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UKRAINE LOCAL ELECTRIC COMPANIES
FINANCIAL REPORTING SYSTEMS (TASK C 1)

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 18

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

The Scope of Work for this project includes advising the Local Electric Companies (LECs) in Ukraine on an information systems strategy to improve accounting and financial management Specifically, Task III C (1) states

> "Assist in implementation of a defined limited scope of IAS and financial reporting system (budget, funds management and revenue forecast, financial planning, etc)"

In line with the task, there is a specific deliverable in the LEC section

> "3 Documentation on a defined limited scope of IAS and financial reporting system implementation"

The comprehensive project report in Appendix A presents reasonable and feasible methods for improving accounting and financial management at these enterprises The scope of the study was to provide guidance to the LECs in formulating a solution to accomplish

- Financial Accounting in accordance with International Accounting Standards (IAS)
- Financial Accounting to meet Ukrainian accounting and tax regulations
- Reporting to the National Electricity Regulatory Commission (NERC) and other government bodies
- Management Accounting and reporting including budgeting and forecasting by cost center

Three LECs (L'viv, Vinnitsa, and Khmelnitsky Oblenergos) were chosen to provide a sample to conduct the research The team spent considerable time at each of the 3 LECs observing processes and conducting interviews at the headquarters, division (PEM), and district (REM) offices The information flows and existing hardware, software, and communications equipment were studied The organizational structures of the accounting, sales and information technology functional areas were also reviewed Once the needs analysis was made, requirements were identified and appropriate software solutions of a variety of vendors were identified and studied

A high priority was placed on solutions which could reasonably be put in place in the near term given the financial and personnel resources available Besides the usual financial

system needs of an enterprise, the LECs wanting to implement IAS must select a system that will also allow them to continue to follow Ukrainian accounting for government reporting and taxation purposes Three categories of software options were identified to address the needs, available packages were identified, and the functionality, cost and resource needs of each category were outlined Mid range solutions were concentrated on most heavily and, for those LECs without the resources (personnel, funds, etc) to implement that level of system, less costly start-up options were outlined

The report was prepared by Pricewaterhouse Coopers working with in coordination with Hagler Bailly under the Ukraine Power Sector Reform program sponsored by the United States Agency for International Development

APPENDIX A

Ukraine Power Sector Reform
Local Electric Companies
Accounting and Financial Management
Systems Strategy

UKRAINE POWER SECTOR REFORM
LOCAL ELECTRIC COMPANIES

Accounting and Financial Management Systems Strategy

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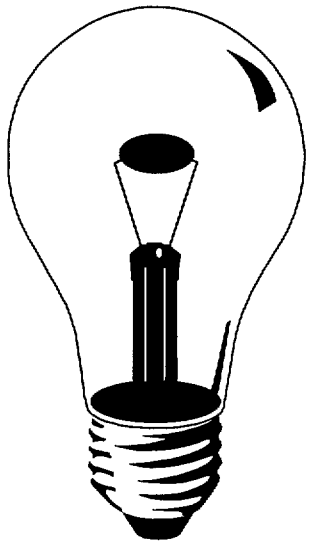

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1 Purpose of the Study

The objective of this report is to define a high-level information systems strategy for the companies making up the regulated electricity supply and distribution sector in Ukraine This information systems strategy provides a reasonable and feasible method for improving accounting and financial management at these 27 Local Electric Companies (LECs) Its core is the implementation of an automated system supporting International Accounting Standards This study should form the basis of an action plan for detailed design, procurement, and implementation of financial management solutions at the individual corporate entities

This study places a high priority on the design of a solution that can be reasonably put in place within the next two years, taking into account the financial and other constraints in the sector This necessarily involves tradeoffs of functionality Our study, unlike previous plans for the Ukraine electrical sector, does not recommend implementation of a comprehensive software package incorporating both financial and non-financial (e g , sales, inventory, maintenance) business functionality Such plans have to-date proved to be too ambitions and ours is more modest The solution suggested will be more than a short-term fix and should meet the core accounting and financial management needs of the LECs into the foreseeable future However, we recognize that even such a moderate goal may be beyond the reach of some LECs and accordingly we also outline an interim strategy for such enterprises

This report has been prepared by Pricewaterhouse Coopers, working in coordination with Hagler Bailly Consulting, as part of the Ukraine Power Sector Reform program sponsored by the United States Agency for International Development

2 Scope of the Study

For the purposes of this study, accounting and financial management includes the following

- Financial Accounting according to International Accounting Standards (IAS) This is a core requirement to provide accurate and transparent financial figures for management and for interested outside parties
- Financial Accounting according to Ukrainian Accounting Regulations (UAR) This is required of all companies in Ukraine for tax reporting and compliance with other statutory requirements
- Cost and Profit Center Accounting, sufficiently detailed for both management purposes and to allow operation in a regime of regulated tariffs It is anticipated that the National Electricity Regulatory Commission (NERC) will soon require detailed "rate case" studies to justify tariffs
- Budgeting for Capital and Operation Expenses
- Revenue Forecast and Cash Management

Other business functions, including purchasing and energy sales, are outside the scope this study However, we do consider the needs for information exchange between those functions and the finance function

3 High Level Recommendations

The enterprises making up the Ukrainian local electric distribution sector are a far from homogenous group and there can be no single information systems solution for the entire sector Attempts by the Ministry of Energy and others to mandate a single system for the entire sector have so far been unsuccessful and are not likely to succeed in the future, because of the high capital and expertise requirements associated with these solutions Rather than following a top-down set of mandates, each enterprise should make its own information systems decisions, driven by its own business needs and ability to invest in systems This becomes especially important as newly privatized utilities seek foreign investment and take on strategic partners with their own information systems and data management strategies There are, however, sufficient similarities among the LECs for the following overall recommendations to be valid

LEC Accounting and Financial Management information system needs can be best met in the medium-term by the implementation of package software classified as a mid-range accounting system More sophisticated enterprise software is not a reasonable option at present, given the fiscal constraints and the technical and business environments at the LECs On the other hand, less sophisticated software, while a viable short-term solution for some LECs that are unable to implement more expensive solutions, does not meet important business requirements, including comprehensive support for International Accounting Standards

A mid-range solution offers a high probability of delivering tangible business benefits within a reasonable timeframe at a reasonable cost

Following a strategy based around mid-range software, LECs have a choice between two packages localized and adequately supported in Ukraine Either one should provide a generally acceptable solution, but each LEC should make individually choose between the two based on

- Specific local functional needs, such as a requirement for Ukrainian language systems operation
- Cost of the software, following negotiations with the vendors
- Implementation assistance proposed by the software vendor or a third-party implementor
- Information systems already being used by likely investors or strategic partners

4 Business and Regulatory Environment

The following sections provide an overview of the business and regulatory environment which Ukrainian Local Electric Companies operate in

4 1 Overview of the Ukrainian Electric Sector

In May, 1994, the Ukrainian government instituted a radical reform of the electricity sector This reform mandated the development of a UK-style competitive national wholesale market for power As a result of this restructuring the number of core enterprises within the sector increased from eight to over thirty

State policy for the electric sector is instituted by the Ministry of Energy, which controls state shares in all electricity enterprises The National Electricity Regulatory Commission (NERC) issues licenses to all operators in the sector and is responsible for regulatory matters

Wholesale power generation is provided by four joint-stock thermal power utilities (GENCOs), two hydroelectric power utilities, and by a state-controlled nuclear power body

A national transmission grid company, commonly called the National Electricity Company (NEC), operates the high-voltage grid (220KV and above) The NEC has recently been merged with another state-owned entity which has the responsibility for technical dispatch of electricity through the National Dispatch Center (NDC) and a network of Regional Dispatch Centers (RDC) There are currently links between the NDC and the Energomarket, the power pool body which has responsibility for settlement of accounts between the generating companies and distribution companies The Government of Ukraine's Financial Recovery Plan for the sector mandates that this market function be split from the technical dispatch function, however it is unclear at this stage how or when this will be accomplished

Regional power distribution is provided by 27 Local Electric Companies These companies are the focus of the current study and are described in additional detail below

4 2 The Regulatory Environment in Ukraine

Regulation of the power sector is the responsibility of the National Electricity Regulatory Commission NERC issues licenses to all operators in the sector, including the principal power enterprises described above as well as independent suppliers of electricity, monitors the activities of these entities, and regulates tariffs

NERC divides power-sector operations into generation, distribution, and supply Distribution refers to the technical delivery of electricity from a generator to a customer, while supply refers to the sales and customer service aspects of the market Distribution

is highly regulated, due to the monopoly nature of the required infrastructure, and tariffs are set by the government It is anticipated that tariffs will soon be set on a cost-plus basis There are two types of suppliers – regulated and non-regulated The LECs as the traditional regional distribution and supply entities fall into the regulated category Similarly, generation is also currently highly regulated but is expected to operate on a fully competitive basis in the future

From a financial management systems viewpoint, this regulatory environment mandates detailed tracking of costs and revenues Such information must be tracked in at least two dimensions, referring to licensed activity type (generation, distribution, or supply) and expense classification (e g , fuel, electricity, social taxes, etc) This is in addition to internally defined requirements for management purposes Information requirements are further detailed in Appendix 3

4 3 Local Electric Companies

Electrical supply and distribution to residential and non-residential customers is provided by 27 enterprises, known as LECs or Oblenergos, responsible for the 24 Oblasts, Republic of Crimea, and the cities of Kyiv and Sevastopol These companies purchase electricity from the Energomarket and in turn sell it to their customers Oblenergos are also required to transmit, for a fee, energy from independent suppliers to customers in their territory Some Oblenergos generate small amounts of electricity themselves, mainly as a by-product of heat production (Kyivenergo is an exception, with significant generation facilities of its own) The Oblenergos are predominantly state owned but the government is in the process of privatizing them The ability to produce accurate and transparent accounting statements can be of major assistance to this process

There is currently a serious payments problem at LECs and indirectly across other entities in the electricity sector Typically only 10-15% of electricity sales at a given LEC are settled in cash, with the remainder being settled through barter and promissory notes As a result, LECs are unable to pay in cash for wholesale power, and thereby extend the payments problem to the Energomarket and the GENCOs This has implications for financial management systems, as accurate tracking of non-cash payments becomes central to their function

The Oblenergos are generally structured according to a common three level plan Each has a Head Office in the capital city of the Oblast where corporate management is located At the second level, 2-3 offices known as PEMs (sometimes referred to as "Divisions" in English) manage the technical and business functions relating to electricity in geographically defined regions At the lowest level, regional offices or REMs ("Districts") report to the PEMs and are each responsible for a local area There are typically 20-25 REMs in an Oblenergo Alongside this structure exist parallel organizations, reporting directly to Oblenergo Head Office, responsible for Heat Supply, repairs, and electrical adjustment The future status of the Heat Supply units is unclear, according to current legislation, they will not be privatized along with the core Oblenergo

The following paragraphs provide additional information on the structure of the Accounting and Financial Management Function and the Information Technology Function at Local Electric Companies The information is presented in a generalized form, to reflect commonalities between the individual companies

4 3 1 Accounting and Financial Management Structure at Local Electric Companies

There are typically three overall departments involved in the accounting and financial management function

- The Accounting Department proper, headed by a Chief Accountant Responsibilities include booking of transactions in accordance with UAR, preparation of periodic UAR financial reports, preparation of other specific reports for the Ministry of Statistics and Ministry of Energy, and managing cash in bank accounts
- The Economics Department, headed by a Chief Economist Responsibilities include corporate planning and budgeting, profitability and loss analysis, cash flow forecasting, and planning for electricity production and purchase
- The Energy Sales Department, which is responsible for sales and collections and which provides source data to the Accounting department

For the purposes of this study, the Accounting Department is of prime significance This department can be expected to be responsible for ensuring that all financial information is properly classified and stored (including sales information from the Energy Sales Department) and available for reporting and analytical needs

The structure of the accounting department at Local Electric Companies mirrors the overall organization, with the work being divided between the three levels of offices Typically the Chief Accountant at the Head Office is the organizational head of the accounting departments at each level, however actual supervision and responsibility of these lower level offices varies among the LECs

The REMs are usually staffed by two accountants, each of whom may have several assistants One accountant is responsible for processing electricity sales, billings, and collections on an operational level This person will aggregate sales data and send it up the line (usually to PEM level, occasionally directly to Head Office) in a monthly paper-based report The second accountant is responsible for inventory, local fixed assets, and payment of salaries and local taxes These taxes are flat (i e , assessed on property or salaries) and do not require any calculation of profit & loss at the REM level This second accountant also passes summary data upward through periodic paper-based reports

It is at the PEM level that significant accounting first takes place in most LECs A mid-sized Oblenenergo might have 10-15 accountants in each PEM A PEM will consolidate data from the REMs that report to it and book transactions according to UAR standards It will then usually prepare what is known as an "Incomplete Balance Sheet", which lacks information on sales and revenues This information will be passed upwards to the Head Office It should be noted that only summarized information is passed upwards, thus the

Head Office accounting department lacks the capability to "drill down" to individual transactions

The Head Office accounting department aggregates PEM (or, in at least one LEC, REM) data, including aggregated sales data, and produce quarterly balance sheets and income statements It will also aggregate the data provided by heating subsidiaries and service subsidiaries (i e , meter installation bureau) This does not involve consolidation in an IAS sense (i e , there are no IAS-style intercompany eliminations) A General Ledger is maintained for the entire LEC The Head Office is responsible for reporting to the Tax Inspectorate, Ministry of Statistics, Ministry of Energy, and NERC The Head Office pays all taxes which are computed on a profit or loss basis The Head Office Accounting or Sales Department is also usually responsible for approving those payments made through barter or transfer order (promissory note), which collectively make up 80-90% of booked revenues A mid-sized Oblenergo might have 10-20 accountants working at Head Office

4 3 2 Existing Information Technology at Local Electric Companies

From an organization standpoint the Information Technology Function parallels the overall structure A Manager or Director leads the Head Office IT Department, with PEM-level IT managers usually reporting to him REMs may have dedicated IT personnel, typically reporting to the PEM IT manager If no dedicated personnel are available, IT needs are serviced directly out of the PEM IT staff are highly skilled with a strong technological focus but may lack understanding of business issues and their implications on applications software

Hardware and Software vary widely between LECs, with better funded IT departments having much higher quality and quantity of equipment The following overall patterns hold, in our experience, between Oblenergos

- General reliance on Intel-based microcomputer systems These range from i286 models to Pentiums and are from a wide variety of manufacturers Typically older computers sit in the branch offices and newer in the Head Offices
- Microcomputer operating systems of DOS, Windows 3 11, and Windows 95 Older hardware is often incapable of running Windows
- Energy Dispatch systems based on domestically manufactured mainframes Moves have been made to replace these with modern microcomputers The Dispatch systems are supported by older telemetry systems
- Dot-matrix printer technology (either of Western make or Soviet-era mainframe printers) for most business uses Older printers are incapable of producing reports in Ukrainian
- Some form of Local Area Network in Head Offices, and sometimes in PEM offices This is usually 10mbs coaxial Ethernet, operating without hubs or switches and employing TCI/IP or Novell Networking protocols Occasionally older network technology is found
- Connectivity to the *Energia* Wide Area TCP/IP network, operated by the Ministry of Energy This provides email access to other Electric Sector entities and to the Internet and is widely used to exchange reports with the Ministry of Energy, NERC, and Energomarket Typically only the Head Office is connected to *Energia*, although there are cases of PEM connectivity There are plans to connect REMs through dial-up telephone lines (either for full WAN access or for limited report passing), but the poor telephone infrastructure in Ukraine renders this impractical in many regions
- Stand-alone or File-Server operating modes for most business applications, with little use of client-server technology
- Operating language for business applications is typically Ukrainian in Western Ukraine and Russian in other regions
- Limited integration between business systems This requires considerable manual re-entry of data, with resultant problems of accuracy

- Processing is performed in real-time or with a live user interface, with little use of background (batch) processing
- Technologies for data backup and disaster recovery are unsophisticated, often consisting of simple copying of key files to floppy disk

5 Information Systems Solutions for Accounting and Financial Management

5 1 Target Applications for Accounting and Financial Management

The following table delineates five target applications making up an Accounting and Financial Management solution, along with the baseline business functionality required by each such application

Target Applications	Business Justification	Baseline Requirements
IAS Accounting System	Adoption of International Accounting Standards (IAS) will increase transparency This will not only provide direct benefits to management, but will also be of interest to potential outside investors	• Support for periodic production of standard IAS reports • Online access to trial balances in accordance with IAS • Coding and tracking of individual transactions according to IAS, to support accuracy, auditability and drill-down • Support for IAS consolidation • Accounting for transactions using Barter, Mutual Cancellation, or Transfer Orders • Comprehensive controls and security features
UAR Accounting System	Financial reporting in accordance with Ukrainian Accounting Regulations is required for statutory compliance	• Support for periodic production of standard UAR reports, including any electrical industry specific reports • Online access to trial balances in accordance with UAR • Coding and tracking of individual transactions according to UAR, to support accuracy, tax auditability and drill-down • Accounting for transactions using Barter, Mutual Cancellation, or Transfer Orders • Comprehensive controls and security features
Cost Accounting System	Accurate tracking of costs is required by NERC for regulated suppliers of	• Ability to code transactions according to cost centers in at least four dimensions, in

Target Applications	Business Justification	Baseline Requirements
	electricity, in order to justify tariff levels Additional control benefits will accrue to management if an accurate view of Oblenergo costs is available	addition to IAS and UAR dimensions (required dimensions include licensed activity, office location, department, and likely management reporting based on expense category) • Report generator capable of producing NERC statutory reports on a timely basis
Budgeting System	Budgeting for capital and operational expenses will assist management in planning and control and are necessary for attracting outside investment	• Ability to assign budgetary targets to cost/profit centers defined in the cost accounting system • Reporting on variances between budgeted figures and actuals
Revenue Forecast and Funds Management System	Reliable estimates of cash flow are of interest to management and to outside investors Centralized funds management will assist management in planning expenditures and facilitate the payment process	• Ability to code transactions according to profit centers in at least four dimensions (in addition to IAS and UAR dimensions) • Report generation with trends based on historical data • Electronic interface to Ukrainian banks for account reconciliation purposes

5 2 High-Level Information Systems Design Strategy

We recommend that LEC financial information systems be designed around the following four core concepts

- Single Integrated System

The accounting and financial management business functions should be handled by a single integrated computer system in so far as this is possible Although the option of installing separate software systems for each target application is theoretically possible, it would involve heavy tradeoffs in functionality and maintainability and would at a minimum require a comprehensive system of custom-developed interfaces or significant manual intervention

We have considered the option of a separate system for Ukrainian statutory accounting, with IAS accounting and other financial management packages supported by a main software package This option is sometimes used in very small operations, such as Representative Offices of foreign firms It involves the manual entry of all accounting transactions into both systems, with a resulting high workload as well as problems of data entry error and data consistency This option is not feasible for LECs, because of the volume of accounting data that must be processed and checked for consistency

- Centralized Processing

This single integrated system should operate in a centralized processing mode All system hardware and software, with the exception of user interfaces, should be located in a single data center System users should be located, in so far as is possible, in the same physical site as the data center Users in remote locations will require network links to the data center which, given the existing telecommunications infrastructure in Ukraine, will require additional cost and effort

LEC accounting is currently typically divided between departments at Head Office, each PEM, and (on a small-scale and low-level) each REM We recommend that LECs consider transferring the PEM-level accounting to Head Office If this is not possible, it is feasible to construct data networks linking each PEM to the Head Office Such networks already exist in at least one LEC Linking REMs to the data center via real-time links is not commercially feasible Accordingly, REM-level accounting should continue in its current form, with responsibility only for passing primary documents and monthly summary data to the higher level offices Currently this data is transferred on paper but it should be possible to transfer it electronically in commonly accepted formats (e g , Excel, Xbase) This transfer can take place via modem where telephone lines of adequate quality exist and via physical movement of diskettes in other locations It should be noted that this strategy can also be used for transfer of energy sales data from REM to Head Office It should be noted that this strategy of passing only summary data will continue to limit "drill-down" to primary data for analysis, this is however a

necessary trade off if the expense of networking and fully computerizing each REM is to be avoided

- Commercially Available Package Software

A range of off-the-shelf integrated software packages fulfilling the general functional requirements of LEC accounting and financial management is available in Ukraine Implementation of package software is generally less costly and lower risk than custom development and also typically allows faster implementation time Accordingly we recommend such commercially available software for the Local Electric sector

- Focus on Accounting and Financial Management Target Applications

In order to achieve the successful implementation of an actual business solution it is vital to control scope Commercially available software exists which can perform business functions far beyond those required for accounting, but only at the cost of greatly increased complexity **It is vital that a focus on feasible and business-justified functionality be maintained if the implementation is to succeed in a timely fashion**

5 3 Information Technology Organizational Structure

LEC Information Technology departments, although capable, will require external assistance to implement business application solutions This support will have to come from either the software vendor, from a third-party consultant, or from a combination of the two Nonetheless, IT staff should participate closely in the implementation and will require specialized training in order to do this These staff will become key to maintaining the continuing operation of the system

LECs generally already have the basic organization in place to perform continuing support of a system designed around the above principles However, as with any such upgrade to technology, accompanying changes will likely be required to organization Key requirements of the IT function will include

- Centralized IT organization, to support the mandated centralized processing Local departments at PEMs and REMs should have a clear reporting structure to the Head Office IT Director

- Increased Focus on Business Systems IT staff must develop an understanding of the business needs underlying the new application software This should complement rather than replace existing technology-focused skills Training programs will likely be required for IT staff and management

- Technology skills must be oriented towards maintaining a modern infrastructure, not operating existing systems This will also likely require additional training for IT staff and management

- IT budgets will also increase to include the annual maintenance fees payable to application software vendors for continuing support of their products Enterprises implementing similar software should be encouraged to work together to arrange advantageous terms with software vendors

- IT staff size and overall departmental budget will likely be required to increase, not only to support the new application software but also to maintain the IT infrastructure improvements required for the new applications By working with other organizations implementing similar hardware and software solutions this can be controlled

5 4 Information Technology Infrastructure

It is of fundamental importance that any newly implemented business software solutions be based on a modern technology infrastructure This infrastructure should possess the following characteristics

- Reliance on readily available commercial-off-the-shelf hardware components Hardware should be available from multiple manufacturers and local distributors and should be easily serviced within Ukraine This requirement is met by such devices as Intel-based workstations and servers, RISC-based servers from several major vendors, and standard networking equipment from a range of vendors Precluded are proprietary solutions and systems of limited availability and support within Ukraine, such as large mainframes

- Adherence to "Open Systems" principles wherever practical, to support vendor independence This will allow competitive purchasing of add-on software and facilitate the development of interfaces and custom extensions by Oblenergo programmers

- Modern networking infrastructure supporting the TCP/IP protocol suite for Local Area Networks and, where such systems are feasible, Wide Area Networks

- Telecommunications subsystems capable of operating over existing dial-up analog lines or over dedicated data lines

- Fault-tolerant operating systems for shared server machines, such as UNIX or Windows NT

- Client-server technology basis for Oblenergo-wide business systems Smaller file-server based systems are not appropriate for corporate-wide applications, especially in an environment where users are potentially distributed between multiple offices Technologies based on terminals or network-computers may also be appropriate, provided sufficient networking infrastructure is in place

- File-server technology for smaller, departmental, applications as appropriate using NT or Novell Netware technologies

- Support for regular off-line backup of all systems and business data on a nightly basis

5 5 Software Options

There are three general types of package software available in Ukraine for accounting and financial management purposes

5 5 1 Enterprise Resource Planning Systems

An Enterprise Resource Planning system (ERP) is an integrated set of applications software that brings logistics, production, sales, maintenance, and other business functions into balance around a strong accounting core in a single unified system By having all facilities tied into a central financial system, an ERP permits real-time analysis of key issues for enterprises, including financials, quality, regulations, and performance Extending the functionality of a classical accounting system, an ERP receives trigger information from operations, distribution, and cross-functional modules so that appropriate decisions can be made quickly and efficiently On a technical level, ERP systems are designed to support the largest enterprises and provide nearly mainframe levels of robustness along with the ability to scale to the needs of global firms

Only one ERP system, SAP R/3, is fully localized for Ukrainian accounting requirements A second ERP, Oracle Applications, is in the process of localization for Ukraine and may be available with full local accounting functionality by the end of 1998 Both of these systems are detailed further in this report A third ERP, J D Edwards One World, is available in Russia and plans for Ukrainian localization have been reported As with mid-range classical accounting software, a fully localized ERP can provide true dual-accounting, with each transaction being coded individually according to both IAS and UAR standards, although we are not yet aware of any successfully completed ERP implementations within Ukraine which support both IAS and UAR

Enterprise Resource Planning systems represent the high-end of the business software market and would provide the most comprehensive functionality for a Local Electric Company Such software is becoming increasingly popular at large electric utilities in the United States and other Western nations and there is an initiative at Ukraine's Ministry of Energy to define SAP R/3 as standard software for all electricity enterprises However, the same integration and complexity that gives ERP software its functionality carries with it serious drawbacks These include high cost, difficult and time-consuming implementation, and complex continuing operation and maintenance

Pricewaterhouse Coopers possesses a long track record of successful implementations of both ERP and mid-range solutions and is well positioned to judge the relative complexity of implementing each Our specialists estimate that implementing the financial core of SAP R/3 (without other functional areas such as logistics or sales) can require up to three times the level of effort required for a mid-range solution The reasons for this include

- ERP systems provide so many more options, and thus configuration in general is more complicated and time-consuming

- Data conversion is typically more complicated for an ERP system
- ERP systems are complex and consequently training end users involves more time and effort
- The complexity of an ERP system requires considerable division of labor for implementation and support, with dedicated persons for technical operations, interface and custom program development, financial process configuration, and other business area configurations By contrast, a skilled implementor or administrator of a mid-range package can typically fulfill several of these roles
- Strong, enterprise-wide commitment to the implementation, along with a willingness to restructure business functions to meet the requirements of the ERP

The following sections detail SAP R/3 and Oracle Applications further

5 5 1 2 SAP R/3, from SAP AG

Note Unlike the other companies considered in this study, SAP A G chose not to respond to our Request for Information, but rather passed on the document to a third-party implementor, Softrating, which likewise chose not to respond Therefore, the information in the following section is derived from Pricewaterhouse Coopers experience Pricewaterhouse Coopers is a SAP Logo Partner, or preferred implementor, worldwide, and has successfully implemented SAP over 215 times, including implementations at 24 of the Fortune 100 companies In the context of the Ukraine Electric Sector, we have confirmed our understanding of the situation regarding SAP R/3 through discussions with the Ministry of Energy and a site visit to the R/3 implementation at the Chernobyl Power Station

The General Information and Computing Center (GIVC) of the Ministry of Energy has a program to support R/3 implementations in the Power Sector The GIVC has provided support for the successful implementation at Chernobyl and for two implementations which are still in progress None of these systems currently support IAS accounting Should a large Oblenergo feel that it has the financial resources and enterprise-wide corporate commitment to implement R/3, it should closely discuss cooperation with GIVC

Vendor Characteristics	
Headquarters	Waldorf, Germany
Founded	1972
Ownership	Public (German Stock Exchange)
World-Wide Revenues ($US m)	1900 (1995)
Number of Employees	6900
Track Record in the Electricity Industry	SAP AG has been providing enterprise business solutions for the utilities sector for almost two decades SAP today serves over 350 utilities customers in the America's, Europe, and the Asia Pacific region
Track Record in the Ukrainian Market	SAP is the industry leading ERP vendor in the world Many enterprises view SAP as the functional leader in the enterprise marketplace It has further demonstrated a strong track record within Russia SAP is also the leading ERP vendor in Ukraine, with sales to at least 12 enterprises and government agencies It is unclear how many of these sales have led to successfully implementations We are aware of at least one successful implementation in Ukraine, at the

	Chernobyl Power Station
Application Functionality	
Functional Summary	SAP R/3 is Enterprise Resource Planning software Its greatest functional strengths lie in financials and in distribution We have found no significant gaps in the functionality of SAP, mapped against LEC requirements in the target areas of • IAS Accounting • UAR Accounting • Cost Accounting • Budgeting • Revenue Forecast and Funds Management
Localization Summary	SAP localizations for the Ukrainian market include • Support for Dual UAR accounting at a transaction level has been proven Dual tracking of transactions according to both IAS and UAR is claimed but not yet proven in practice Dual IAS/Russian Accounting has been successfully proven • Full language translation to Russian A Ukrainian-language version is planned • Support for Ukrainian language for data entry and report generation It is unclear if SAP AG offers pre-prepared Ukrainian statutory reports

Accoun