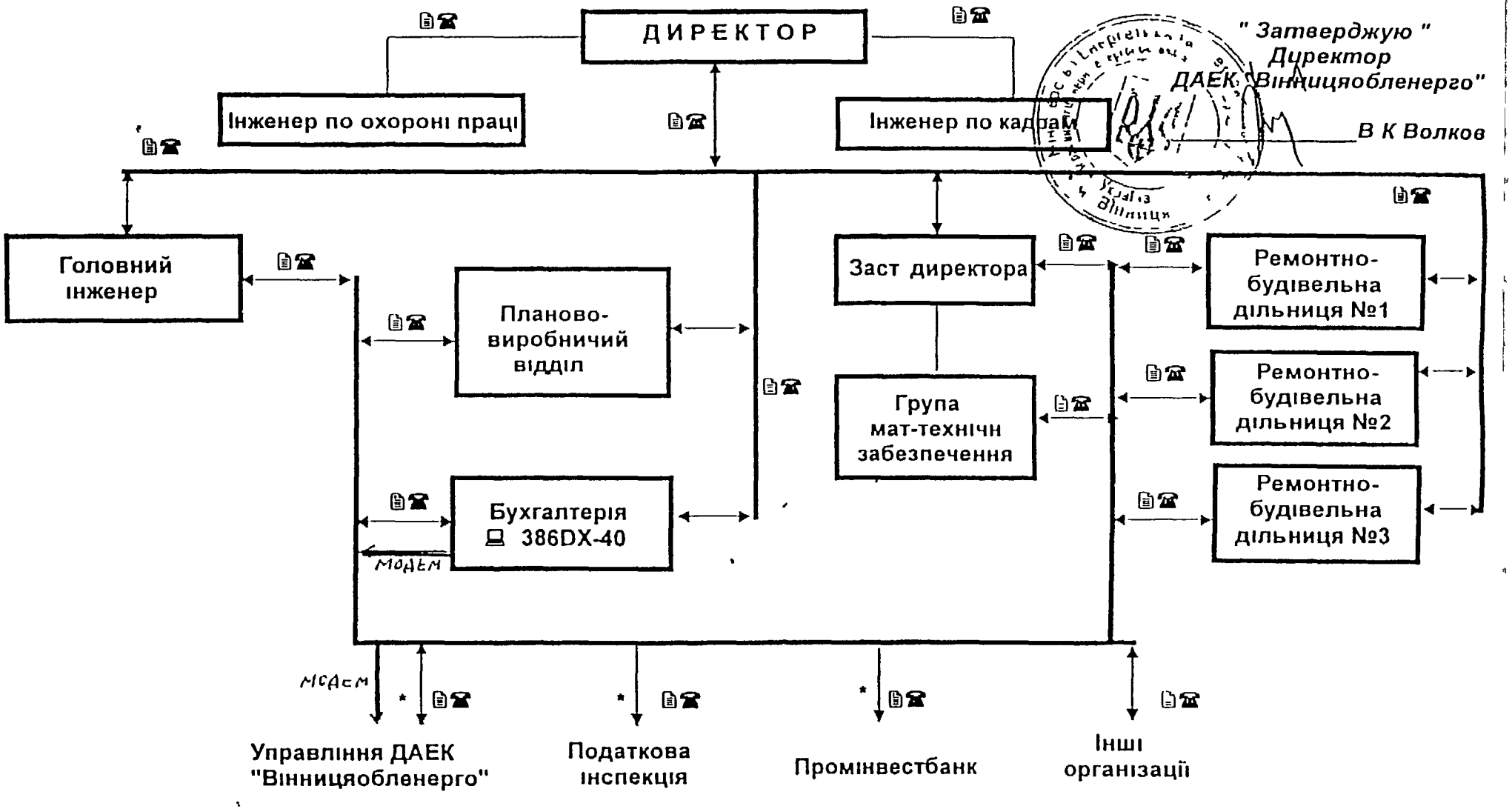
Заст зоп інженера
С В Шкулем

Нач відділу АСУ
А В Берегем

* статистична звітність згідно переліка форм державної статистичної звітності

Примітка 🗎 - пошта, ☎ - телефон 🖫 - дискета

Рис 8 Структура підприємсва "Вінницяенергоавтотранс" та основні інформаційні зв'язки між підрозділами підприємства та іншими організаціями



" Затверджую "
Директор
ДАЕК "Вінницяобленерго"
В К Волков

* статистична звітність згідно переліка форм державної статистичної звітності
Примітка - пошта - телефон

Заст гол Інженера
С В Шкулепа

Нач відділу АСУ
А В Берегеля

Рис 9 Структура підприємсва "Вінницяенергорембуд" та основні інформаційні зв'язки між підрозділами підприємства та іншими організаціями

Requested Computing and Communication Equipment

Setting up a wide-area network at Vinnytsyaoblenergo is proposed to be carried out in several stages

Stage 1 Setting up a LAN at the Company's HQ

SQL Server (64 MB RAM, 512 kB cache, 1 GB hard disk)	- 11,500	
7-port concentrator	- 1,700	
12-port concentrator (3 units) - 830x3	- 2,490	
Transceiver (3 units) - 350x3	- 1,050	
Network card (50 pieces) 45x50	- 2,250	
Power supply APC SMART - 1400VA	- 950	
Software for SQL Server (50 users)	- 3,000	
Network software (NOVELL NETWARE 4 1) (for 50 users)	- 4,500	
Additional software		
WINDOWS-95, WORD, EXCEL-150-180-180	- 510	
TOTAL		- 29,310

Tasks to be solved at the first stage

1 Optimisation of maintaining financial and accounting records at appropriate departments of the Head Office
2 Organisation of data/enquiry service for all HQ departments

Stage 2 Setting up a LAN at Northern and Central Power Network Enterprises

SQL Server (32 MB RAM, 512 kB cache, 1 GB hard disk)	- 8,300	
7-port concentrator	- 1,700	
12-port concentrator (3 units) - 830x3	- 2,490	
Transceiver (2 units) - 350x3	- 1,050	
Network card (50 pieces) - 45x50	- 2,250	
Power source APS SMART - 1400VA	- 950	
Modem (16 units) - 340x16	- 5,440	
Software for SQL Server (50 users)	- 2,500	
Network software (NOVELL NETWARE 4 1) (for 50 users)	- 4,500	
Additional software		
WINDOWS-95, WORD, EXCEL-150-180-180	- 510	
TOTAL (per Power Network Enterprise)		- 29,180

The tasks to be solved at the stage

1 Optimisation of financial and accounting activities at appropriate HQ departments
2 Organisation of data/enquiry service for all HQ departments

Stage 3 Setting up LANs at REMs
Main expenses for a REM

SQL Server (16 MB RAM, 250 kB cache, 1 3 GB hard disk), 4-speed CD-ROM	- 1,190
8-port concentrator	- 230
Transceiver	- 350
Network card (6 pieces) 45x5+125	- 350
Power supply APS SMART - 1400VA	- 950
Modem	- 340
Software for SQL Server (6 users)	- 800
Network software (NOVELL NETWARE 4 1) (for 6 users)	- 4,500
TOTAL (per Power Network Enterprise)	- 4,110

The tasks to be solved at the stage

1 Optimisation of electricity sales accounting
2 Creation of data bases for operation/information system (remotely metered data from substations)

Stage 4 Interconnection between LANs of HQ, Power Network Enterprises and REMs

Main expenses

Router (with additional modules)	- 15,700 (HQ)
Router (with additional modules)	- 15,700 (per a power network enterprise)
Router	- 1,400 (per a REM)
TOTAL	- 32,800

The tasks to be solved at the stage

1 Collection and transmission of operation information (including tasks of operation/information system and statistical information from REM to Power Network Enterprise and further to HQ

2 Provision of operation information to dispatch offices of REM, Power Network Enterprises, HQ

Note Solution of tasks at the stage 4 will be possible only if dedicated lines between HQ, Power Network Enterprise and REMs are available

Proposed Strategy for Information System Development

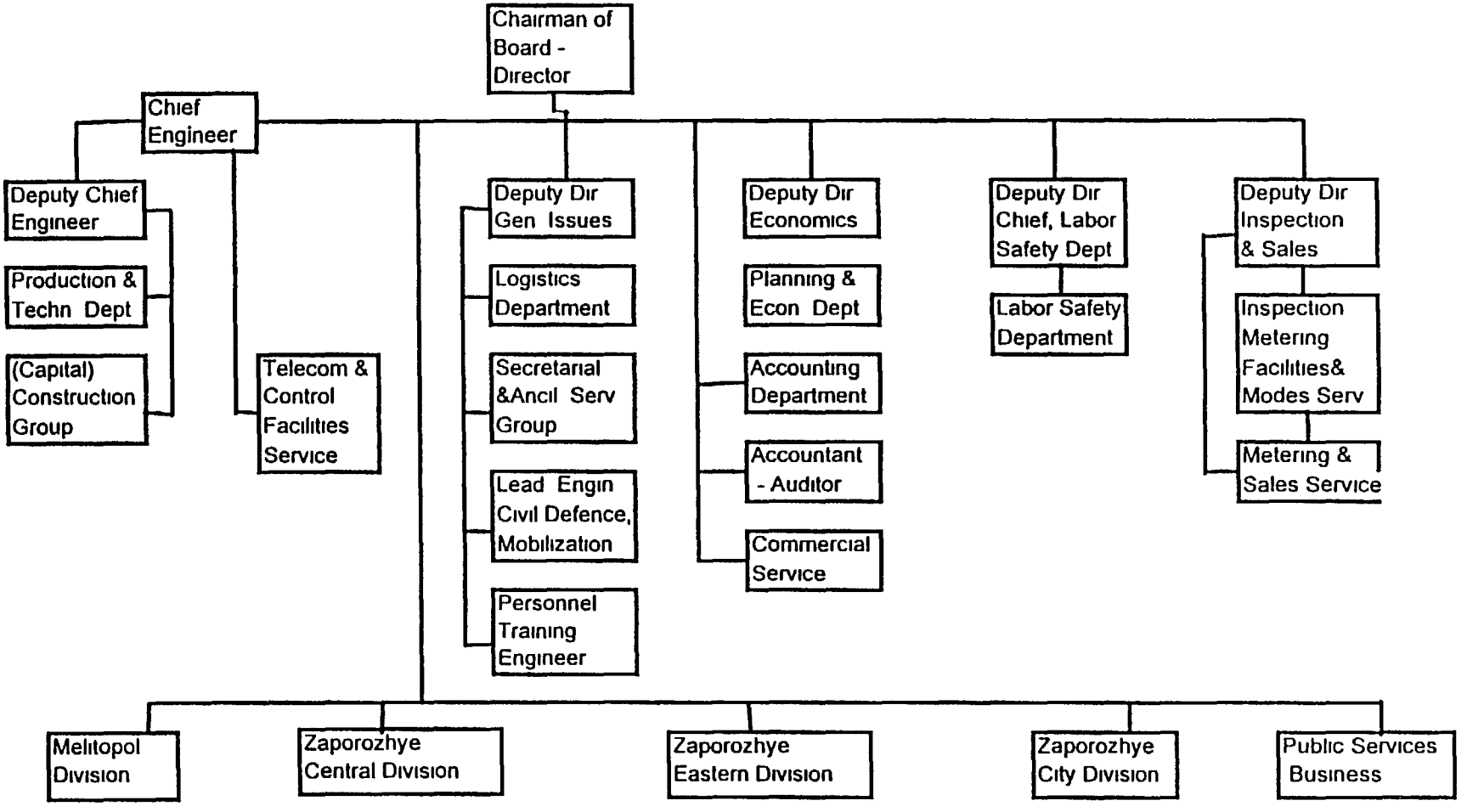
Vinnitsia Oblenergo has a very competent group of individuals working in it's computer department and has developed a detailed long-term plan for implementation of computing capability, which is quite reasonable in its scope However, current USAID assistance programs do not provide sufficient budget resources for all requested equipment We recommend however that we provide as much of the request as possible

At this point, we recommend the installation of

(2) Servers, with UPS and LAN capability
(4) Workstations, (2 for each server, to be dedicated to Customer records)
(6) Modems
(1) Printer

APPENDIX K - ZAPOROZHYE OBLENERGO

ZAPOROZHYEOBLENERGO ORGANIZATION CHART



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Current Computing and Communication Capabilities

In Zaporizhiaoblenergo the following computer hardware was identified

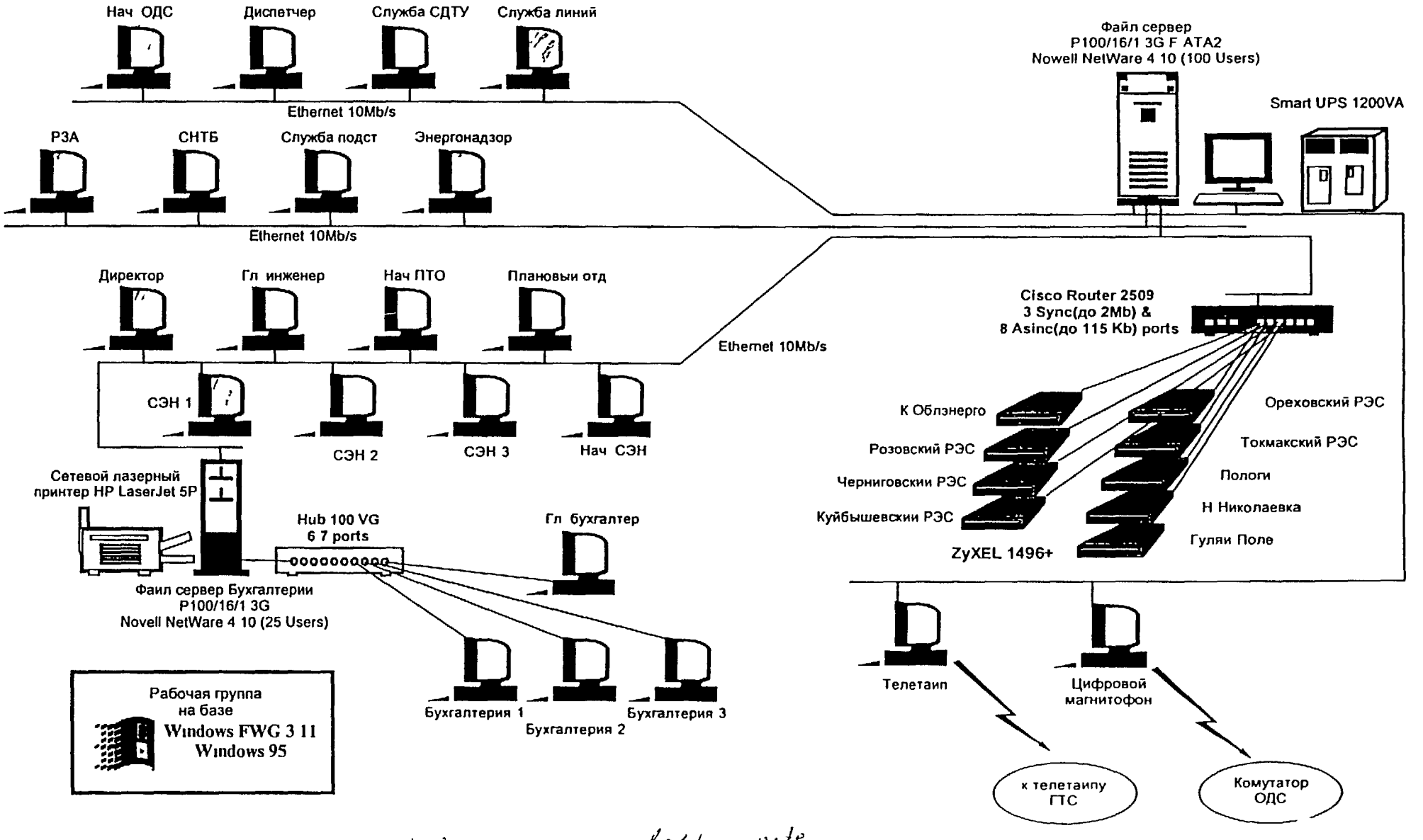
Headquarters - 5 computers (existing network Pentium PCI 120 Mhz/16/2G SCSI, Novell Netware 4 10, 100 users with Print Server)

1 Eastern Division - 9 computers (existing network File server P100/16/1, 3G F-ATA2, Novel NetWare 4 10, 100 users)
2 Central Division - 8 computers
3 Zaporizhia City Division - 5 computers (existing network)
4 Melitopol Division - 7 computers
5 Pubic Service Business - 1 computer

In addition to that the company possesses 6 faxes in the headquarters

"Уте даю'
Гл иженер ГАГК "Запорожьеоблэнерго"
Сероштанов В С

Схема организации ЛВС и узла корпоративной сети Запорожских восточных электрических сетей



*shadowed symbols mean available nts

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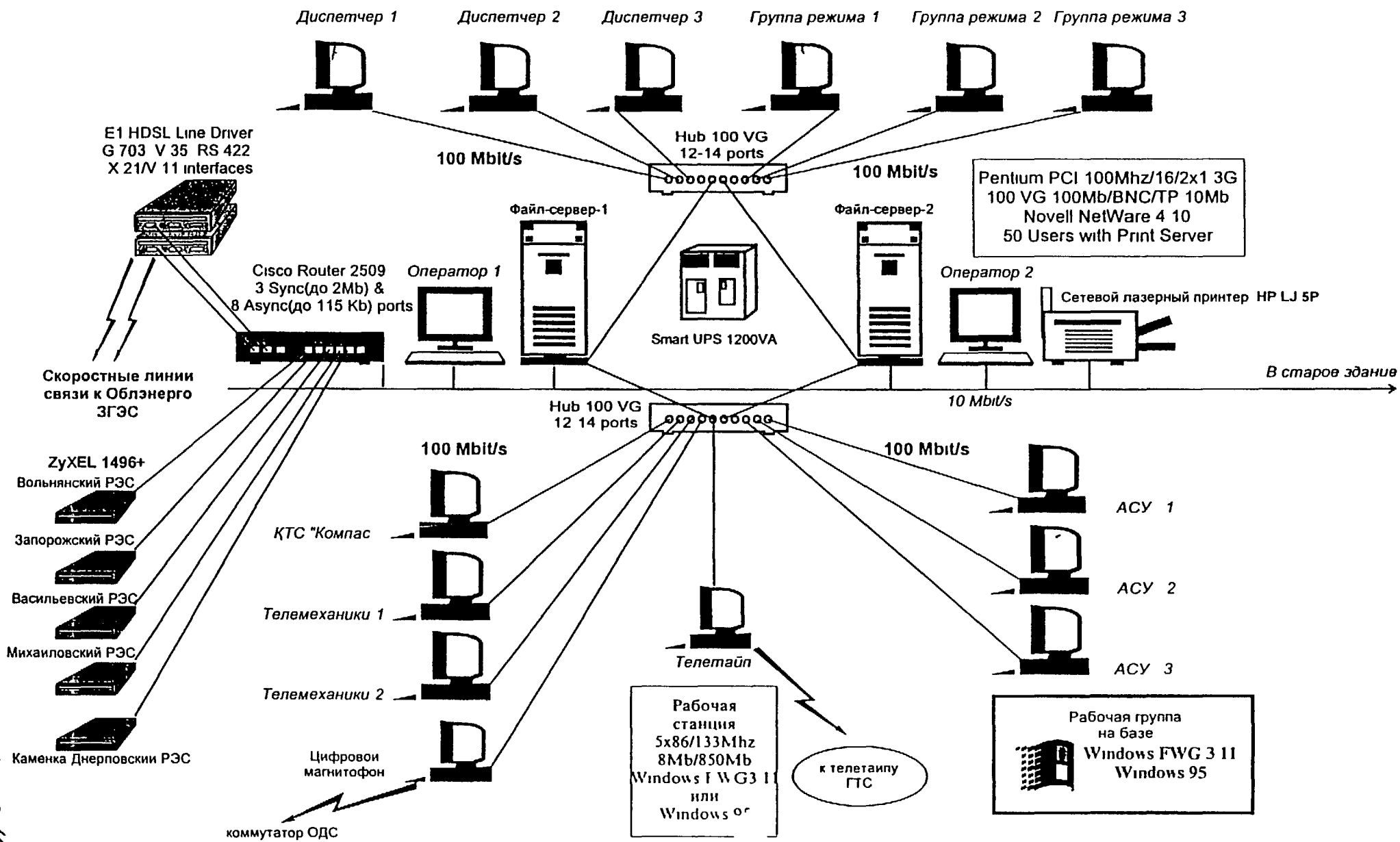
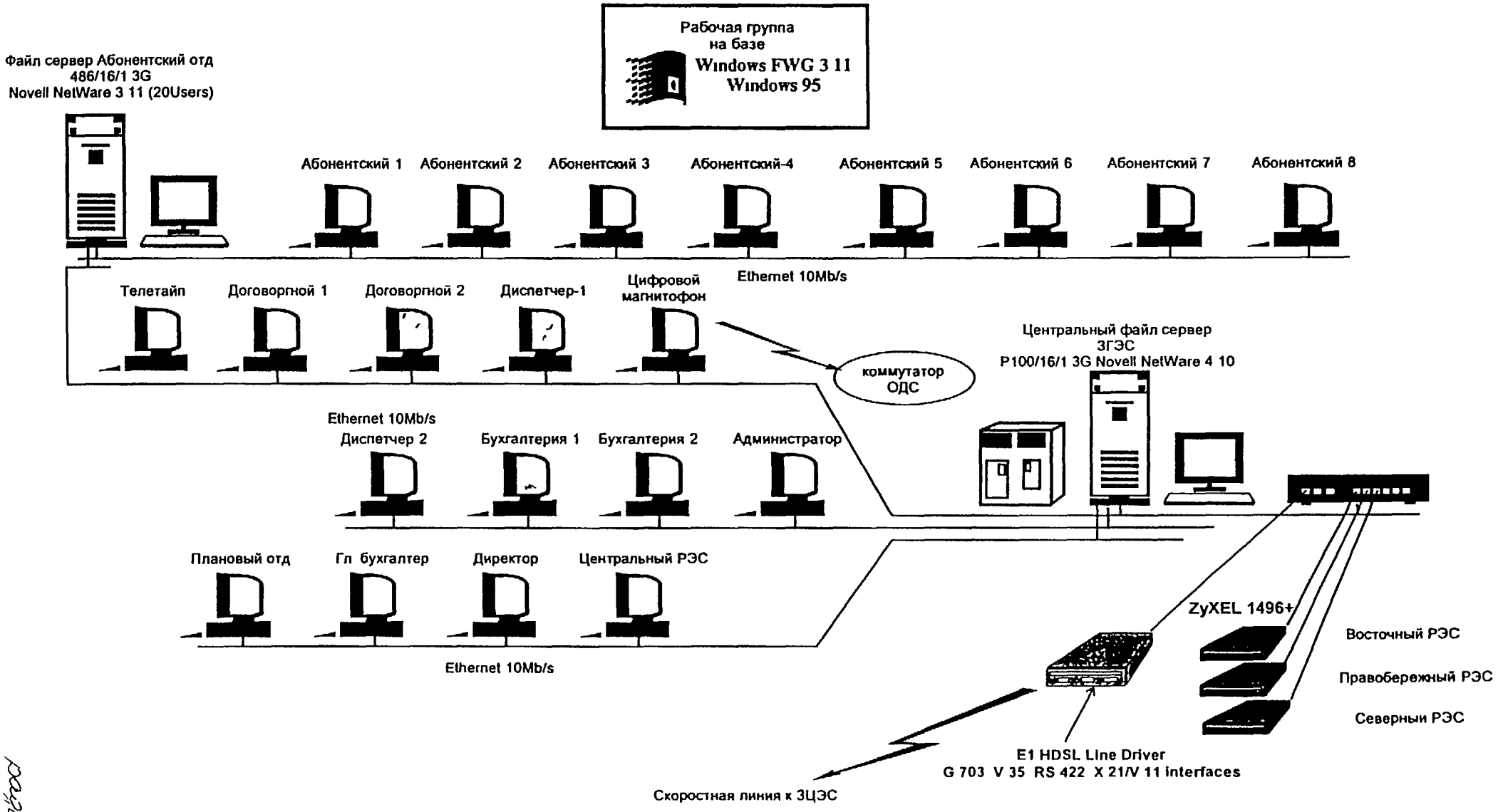
"Утвер аю"
Гл иженер ГАГК "За рожьеоблэнерго"
Сероштанов В С

Схема организации ЛВС и узла рпоративной сети Запорожских центральных электрических сетей



"Утвер аю"
Гл иженер ГАГК "Запорожьеоблэнерго"
Сероштанов В С

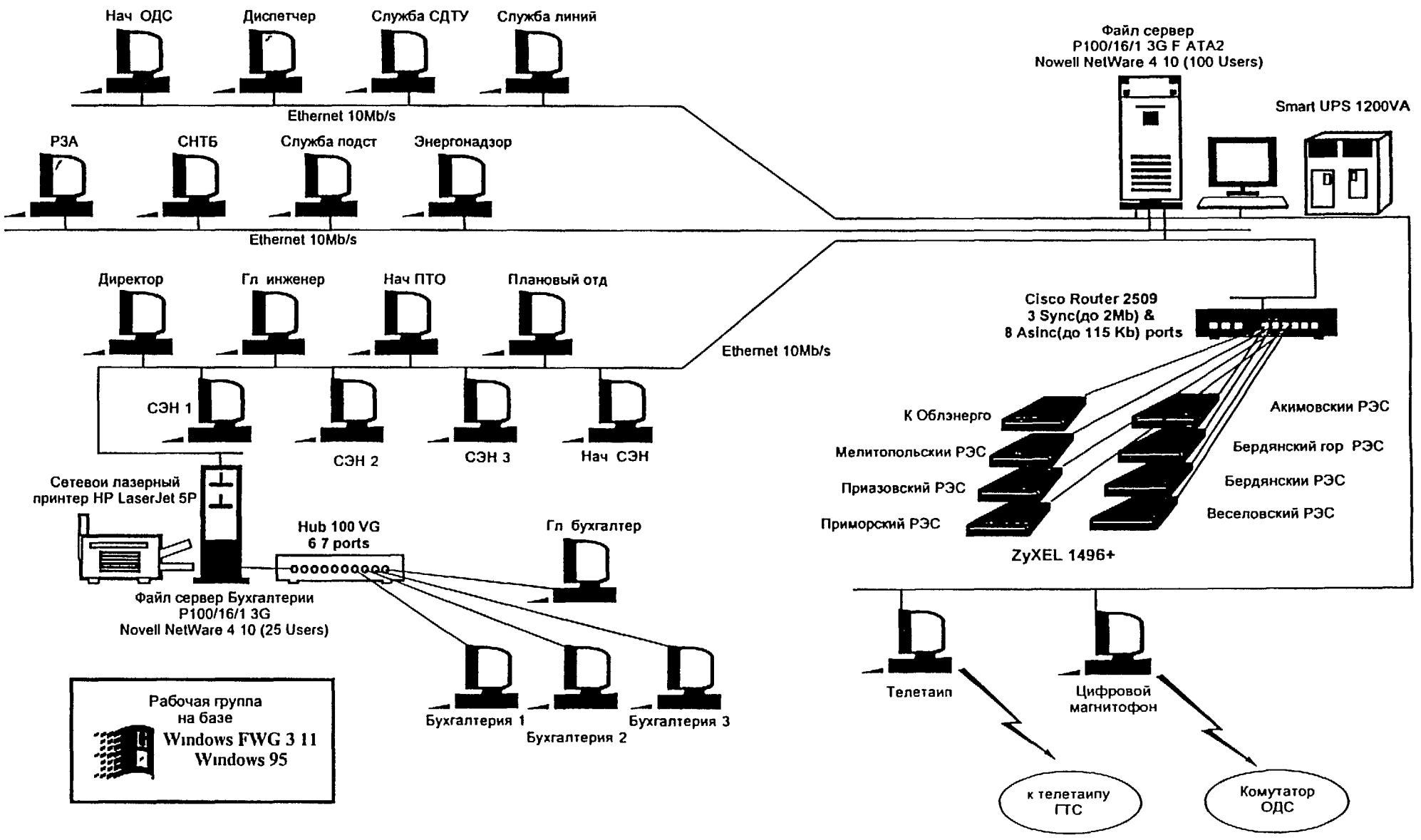
Схема организации ЛВС и узла корпоративной сети Запорожских городских электрических сетей



00432 145 120

"Утв даю"
Гл иженер ГАГК "Запорожьеоблэнерго"
Сероштанов В С

Схема организации ЛВС и узла корпоративной сети Мелитопольских электрических сетей



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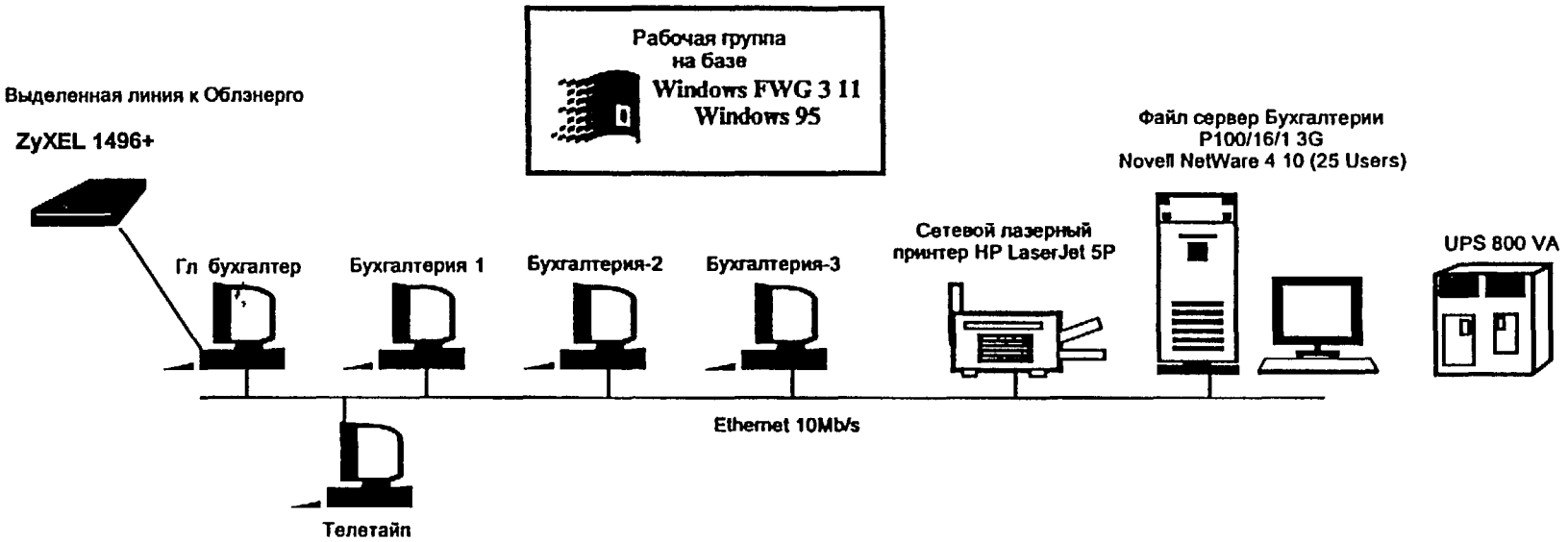
121

"Утверж о"
Гл иженер ГАГК "Запорожьеоблэнерго"
Сероштанов В С

Схема организации ЛВС и узла корпоративной сети Комбината комунальных предприятий



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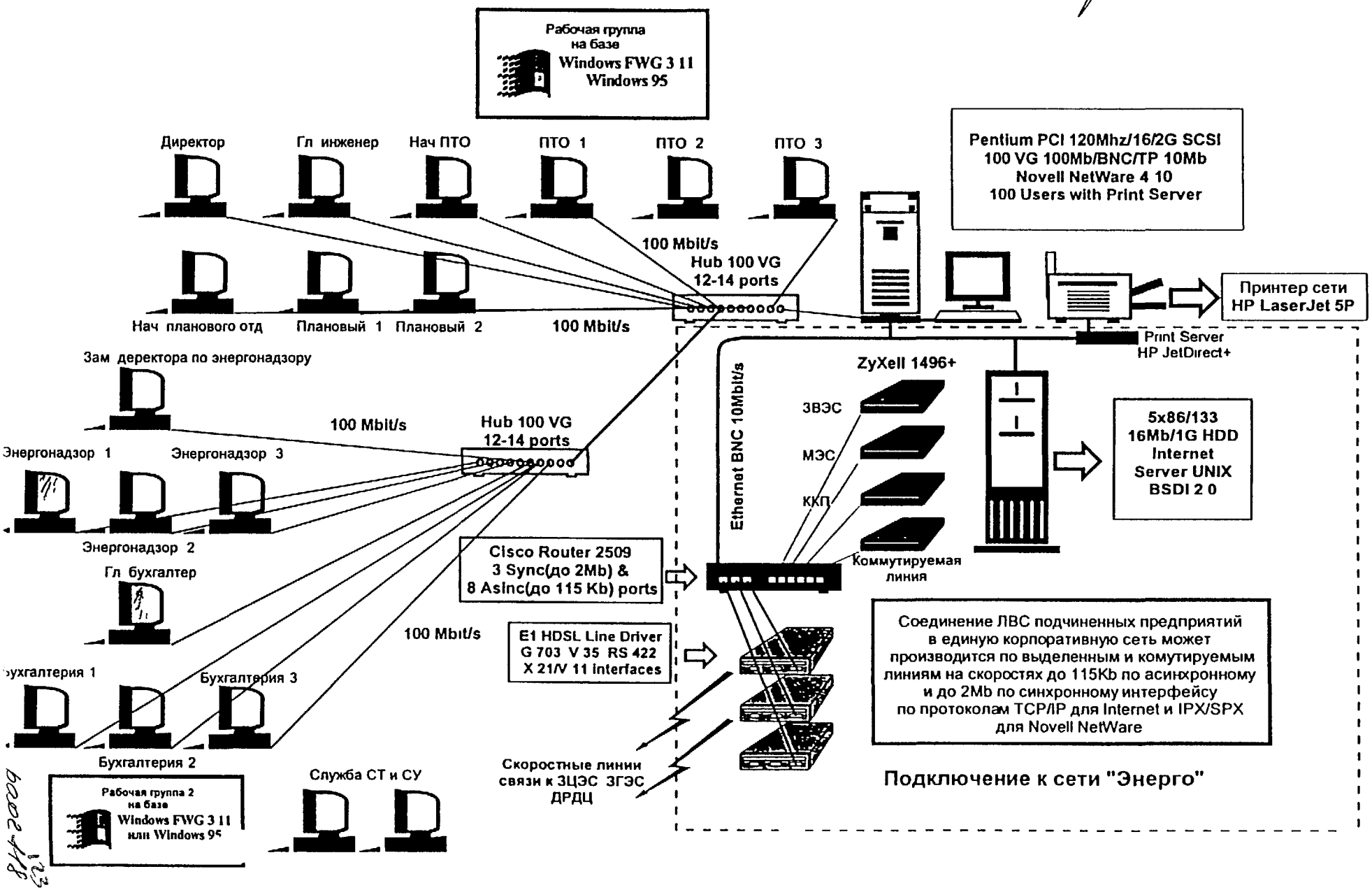
1 2

"Утвер› ‹ю"

Гл иженер ГАГК "Запорожьеоблэнерго

Сероштанов В С

Схема организации центрального узла корпоративной сети "Запорожьеоблэнерго"



Requested Computing and Communication Equipment

The main goal of Zaporizhyaoblenergo is to set up a corporate network The network is vitally important to carry out the tasks on controlling energy consumption, billing, planning and accounting

Zaporizhyaoblenergo plans to set up a LAN at each of five divisions and organize them into Energy corporate network LAN networks have been already set up at the headquarter, Eastern Electric Network and Zaporizhya City Electric Network Today the first necessity for Zaporizhyaoblenergo is to set up LAN network at the Central Division, Melitopol Division and Public Services Businesses

To carry out this task Zaporizhyaolenergo requests the following equipment
Pentium Processor - 133 Mhz
Cache 2 >= 256 Kb PipelineBurst Synchron
Local bus - PCI
RAM >= 16 Mb
HDD >= 850 Mb - 1 3 Gb
Video - 1 Mb (up to 2 Mb)
Monitor - 0 28 LR, Ni, Green 14-15
Desktop
Total Quantity is 22 pieces

Dear Mr Moran,

Please find attached the description of the project on setting up the corporate network at Zaporozhyeoblenergo

We hope to carry out this project with your assistance
Thank you in advance

Yours truly,

V S Seroshtanov

Description of the project on setting up the corporate network
at Zaporozhyeoblenergo Joint Stock Company

To carry out the tasks on controling energy consumption , customer billing planning and accounting, Zaporozhyeoblenergo plans to set up a LAN at each of five divisions (Zaporozhye Central Division, Zaporozhye Eastern Division, Melitopol Division, Zaporozhye City Division and Public Services Business) and organize them into Energo corporate network

A LAN has been set up in Zaporozhyeoblenergo building and LANs have been set up and been operating at the Eastern and City Divisions

Setting up LANs at Zaporozhyeoblenergo, Central Division, Melitopol Division and Public Services Business envisages that the latest achievements in LAN will be used including high-speed data transmission technology (100Mb/sec) and twisted pair wiring, category 5 That wiring allows using all the most popular standards of setting up LANs, including Token Ring, Fast Ethernet,100-VG AnyLan, FDDI/TP As the Network technology, tThe technology which combines Ethernet and 100VG-AnyLan is chosen

The choice wass based on the analysis of the technichal characteristics and price of networks technologies 100-VG AnyLan technology implies that the equipment manufactured by world known Hewlet-Pachard and Compex should be used
High speed connections guarantee that the efficiency of information exchange is enhanced, and allow using new facilities of multimedia for interadction between users These are video conferernces, voice message and setting up of audio and video data bases LANs shall be organised into the corporate network by using Internet technology and TCP/IP, Frame-Relay SLIP and PPP network protocols which characterize that technology LAN users are intended to obtain access to the remote LAN resources of the divisions under this project High speed communications devices provide the speed of exchange between remote LANs at 2Mb/sec for distances up to 12km To organize LANs into a corporate network, Cisco Inc multifunction routers are needed, which allow users to to get

transparent access to remote network resources such as disks, printers and terminals and others Using dedicated, switched, digital and wireless communications lines will allow users at the lower level (RES and others) to be connected to the resources of the corporate network Among the services provided there might be work in E-mail and interactive modes, obtaining operational information, including access to the information in the real time mode

To carry out this project on reconstructing and setting up LANs at Zaporozhyeoblenergo enterprizes, Accounting Departments and Energy Inspection Services at the enterprizes should be equipped with the computers of the following type

Pentium
Processor -133 MHz
Cache 2 >= 256Kb Pipe LineBurst Synchron
Local bus - PCI
RAM>= 16 Mb
HDD >= 850 Mb - 1 3 Gb
Video - 1 Mb (up to 2 Mb)
Monitor - 0 28 LR, Ni, Green 14-15"
Desktop

Total quantity is 22 pieces

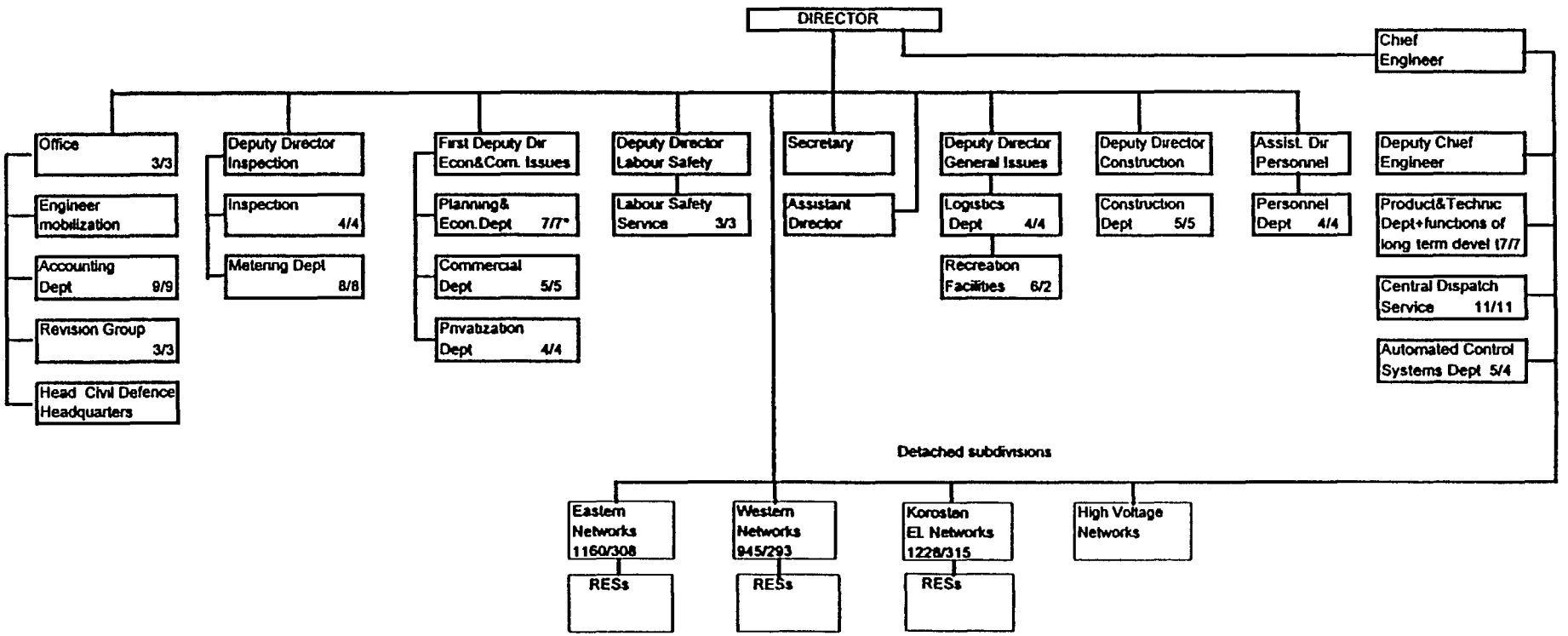
Zaporozhyeoblenergo Chief Engineer V S Seroshtanov

Proposed Strategy for Information System Development

In our opinion Zaporizhyaoblenergo has a very well developed plan of installation of LANs at their enterprises, Accounting Departments and Energy Inspection Services Zaporishyaoblenergo has already started fulfilling their plan, they installed three LANs at their divisions, that is why we should assist in completing their plans and help them to buy all the requested equipment

APPENDIX L - ZHITOMIR OBLENERGO

ZHITOMIROBLENERGO ORGANIZATION CHART



* numerator total number of the personnel
denominator number of engineers&technicians incl

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Current Computing and Communication Capabilities

Zhitomir Oblenergo identified the following as their currently available computer hardware and communication capabilities for performing the customer collection and payment activities

They presently have 77 PCS, 71 matrix printers, 2 laser printers, 1 color scanner, 18 faxes, 9 copying machines

The 77 PCs are comprised of

IBM 286 30 in number
IBM 386 7 in number
IBM 486 40 in number

These 77 PCs are located as shown below

Headquarters of LEC 19 pieces
Korosten Division 35 pieces
Vostochny /Eastern Division 15 pieces
Zapadny /Western Division 8 pieces

10 out of 24 RESs have a total of 14 computers

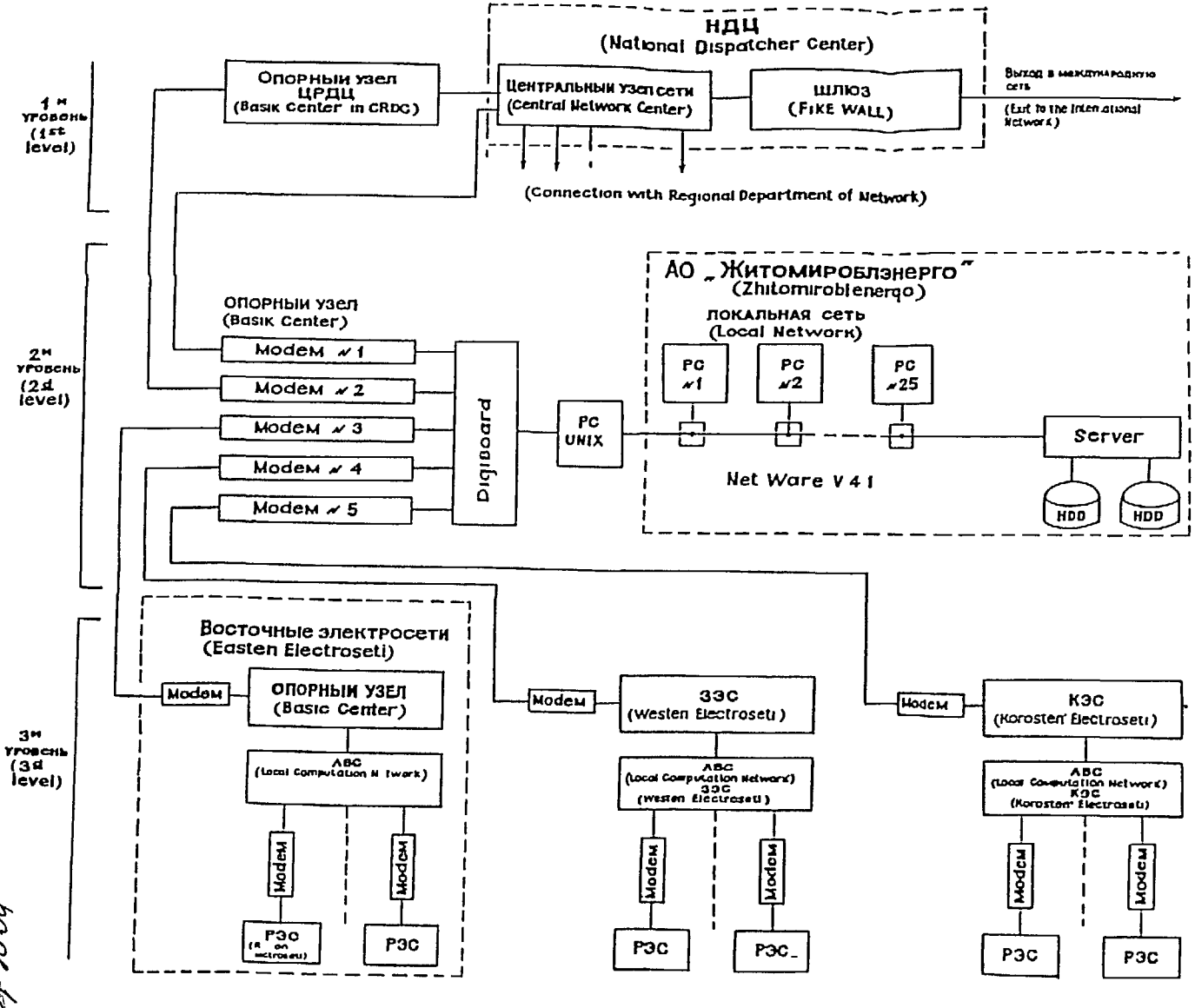
In terms of communication links, there is E Mail connection with RDC in PROCARRY media, the LEC is a customer of " Energia " network

ИСТЕМА

построения отраслевой телекоммутационной сети "Энергия" на базе INTERNET в 3-х уровневом решении

Construction system

of the branch telecommunication network „Energy in 3 levels



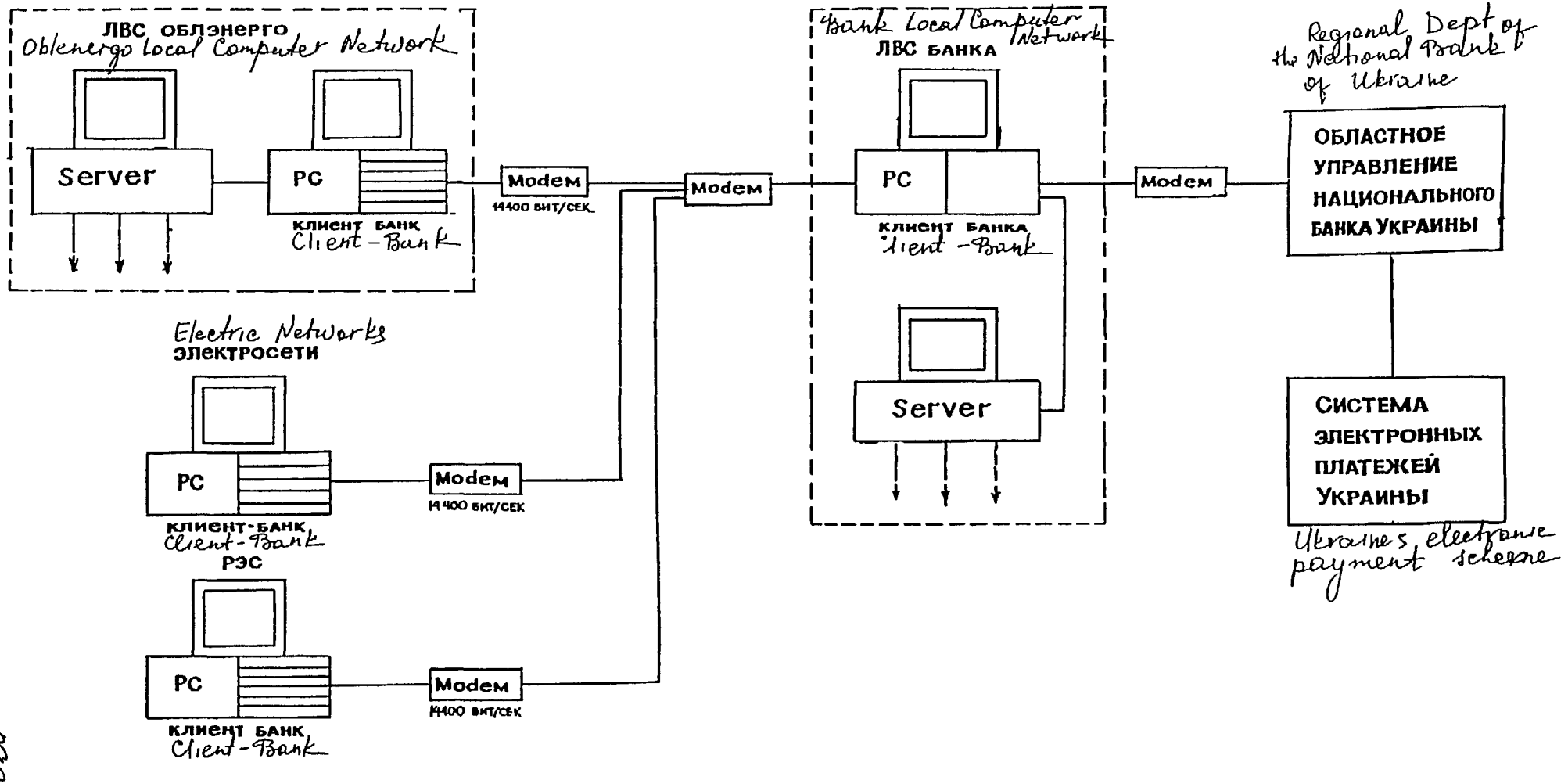
Необходимые технические и программные средства

(Required techology)

Server „Acer Actos 7000 P"
Modem „Motorola UDS V 3400" - 5 шт
PC „Pentium Pro" - 2 шт
Printer „Epson color stilus Pro" - 2 шт.
Net Ware V 4 1
3D Studio Niac
Windows - 95

Modem Motorola VDC V 3700 - 27 шт
PC IBM - 486 - 27 шт
Digiboard - 6 шт
Net Ware V 4 1

СХЕМА
ПРОХОЖДЕНИЯ ЭЛЕКТРОННЫХ ПЛАТЕЖЕЙ
Electronic Payment Flow scheme



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Report

At the present time "Zhitomiroblenergo" has 77 personal electronic computers
They help to taskle more than 200 production and economic tasks

The main ways of the company computerization are

- financial - economic activity,
- planned - economic tasks, including consumers payments for electricity,
- taskling production and technical tasks,
- dispetcher and quick information complex

Some services and departments of the company are applied by modern calculated equipments but we have some difficult tasks connected with comming to the Energomarket which won't be resolved without increasing the capacities of the information-calculated complex of our company

At the present time the main and quick task to be resolved are:

1. Putting into operation the local computer network,
2. Supplying authorized access of the company departments to the telecommunication network Internet,
3. Organization of the electronic payments passage control and calculating of the financial resources

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for purching and selling electricity.

Improvement of the control and registration of electricity reception and consumption on the base of modern electronic-calculating computer system

Exiting of the company departments to the telecommunication network 'Internet', as it is evident from table 1, realizes according to the following flow

"Rayonelectraseti - Electroseti - Oblenergo - NDC - International networks through "Univ centers by means of modern modems

At the present time, the construction of the network "Energy" is over

one works of the 2d level were done.

(Oblenergo - CRDC - NDC)

For comoleating these works, it is necessary to resolve the following tasks

- instalation of moderms, server and two powerful DC with UPS,
- loading Net Ware 4.1,
- changing the Oblenergo communication channel

The price for fulfilment these points is 44 700 dollars.

For connecting with Internet the subscribers of the 3d level, the following works are necessary to be done

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- to instalate the communication centres in Electrosetiés,
- to create the local calculating networks in Electrosetiés,
- to instalate PC with modems in all Rayone'ectrosetiés,

!! costs 50 100 dollars

The fulfilment of all works would help us to resolve the first two tasks.

For resolving the third task it is necessary

- to instalate PC with modems in all Rayon electrosetiés,
- to instalate special PC in department of distribution (selling) energy - (5).
- to work out algorithm and software of collection, control and calculation of incoming funds

!! costs 37 600 dollars

The 4th task is the control and calculation of power incoming and consumption for raising efficiency of this system it is necessary

- to replace electricity counters by new ones of foreign producing;
- to organize safe communication channels for transmissing figures from places of their control to the central processor for their handling.

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- to instalate two PC for handling received figures;
- to work out software of collecting, handling and safing information

Expenditures for resolving this task are determined by the work of communication channels

I surpose, that successful resolving of all these tasks would impove financial-economic conditions of our company, increase labour productivity

Head of DASM A M Papirovy

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Requested Computing and Communication Equipment

Zhitomir Oblenergo identified the following as the hardware and communication needs for performing the customer collection and payment activities

- Server Acer Actos 7000 P 1 in number at the head office
- Workstations, Pentium Pro 2 in number at the head office
- Workstations IBM 486 PC with 8 MB RAM, 1 GB HDD 27 in number (1 for each of 27 RESs)
- Modem Motorola UDS v 3400 5 in number(at the head office)
- Modem Motorola VDC V 3700 27 in number (1 at each of 27 RESs)
- Printer Epson color stilus Pro 2 in number
- Net ware V 4 1 2 in number
- Digiboard 6 in number (2 at each of the 3 divisions)
- Windows 95 1 in number at the head office
- 3D Studio Nlac

Proposed Strategy for Information System Development

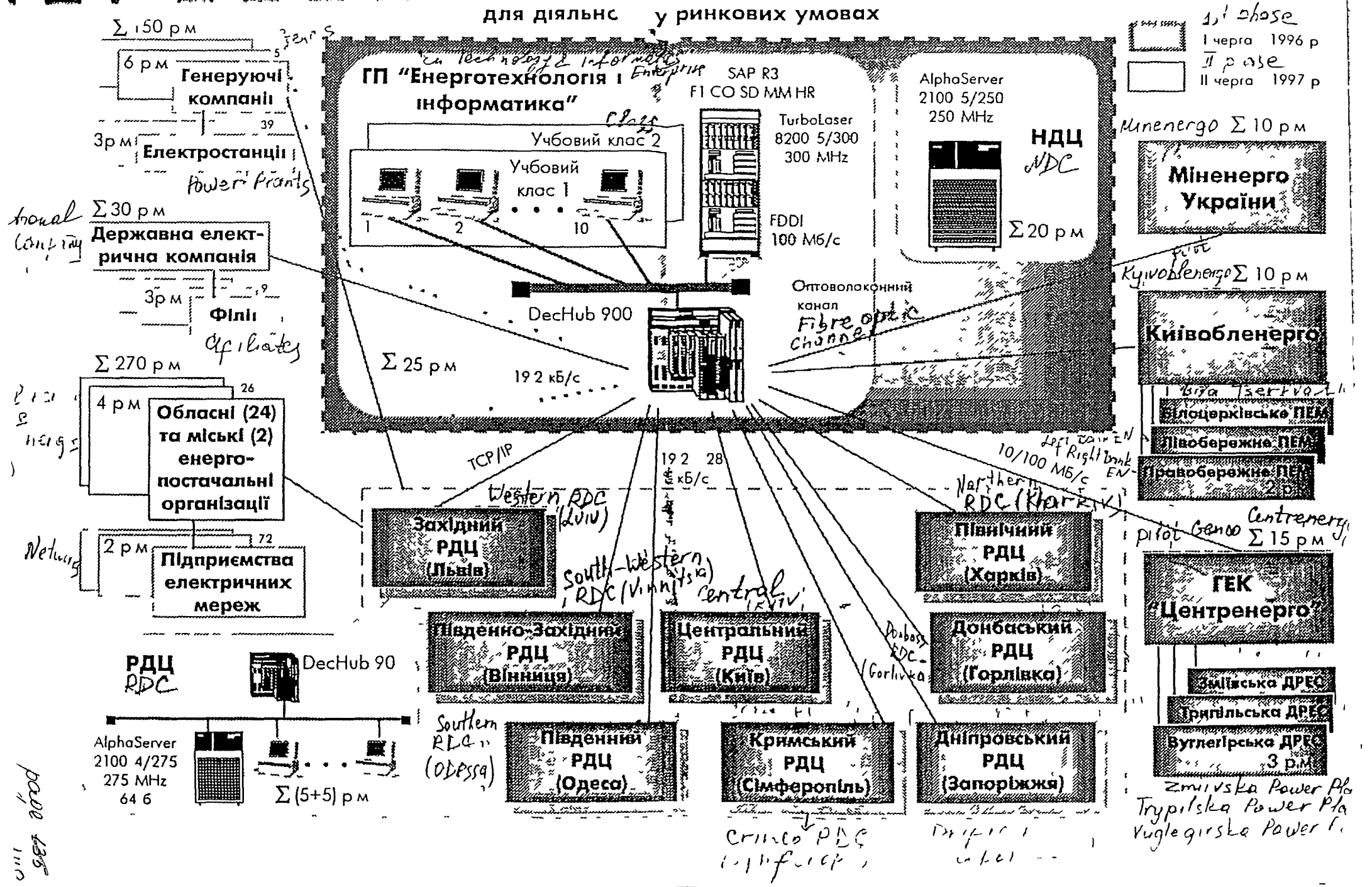
Advisor's Recomendations

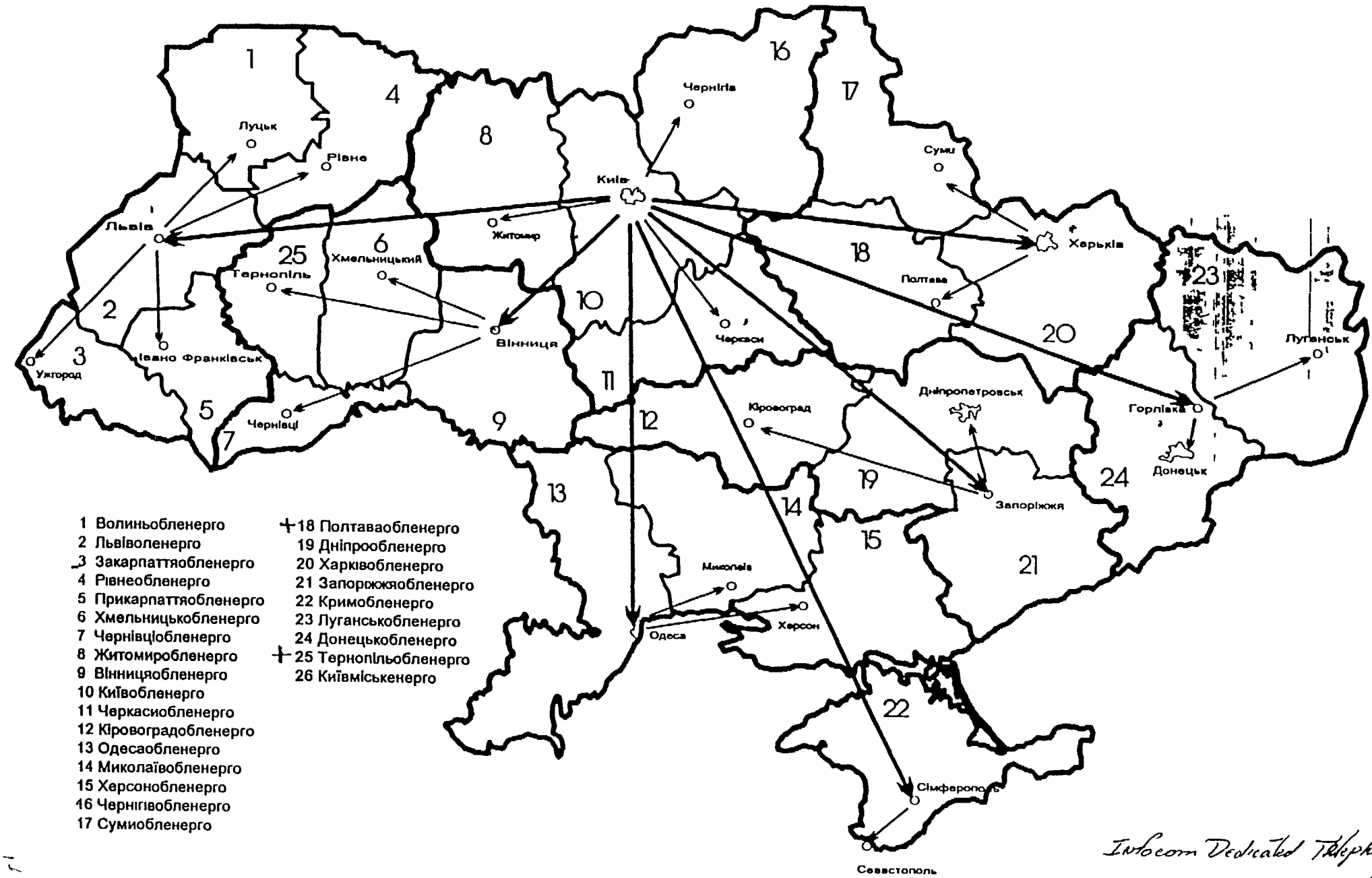
(1) Server with UPS and LAN capabilities
(4) Workstations
(4) Modems
(2) Printers

Appendix M - MINENERGO ELECTRONIC MAIL NETWORK

As part of the investagation into Computing Capabilities at the Oblenergos, we learned about the possibiltiy of Oblenergo communications via a new Minenergo Electronic Mail system This system is based on usage of Internet Communications and uses normal Minenergo Communication lines, however it can also be accessed from the public switched network The following pages provide further information about this system

для діяльнс у ринкових умовах





Infocom Dedicated Telephone Lines

APPENDIX B

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of DNIPROBLENERGO the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00& CCN-0002-Q-00-3152-00issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of DNIPROBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly s contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of DNIPROBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name DNIPROBLENERGO
Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For DNIPROBLENERGO

(Signature on file)
Signed

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number A1 A2 A3 A4 A5, A6 A7
Name of Oblenergo Dnipropetrovsk

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
A1	1	VIE-E641-1M	Viewsonic 14" monitor
A1	2	CPQ-243900-003	DESKPRO 2000 5/133 16/1200
A1	2	APC-AP6001	APC SMARTUPS 6001
A1	8		Ethernet Cable, 10' length with BNC Connector
A1	2		BNC Male Terminator
A1	5		BNC T Connector
A1	2		BNC Coupler F/F
---	---	---	---
	-		
A2	1	CPQ-243900-003	DESKPRO 2000 5/133 16/1200
A2	1	818075	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
A2	4	HPC-C3900A	Toner Cartridge
A2	4	HPC-3903A	Toner Cartridge
A2	2		UPS, Back Up, Tripp-Lite Smart, INT 450VA, 220V/50 Hz
A2	1	APN- APSA-N7	220V Surge Protector
A2	1		Spare Battery Pack for UPS For APC Smart UPS 700
---	---	---	---
	-		-
A3	1	HPC-C3141A	LaserJet 4V Printer 4MB, 16ppm, 600dpi with toner
A3	1	HPC-C3980	HP LaserJet 6P 220V
A3	2		APC SMARTUPS 6001
A3	5		USRO SPROT 33 6 EXT
A3	1		BORL INTERBASE 4 2W NT
---	---	---	---
	-		-
A4	2	CPQ-243900-003	DESKPRO 2000 5/133 16/1200
A4	2	APC-AP6001	APC SMARTUPS 6001
A4	1	VIE-E641-1M	Viewsonic 14" monitor
A4	1	APC-APSA-N7	220V Surge Protector
A5	1		APC BACK UPS 600 INTL 220#
A5	4		UPS, Back Up, Tripp-Lite Smart, INT 450VA, 220V/50 Hz
A5	1		NEC 14" C400 28NI MONITOR
A5	1	CPQ-243900-003	DESKPRO 2000 5/133 16/1200
---	---	---	---
A6	2	VIE-E641-1M	-Viewsonic 14" monitor
---	---	---	---
A7	2	VIE-E641-1M	-Viewsonic 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of Main Information Center of Minenergo, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of Main Information Center of Minenergo I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of Main Information Center of Minenergo, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name Main Information Center of Minenergo

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For Main Information Center of Minenergo

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

4 BOXES
Box Number B8, B9, B10, B11
Name Main Information Center of Minenergo

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
B8	2		BORL INTERBASE 4 2W NT
B8	1		Spare battery Pack for UPS For APC Smart UPS 700
B8	1		USRO SPROT 33 6 EXT
B8	1	HPC-C3980	HP LaserJet 6P 220V
B8	2	HPC-C3900A	Toner Cartridge
B8	2		UPS Back Up, Tripp-Lite Smart INT 450VA
B8	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
B8	2	APC- APSA-N7	220V Surge Protector
B9	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi with toner
B9	2	APC-AP6001	APC BACK UPS 600
B9	3	HPC-C3903A	Toner Cartridge
B9	1	818075	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
B10	1		NEC 14" C400 28NI MONITOR
B10	1	APC-AP6001	APC BACK UPS 600
B10	2		USRO SPROT 33 6 EXT
B10	1	HPC-C3903A	Toner Cartridge
B10	2	HPC-C3900A	Toner Cartridge
B10	8		Ethernet Cable, 10' length w/ BNC Connector
B10	2		BNC Male Terminator
B10	5		BNC T Connector
B10	2		BNC Coupler F/F
B11	2	VIE-E641-1M	Viewsonic 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of CHERNIVTSYOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of CHERNIVTSYOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of CHERNIVTSYOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name CHERNIVTSYOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For CHERNIVTSYOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number C12, C13, C14, C15, C16, C17, C18
Name of Oblenergo Chernivtsi

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
C12	3	CPQ-243900-003	WORK STATIONS DESKPRO 2000 5/133 16/1200
C12	2	HPC-C3900A	Toner Cartridge
C12	1	APN-APSA-N7	220V Surge Protector
C12	1		BORL INTERBASE 4 2W NT
C12	5		USRO SPROT 33 6 EXT
---	---	---	---
	-		
C13	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
C13	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi
---	---	---	---
		-	
C14	1		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
C14	4		UPS Back Up Tripp-Lite Smart, INT 450VA, 2220V/50Hz
C14	1		Spare battery Pack for UPS For APC Smart UPS 700
C14	2		Toner Cartridge
C14	2	HPC-C3900A	APC BACK UPS 600 INTL 220#
C14	8		Ethernet Cable 10' length w/ BNC Connector
C14	2		BNC Male Terminator
C14	5		BNC T Connector
C14	2		BNC Coupler F/F
---	---	---	---
	-		
C15	1	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
C15	2		UPS Back Up, Tripp-Lite Smart, INT 450VA 2220V/50Hz
C15	1		NEC 14' C400 28NI MONITOR
C15	3		APC BACK UPS 600 INTL 220#
---	---		
C16	2		Viewsonic 14" monitor
C16	2		APC BACK UPS 600 INTL 220#
---	---	---	---
C17	2		Viewsonic 14" monitor
---		---	---
C18	2		Viewsonic 14" monitor
---	---	---	---
	-		

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of CHERNIGIVOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of CHERNIGIVOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of CHERNIGIVOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name CHERNIGIVOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For CHERNIGIVOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

5 BOXES
Box Number D19 D20 D21 D22 D23
Name of Oblenergo Chernigiv

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
D19	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi with toner
D19	2	APC- APSA-N7	220V Surge Protector
D19	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
D19	2		BORL INTERBASE 4 2W NT
---	---	---	---
D20	2		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
D20	1	HPC-C3980	HP LaserJet 6P 220V
D20	1		Spare Battery Pack for UPS For APC Smart UPS 700
D20	5		USRO SPROT 33 6 EXT
D20	3	HPC-C3900A	Toner Cartridge
D20	3	HPC-3903A	Toner Cartridge
---	---	---	---
D21	1	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
D21	3		UPS Back UP, Tripp-Lite Smart, INT 450VA 220V/50Hz
D21	2		APC BACK UPS 600 INTL
D21	1		NEC 14" C400 28NI MONITOR
D21	1	HPC-C3900A	Toner Cartridge
D21	1	HPC-3903A	Toner Cartridge
D21	1		Spare Battery Pack for UPS For APC Smart UPS 700
---	---	---	---
D22	1	-	NEC 14 C400 28NI MONITOR
D22	1		Viewsonic 14" monitor
D22	3	VIE-E641-1M	APC BACK UPS 600 INTL
D22	8		Ethernet Cable 10' length w/ BNC Connector
D22	2		BNC Male Terminator
D22	5		BNC T Connector
D22	2		BNC Coupler F/F
---	---	---	---
D23	2	VIE-E641-1M	Viewsonic 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of CHERKASYOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of CHERKASYOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of CHERKASYOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name CHERKASYOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For CHERKASYOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number E24, E25, E26 E27, E28 E29, E30
Name of Oblenergo Cherkasy

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
E24	1		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
E24	4	HPC-C3900A	Toner Cartridge
E24	3		APC SMARTUPS 6001
E24	1		Spare Battery Pack for UPS For APC Smart UPS 700
E24	1		BORL INTERBASE 4 2W NT
E24	5		USRO SPROT 33 6 EXT
E24	1		220V Surge Protector
E24	2		UPS Back Up, Tripp-Lite Smart INT 450VA 220V/50Hz
E24	8		Ethernet Cable, 10' length w/ BNC Connector
E24	2		BNC Male Terminator
E24	5		BNC T Connector
E24	2		BNC Coupler F/F
---	---	---	---
E25	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm 600dpi, with toner
E25	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
---	---	---	---
E26	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
E26	2		UPS Back Up Tripp-Lite Smart, INT 450VA, 220V/50Hz
E26	1		NEC 14" C400 28NI MONITOR
---	---	---	---
E27	2	-	WORK STATIONS, DESKPRO 2000 5/133 16/1200
E27	2		UPS Back Up, Tripp-Lite Smart, INT 450VA 220V/50Hz
E27	2		APC SMARTUPS 6001
---	---	---	---
E28	2	VIE-E641-1M	Viewsonic 14' monitor
E28	2		APC SMARTUPS 6001
---	---	---	---
E29	2	VIE-E641-1M	Viewsonic 14' monitor
---	---	---	---
E30	2	VIE-E641-1M	Viewsonic 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of KHMELNYTSKOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of KHMELNYTSKOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of KHMELNYTSKOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name KHMELNYTSKOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For KHMELNYTSKOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

4 BOXES
Box Number F31, F32, F33, F34
Name of Oblenergo Khmelnytsky

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
F31	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm 600dpi, with toner
F31	4	HPC-C3900A	Toner Cartridge
F31	2		USRO SPROT 33 6 EXT
F31	3		APC BACK UPS 600 INTL
F31	1		Thermal Fax Machine
F31	1		BORL INTERBASE 4 2W NT
F31	1	APN- APSA-N7	220V Surge Protector
---	---	---	---
F32	1		Viewsonic 14" monitor
F32	1	818075	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
F32	3		UPS Back Up, Tripp-Lite Smart, INT 450VA
F32	1		APC BACK UPS 600 INTL
F32	2		Thermal Fax Machine
F32	2		USRO SPROT 33 6 EXT
---	---	---	---
F33	1		Viewsonic 14" monitor
F33	2	CPQ-243900-003	WORK STATIONS DESKPRO 2000 5/133 16/1200
F33	3		Thermal Fax Machine
F33	1		Spare Battery Pack for UPS For APC Smart UPS 700
---	---	---	---
F34	1		Viewsonic 14" monitor
F34	1		NEC 14 ' C400 28NI MONITOR
F34	1	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
F34	5		Thermal Fax Machine
F34	8		Ethernet Cable, 10' length w/ BNC Connector
F34	2		BNC Male Terminator
F34	5		BNC T Connector
F34	2		BNC Coupler F/F
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USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of KIROVOGRADOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services Inc I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of KIROVOGRADOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of KIROVOGRADOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name KIROVOGRADOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For KIROVOGRADOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number G 35, G36, G37, G38, G39, G40, G41
Name of Oblenergo Kirovograd

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
G35	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi, with toner
G35	1		FILE SERVER CMPQ PRS 300 P150 16/2 1G
G35	2		APC BACK UPS 600 INTL
G35	4	HPC-3903A	Toner Cartridge
G35	1		Spare Battery Pack for UPS For APC Smart UPS 700
G36	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
G36	1		APC BACK UPS 600 INTL
G36	1	HPC-C3980	HP LaserJet 6P 220V
G36	1		BORL INTERBASE 4 2W NT
G36	2	APC- APSA-N7	220V Surge Protector
G36	4	HPC-C3900A	Toner Cartridge
G36	5		USRO SPROT 33 6 EXT
G37	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
G37	1		NEC 14" C400 28NI MONITOR
G37	2		APC BACK UPS 600 INTL
G37	8		Ethernet Cable 10' length w/ BNC Connector
G37	2		BNC Male Terminator
G37	5		BNC T Connector
G37	2		BNC Coupler F/F
G38	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
G38	2		UPS Back Up, Tripp-Lite Smart, INT 450 VA, 220V/50Hz
G38	2		APC BACK UPS 600 INTL
G39	4		UPS Back Up, Tripp-Lite Smart INT 450 VA, 220V/50Hz
G39	2	VIE-E641-1M	Viewsonic 14" monitor
G40	2	VIE-E641-1M	Viewsonic 14' monitor
G41	2	VIE-E641-1M	Viewsonic 14 monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of LVIVOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of LVIVOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of LVIVOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name LVIVOBLENERGO

Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For LVIVOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

6 BOXES
Box Number H42, H43, H44, H45, H46, H47
Name of Oblenergo L'viv Oblenergo

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
H42	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi, with toner
H42	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
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H43	2		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
H43	2	APN-APSA-N7	220V Surge Protector
H43	2		BORL INTERBASE 4 2W NT
H43	2		USRO SPROT 33 6 EXT
H43	2	HPC-C3900A	Toner Cartridge
H43	2		UPS, Back UP, Tripp-Lite Smart, INT 450VA
---	---	---	---
H44	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi, with toner
H44	1	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
H44	1	VIE-E641-1M	Viewsonic 14' monitor
H44	2		Spare Battery Pack for UPS For APC Smart UPS 700
H44	2		USRO SPROT 33 6 EXT
H44	2	HPC-C3900A	Toner Cartridge
---	---	---	---
H45	1		UPS Back UP Tripp-Lite Smart, INT 450VA
H45	5		APC BACK UPS 600 INTL
H45	4	HPC-C3900A	Toner Cartridge
H45	8		Ethernet Cable, 10' length w/ BNC Connector
H45	2		BNC Male Terminator
H45	5		BNC T Connector
H45	2		BNC Coupler F/F
---	---	---	---
H46	2	VIE-E641-1M	Viewsonic 14" monitor
H47	2		NEC 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of VINNYTSYAOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of VINNYTSYAOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of VINNYTSYAOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name VINNYTSYAOBLENERGO
Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For VINNYTSYAOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number I48, I49, I50 I51, I52 I53 I54
Name of Oblenergo Vinnytsya

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
I48	2		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
I48	2		UPS, Back Up, Tripp-Lite Smart INT 450VA
I48	2	APN-APSA-N7	220V Surge Protector
I48	2		APC BACK UPS 600 INTL
---	---	---	---
I49	4		APC BACK UPS 600 INTL
I49	1	HPC-C3141A	LaserJet 4V Printer, 4MB 16ppm, 600dpi with toner
I49	2		BORL INTERBASE 4 2W NT
I49	6		USRO SPROT 33 6 EXT
I49	1		UPS Back Up, Tripp-Lite Smart, INT 450VA
---	---	---	---
I50	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi with toner
I50	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
---	---	---	---
I51	2		Spare Battery Pack for UPS For APC Smart UPS 700
I51	8		Ethernet Cable 10' length w/ BNC Connector
I51	2		BNC Male Terminator
I51	5		BNC T Connector
I51	2		BNC Coupler F/F
I51	8	HPC-C3900A	Toner Cartridge
I51	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
I51	1		APC BACK UPS 600 INTL
I51	1		UPS, Back Up Tripp-Lite Smart, INT 450VA
---	---	---	---
I52	2	VIE-E641-1M	Viewsonic 14" monitor
I53	2	VIE-E641-1M	Viewsonic 14' monitor
I54	2		NEC 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of TERNOPILOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of TERNOPILOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time providing Hagler Bailly obtains written approval from the United States Agency for International Development the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of TERNOPILOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name	TERNOPILOBLENERGO
Oblenergo Address	(Data on file)
Attention	
Phone Number	
Fax Number	

For TERNOPILOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number J55 J56 J57, J58 J59, J60 J61
Name of Oblenergo Ternopil

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
J55	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm 600dpi with toner
J55	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
---	---	---	---
J56	1	-	14" Monitor
J56	1		WORK STATIONS, DESKPRO 2000 5/133 16/1200
J56	1	CPQ-243900-003	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
J56	1		BORL INTERBASE 4 2W NT
J56	2		USRO SPROT 33 6 EXT
J56	2		Toner Cartridge
J56	1	HPC-C3900A	220V Surge Protector
J56	1	APN-APSA-N7	APC BACK UPS 600 INTL
J56	8		Ethernet Cable, 10' length w/ BNC Connector
J56	2		BNC Male Terminator
J56	5		BNC T Connector
J56	2		BNC Coupler F/F
J56	1		Spare Battery Pack for UPS For APC Smart UPS 700
---	---	---	---
J57	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
J57	3		USRO SPROT 33 6 EXT
J57	6		UPS, Back Up, Tripp-Lite Smart INTY 450VA
---	---	---	---
J58	1	CPQ-243900-003	WORK STATIONS DESKPRO 2000 5/133 16/1200
J58	6		APC BACK UPS 600 INTL
J58	2		Toner Cartridge
---	---	---	---
J59	2	VIE-E641-1M	Viewsonic 14 ' monitor
J60	2	VIE-E641-1M	Viewsonic 14 monitor
J61	2	VIE-E641-1M	Viewsonic 14 ' monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of ZAPORIZHZHYAOBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of ZAPORIZHZHYAOBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time, providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of ZAPORIZHZHYAOBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **
Oblenergo Name ZAPORIZHZHYAOBLENERGO
Oblenergo Address (Data on file)
Attention
Phone Number
Fax Number

For ZAPORIZHZHYAOBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 BOXES
Box Number K62, K63, K64, K65, K66, K67, K68

Name of Oblenergo Zaporizhzhya

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
K62	1	HPC-C3141A	LaserJet 4V Printer, 4MB, 16ppm, 600dpi, with toner
K62	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
K63	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
K63	1	HPC-C3980	HP LaserJet 6P 220V
K63	1		NEC 14" C400 28NI MONITOR
K63	4	HPC-3903A	Toner Cartridge
K63	1		USRO SPROT 33 6 EXT
K64	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
K64	4		APC BACK UPS 600 INTL
K64	3	HPC-C3900A	Toner Cartridge
K64	1		BORL INTERBASE 4 2W NT
K65	1		FILE SERVER, CMPQ PRS 300 P150 16/2 1G
K65	4		UPS, Back-up, Tripp-Lite Smart, INT 450VA
K65	2		APC BACK UPS 600 INTL
K65	1		Spare Battery Pack for UPS For APC Smart UPS 700
K65	1		USRO SPROT 33 6 EXT
K65	1	HPC-C3900A	Toner Cartridge
K66	2	APN-APSA-N7	220V Surge Protector
K66	3		USRO SPROT 33 6 EXT
K66	2		UPS, Back-up, Tripp-Lite Smart, INT 450VA
K66	1		APC BACK UPS 600 INTL
K66	2	VIE-E641-1M	Viewsonic 14" monitor
K66	8		Ethernet Cable, 10' length w/ BNC Connector
K66	2		BNC Male Terminator
K66	5		BNC T Connector
K66	2		BNC Coupler F/F
K67	2	VIE-E641-1M	Viewsonic 14" monitor
K68	2	VIE-E641-1M	Viewsonic 14" monitor

USAID Institutional Based Services-Energy Project
Contract No CCN-0002-Q-00-3152-00 &
Contract No CCN-0002-C-00-3151-00

LETTER OF RECEIPT AND ACCEPTANCE OF EQUIPMENT

As an authorized representative of ZHYTOMYROBLENERGO, the organization designated by the United States Agency for International Development to receive contractor-acquired property under the terms of Contract No CCN-0002-C-00-3151-00 & CCN-0002-Q-00-3152-00 issued by the United States Agency for International Development to Hagler Bailly Services, Inc , I hereby acknowledge receipt and acceptance of the property described in the attached table on behalf of ZHYTOMYROBLENERGO I understand that ownership and title of this property will remain with the United States Agency for International Development, c/o Hagler Bailly, until the title and ownership can be formally transferred at the end of Hagler Bailly's contract At that time providing Hagler Bailly obtains written approval from the United States Agency for International Development, the title and ownership will be transferred and validated in writing Otherwise, the equipment will be returned to Hagler Bailly pending disposition instructions from the United States Agency for International Development

As an authorized representative of ZHYTOMYROBLENERGO, I agree to make every reasonable effort to cooperate with Hagler Bailly in conforming with Hagler Bailly's system to control, protect, preserve and maintain all Government Property

I confirm that the following contract information is accurate **

Oblenergo Name ZHYTOMYROBLENERGO

Oblenergo Address (data on file)
Attention
Phone Number
Fax Number

For ZHYTOMYROBLENERGO

Signed (Signature on file)

Name

Title

Date

* Please also sign at the bottom of the attached table
** Please complete or correct if necessary The information should be detailed and accurate

Annex A

7 B0XES
Box Number L69, L70, L71, L72, L73, L74, L75

Name of Oblenergo Zhytomyr

BOX #	QTY	MODEL #	ITEM DESCRIPTION*
L69	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
L69	2		APC BACK UPS 600 INTL 220#
L69	1	HPC-C3980	HP LaserJet 6P 220V
L69	3		USRO SPROT 33 6 EXT
---	---	---	---
L70	1	HPC-C3141A	LaserJet 4V Printer 4MB, 16ppm, 600dpi, with toner
L70	2	CPQ-243900-003	WORK STATIONS, DESKPRO 2000 5/133 16/1200
---	---	---	---
L71	1	818075	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
L71	4	APC-AP6001	APC BACK UPS 600 INTL 220#
L71	3		USRO SPROT 33 6 EXT
L71	1		BORL INTERBASE 4 2W NT
L71	2		UPS, Back Up Tripp-Lite INT 450VA, 220V/50Hz
L71	2	APC-APSA-N7	220V Surge Protector
L71	2		Spare Battery Pack for UPS For APC Smart UPS 700
L71	8		Ethernet Cable, 10' length w/ BNC Connector
L71	2		BNC Male Terminator
L71	5		BNC T Connector
L71	2		BNC Coupler F/F
---	---	---	---
L72	1	818075	FILE SERVER, CMPQ PRS 300 P150 16/2 1G
L72	4	HPC-C3900A	Toner Cartridge
L72	4	HPC-3903A	Toner Cartridge
L72	2	CPQ-243900-003	UPS, Back Up, Tripp-Lite INT 450VA, 220V/50Hz
---	---	---	---
L73	2	VIE-E641-1M	Viewsonic 14" monitor
L74	2	VIE-E641-1M	Viewsonic 14' monitor
L75	2		NEC 14" C400 28NI MONITOR

APPENDIX C

Name of Oblenergo Dnipropetrovsk

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR 1204-B	220V Power Supplies	23 76	23 76
1	HPC C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
1	APN APSA-N7	220V Surge Protector	35 65	35 65
4	HPC C3900A	Toner Cartridge	134 08	536 32
1	HPC C3980 #ABB	HP LaserJet 6P 220V	713 38	713 38
1	APC-APSA N7	220V Surge Protector	35 65	35 65
4	HPC 3903A	Toner Cartridge	70 62	282 48
6		WORK STATIONS	1 805 00	10 830 00
	CPQ-243900 003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B COM-2	3 COM NIC		
	CPO-185432 001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641-1M	Viewsonic 14 monitor		
6		UPS Back Up Tripp-Lite Smart INT 450VA 220V/50 Hz	259 00	1554 00
5	USR-1202 B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG 58A/U	Ethernet Cable 10 length with BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	112575	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	77 00
1	146365	BORL INTERBASE 4 2W NT	760 00	760 00
5	577520	USRO SPROT 33 6 EXT	154 00	770 00
7		Power cord	3 60	25 20
2		Printer Interface Cable	3 00	6 00
5		Modem cable	2 75	13 75
5		Modem Power Supply 220V	12 50	62 50
		TOTAL VALUE	$23 584 95	

Name Main Information Center of Minenergo

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR-1204 B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm, 600dpi with toner	1 822 57	1 822 57
1	APC- APSA N7	220V Surge Protector	35 65	35 65
4	HPC C3900A	Toner Cartridge	134 08	536 32
1	HPC C3980 #ABB	HP LaserJet 6P 220V	713 38	713 38
1	APN APSA-N7	220V Surge Protector	35 65	35 65
4	HPC-3903A	Toner Cartridge	70 62	282 48
2		WORK STATIONS	1 805 00	3 610 00
	CPQ-243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641 1M	Viewsonic 14 monitor		
2		UPS Back Up Tripp Lite Smart INT 450VA 220V/50Hz	259 00	518 00
4	USR-1202-B	220V Power Supplies	17 65	70 60
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	112575	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare battery Pack for UPS For APC Smart UPS 700	77 00	77 00
		BORL INTERBASE 4 2W NT		
2		USRO SPROT 33 6 EXT	760 00	1 520 00
3			154 00	462 00
3		Power cord	3 60	10 80
2		Printer Interface Cable	3 00	6 00
3		Modem Cable	2 75	8 25
3		Modem Power Supply	12 50	37 50
		TOTAL VALUE	$15 718 40	

Name of Oblenergo Chernivtsi

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR-1204-B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB, 16ppm, 600dpi with toner	1 822 57	1 822 57
4	HPC C3900A	Toner Cartridge	134 08	536 32
1	APN-APSA-N7	220V Surge Protector	35 65	35 65
6		WORK STATIONS	1 805 00	3 610 00
	CPQ-243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM 2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE E641-1M	Viewsonic 14 monitor		
6		UPS Back Up Tripp-Lite Smart INT 450VA 2220V/50Hz	259 00	1554 00
5	USR 1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare battery Pack for UPS For APC Smart UPS 700	77 00	77 00
		BORL INTERBASE 4 2W NT		
1	153632	USRO SPROT 33 6 EXT	760 00	760 00
5			154 00	770 00
7		Power Cord	3 60	25 20
1		Printer Interface Cable	3 00	3 00
5		Modem Cable	2 75	13 75
5		Modem Power Supply	12 50	62 50
		TOTAL VALUE	$15 360 44	

Name of Oblenergo Chernigiv

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR-1204 B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
1	APC- APSA N7	220V Surge Protector	35 65	35 65
4	HPC-C3900A	Toner Cartridge	134 08	536 32
1	HPC-C3980	HP LaserJet 6P 220V	713 38	4 280 28
6	#ABB			
1	APN-APSA-N7	220V Surge Protector	35 65	35 65
4	HPC-3903A	Toner Cartridge	70 62	282 48
3		WORK STATIONS	1 805 00	5 415 00
	CPQ-243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO 185432-001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE E641 1M	Viewsonic 14 monitor		
3		UPS Back UP Tripp-Lite Smart, INT 450VA 220V/50Hz	259 00	777 00
5	USR-1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
2	818075	FILE SERVER	5 887 19	11 774 38
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DIAL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BIO NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
2		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	154 00
2	146365	BORL INTERBASE 4 2W NT	760 00	1 520 00
5	577520	USRO SPROT 33 6 EXT	154 00	770 00
5		Power Cord	3 60	18 00
2		Printer Interface Cable	3 00	6 00
5		Modem Cable	2 75	13 75
5		Modem power Supply	12 50	62 50
		TOTAL VALUE	$27 676 84	

Name of Oblenergo Cherkasy

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR-1204 B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
1	APN- APSA-N7	220V Surge Protector	35 65	35 65
1	HPC-C3900A	Toner Cartridge	134 08	536 32
6		WORK STATIONS	1 805 00	3 610 00
	CPQ-243900 003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC AP6001	APC SMARTUPS 6001		
	VIE E641 1M	Viewsonic 14 monitor		
6		UPS Back Up Tripp Lite Smart INT 450VA 220V/50Hz	259 00	1554 00
5	USR-1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1		FILE SERVER	5 887 19	5 887 19
	818075	CMPQ PRS 300 P150 16/2 1G		
	132354	CMPQ 2 1GB SCSI2 HD PROS		
	275832	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	77 00
1	146365	BORL INTERBASE 4 2W NT	760 00	760 00
5	577520	USRO SPROT 33 6 EXT	154 00	770 00
7		Power Cord	3 60	25 20
2		Printer Interface Cable	3 00	6 00
5		Modem Cable	2 75	13 75
5		Modem Power Supply	12 50	62 50
3	HPC-3900A	Toner Cartridge (replacement for missing ones)	134 00	402 00
		TOTAL VALUE	$15 735 44	

Name of Oblenergo Khmelnytsky

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURREN T VALUE
1	USR-1204-B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
1	APN- APSA N7	220V Surge Protector	35 65	35 65
4	HPC-C3900A	Toner Cartridge	134 08	536 32
3		WORK STATIONS		
	CPQ-243900 003	DESKPRO 2000 5/133 16/1200	1 805 00	5 415 00
	BCO3C509B-COM-2	3 COM NIC		
	CPO-185432 001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE E641 1M	Viewsonic 14 monitor		
3		UPS Back Up Tripp-Lite Smart INT 450VA 220V/50Hz	259 00	777 00
4	USR-1202 B	220V Power Supplies	17 65	70 60
		NETWORK CABLING		
100	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	475 00
30		BNC Male Terminator	4 15	124 50
70		BNC T Connector	2 25	157 50
30		BNC Coupler F/F	1 85	55 50
11		Thermal Fax Machine	320 00	3 520 00
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	115474	CMPQ5GB DAT DRIVE		
	443982	NEC 14 C400 28NI MONITOR		
	629884	APC BACK UPS 600 INTL 220#		
	114672	KEYT CRY/RUSSIAN 102 KYBD		
	112575	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	77 00
		BORL INTERBASE 4 2W NT		
1	153632	USRO SPROT 33 6 EXT	760 00	760 00
4	577520		154 00	616 00
4		Power Cord	3 60	14 40
1		Printer Interface Cable	3 00	3 00
4		Modem Cable	2 75	11 00
4		Modem Power Supply	12 50	50 00
		TOTAL VALUE	$20 431 99	

Name of Oblenergo Kirovograd

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	USR 1204-B	220V Power Supplies	23 76	23 76
1	HPC C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
1	APC APSA N7	220V Surge Protector	35 65	35 65
1	HPC-C3900A	Toner Cartridge	134 08	536 32
1	HPC-C3980 #ABB	HP LaserJet 6P 220V	713 38	713 38
1	APN-APSA N7	220V Surge Protector	35 65	35 65
4	HPC-3903A	Toner Cartridge	70 62	282 48
6		WORK STATIONS	1 805 00	10 830 00
	CPQ 243900 003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B COM-2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641 1M	Viewsonic 14 monitor		
6		UPS Back Up Tripp-Lite Smart INT 450 VA 220V/50Hz	259 00	1554 00
4	USR-1202 B	220V Power Supplies	17 65	70 60
		NETWORK CABLING		
8	RG 58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DIAL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BIO NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
	146365	Spare Battery Pack for UPS For APC Smart UPS		
	577520	700		
1		BORL INTERBASE 4 2W NT	760 00	760 00
5		USRO SPROT 33 6 EXT	154 00	770 00
7		Power Cord	3 60	25 20
2		Printer Interface Cable	3 00	6 00
5		Modem Cable	2 75	13 75
5		Modem Power Supply	12 50	62 50
3	HPC-3900A	Toner Cartridge (replacement for missing ones)	134 00	402 00
		TOTAL VALUE	$23 892 30	

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Name of Oblenergo Lviv

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
2	USR-1204-B	220V Power Supplies	23 76	47 52
2	HPC C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	3 645 14
8	HPC-C3900A	Toner Cartridge	134 08	1 072 64
2	APN APSA N7	220V Surge Protector	35 65	71 30
3		WORK STATIONS		
	CPQ 243900 003	DESKPRO 2000 5/133 16/1200	1 805 00	5 415 00
	BCO3C509B COM-2	3 COM NIC		
	CPO 185432 001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641-1M	Viewsonic 14 monitor		
3		UPS Back UP Tripp-Lite Smart INT 450VA 220V/50Hz	259 00	777 00
5	USR-1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
2	818075	FILE SERVER	5 887 19	11 774 38
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
2		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	154 00
2	146635	BORL INTERBASE 4 2W NT	760 00	1 520 00
4	577520	USRO SPROT 33 6 EXT	154 00	616 00
5		Power Cord	3 60	18 00
2		Printer Interface Cable	3 00	6 00
4		Modem Cable	2 75	11 00
4		Modem Power Supply	12 50	50 00
		TOTAL VALUE	$25 327 48	

Name of Oblenergo Vinnytsva

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURREN T VALUE
2	USR 1204-B	220V Power Supplies	23 76	47 52
2	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	3 645 14
8	HPC C3900A	Toner Cartridge	134 08	1 072 64
2	APN APSA-N7	220V Surge Protector	35 65	71 30
4		WORK STATIONS	1 805 00	7 220 00
	CPQ 243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO 185432-001	256K CACHE U/G		
	CYN-CYRILLIC	Cyrillic Keyboard		
	APC AP6001	APC SMARTUPS 6001		
	VIE-E641-1M	Viewsonic 14 monitor		
4		UPS Back Up Tripp Lite Smart INT 450VA 220V/50Hz	259 00	1036 00
6	USR-1202-B	220V Power Supplies	17 65	105 90
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
2	818075	FILE SERVER	5 887 19	11 774 38
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
2		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	154 00
2	153632	BORL INTERBASE 4 2W NT	760 00	1 520 00
6	577520	USRO SPROT 33 6 EXT	154 00	924 00
6		Power Cord	3 60	21 60
2		Printer Interface Cable	3 00	6 00
6		Modem Cable	2 75	16 50
6		Modem Power Supply	12 50	75 00
		TOTAL VALUE	$27 751 23	

Name of Oblenergo Ternopil

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURREN T VALUE
1	USR 1204-B	220V Power Supplies	23 76	23 76
1	HPC C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
4	HPC C3900A	Toner Cartridge	134 08	536 32
1	APN APSA-N7	220V Surge Protector	35 65	35 65
6		WORK STATIONS	1 805 00	10 830 00
	CPQ-243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641 1M	Viewsonic 14 monitor		
6		UPS Back Up Tripp Lite Smart INTY 450VA 220V/50Hz	259 00	1554 00
5	USR-1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG 58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	77 00
1	153632	BORL INTERBASE 4 2W NT	760 00	760 00
5	577520	USRO SPROT 33 6 EXT	154 00	770 00
5		Power Cord	3 60	18 00
1		Printer Interface Cable	3 00	3 00
5		Modem Cable	2 75	13 75
5		Modem Power supply	12 50	62 5
		TOTAL VALUE	$22 543 24	

Name of Oblenergo Zaporizhzhva

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURREN T VALUE
1	USR 1204-B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
	APC-APSA-N7	220V Surge Protector	35 65	35 65
4	HPC-C3900A	Toner Cartridge	134 08	536 32
1	HPC-C3980	HP LaserJet 6P 220V	713 38	713 38
1	APN-APSA-N7	220V Surge Protector	35 65	35 65
4	HPC-3903A	Toner Cartridge	70 62	282 48
6		WORK STATIONS	1 805 00	10 830 00
	CPQ 243900 003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B COM-2	3 COM NIC		
	CPO-185432 001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641-1M	Viewsonic 14 monitor		
6		UPS Back-up Tripp-Lite Smart INT 450VA 220V/50Hz	259 00	1554 00
5	USR 1202-B	220V Power Supplies	17 65	88 25
		NETWORK CABLING		
8	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 75	38 00
2		BNC Male Terminator	4 15	8 30
5		BNC T Connector	2 25	11 25
2		BNC Coupler F/F	1 85	3 70
1	818075	FILE SERVER	5 887 19	5 887 19
	132354	CMPQ PRS 300 P150 16/2 1G		
	275832	CMPQ 2 1GB SCSI2 HD PROS		
	152304	NETELLIGENT DAUL10/100 PC		
	562124	CMPQ5GB DAT DRIVE		
	115474	NEC 14 C400 28NI MONITOR		
	443982	APC BACK UPS 600 INTL 220#		
	629884	KEYT CRY/RUSSIAN 102 KYBD		
	114672	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	113964	CMPQ PROL 16 MB 60NS KIT		
	137646	MS WIN NT SERVER 4 0 5USER		
1		Spare Battery Pack for UPS For APC Smart UPS 700	77 00	77 00
1	153632	BORL INTERBASE 4 2W NT	760 00	760 00
5	577520	USRO SPROT 33 6 EXT	154 00	770 00
7		Power Cord	3 60	25 20
2		Printer Interface Cable	3 00	6 00
5		Modem Cable	2 75	13 75
5		Modem Power Supply	12 50	62 50
2	HPC-3903A	Toner Cartridge (replacement for missing)	70 62	141 24
1	APC E1)-G	220V Surge Protector (replacement for missing)	30 00	30 00
		TOTAL VALUE	$23 756 19	

Name of Oblenergo Zhytomyr

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURREN T VALUE
1	USR-1204-B	220V Power Supplies	23 76	23 76
1	HPC-C3141A #ABA	LaserJet 4V Printer 4MB 16ppm 600dpi with toner	1 822 57	1 822 57
	APC APSA N7	220V Surge Protector	35 65	35 65
4	HPC C3900A	Toner Cartridge	134 08	536 32
1	HPC C3980	HP LaserJet 6P 220V	713 38	713 38
1	APN APSA N7	220V Surge Protector	35 65	35 65
4	HPC-3903A	Toner Cartridge	35 65	142 60
4		WORK STATIONS	1 805 00	7 220 00
	CPQ-243900-003	DESKPRO 2000 5/133 16/1200		
	BCO3C509B-COM-2	3 COM NIC		
	CPO-185432-001	256K CACHE U/G		
	CYN CYRILLIC	Cyrillic Keyboard		
	APC-AP6001	APC SMARTUPS 6001		
	VIE-E641-1M	Viewsonic 14 monitor		
4		UPS Back Up Tripp-Lite INT 450VA 220V/50Hz	259 00	1036 00
6	USR 1202-B	220V Power Supplies	17 65	105 90
		NETWORK CABLING		
		Ethernet Cable 10 length w/ BNC Connector		
8	RG-58A/U	BNC Male Terminator	4 75	38 00
2		BNC T Connector	4 15	8 30
5		BNC Coupler F/F	2 25	11 25
2			1 85	3 70
		FILE SERVER		
2	818075	CMPQ PRS 300 P150 16/2 1G	5 887 19	11 774 38
	132354	CMPQ 2 1GB SCSI2 HD PROS		
	275832	NETELLIGENT DAUL10/100 PC		
	152304	CMPQ5GB DAT DRIVE		
	562124	NEC 14 C400 28NI MONITOR		
	115474	APC BACK UPS 600 INTL 220#		
	443982	KEYT CRY/RUSSIAN 102 KYBD		
	629884	CIS BID NETWORK SERVICES		
	114672	CMPQ PROL 32 MB 60NS		
	114672	CMPQ PROL 16 MB 60NS KIT		
	113964	MS WIN NT SERVER 4 0 5USER		
2	137646	Spare Battery Pack for UPS For APC Smart UPS 700	77 00	154 00
		BORL INTERBASE 4 2W NT		
1	153632	USRO SPROT 33 6 EXT	760 00	760 00
6	577520		154 00	924 00
7		Power Cord	3 60	21 60
2		Printer Interface Cable	3 00	6 00
6		Modem Cable	2 75	16 50
6		Modem Power Supply	12 50	75 00

TOTAL VALUE $25 464 56

Hagler Bailly

QTY	MODEL #	ITEM DESCRIPTION*	UNIT PRICE	TOTAL PRICE/ CURRENT VALUE
1	CPQ-197416 001	Spare Power Supply	244 00	244 00
4		NETWORK CABLING	4 75	17 00
6	RG-58A/U	Ethernet Cable 10 length w/ BNC Connector	4 15	24 90
10		BNC Male Terminator	2 25	22 50
6		BNC T Connector	1 85	11 10
		BNC Coupler F/F		
2	153632	BORL INTERBASE 4 2 LOCAL 20 P	2 325 00	4 650 00

TOTAL VALUE $4 969 50