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## **Kazakhstan: Power Sector Reform**

Newly Independent States Energy Efficiency  
and Market Reform Project  
Energy Sector Institutional Reform  
Local/Foreign Investment Restructuring  
Wholesale Market Reform and Creation of a  
Power POOL

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and Market Reform Project  
Energy Sector Institutional Reform**

**Local/Foreign Investment Restructuring**

**Wholesale Market Reform and Creation of  
a Power Pool**

**Price Waterhouse  
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## **Introduction**

### ***Scope of Work and Work Status***

As part of the Wholesale Market Reform project in Kazakhstan, Price Waterhouse was to accomplish the following tasks

- I Evaluate the current data and data systems employed in the power sector in Kazakhstan and make recommendations on the adequacy of this information and these systems for the successful operation of a power pool or pools
- II Evaluate the current system for financial reporting by the power sector in Kazakhstan, and make recommendations for improvements if appropriate
- III Evaluate the existing hardware systems in the power sector and make recommendations on their adequacy for the successful operation of a power pool(s)

The project was begun in December of 1996 with an initial evaluation trip to Almaty by Levi Hanson and Kate Hardin. This was followed up by a second data gathering trip in February of 1997 by the full team of Levi Hanson, Larry Jensen and Kate Hardin. Due to lack of USAID funding, the project was put on hold by Hagler Bailly in February. At this time, a trip report was completed and submitted, and work by Price Waterhouse was stopped.

Funds were reinstated late in 1997, and Price Waterhouse was requested to complete the project within the constraints of the original budget. To this end, Levi Hanson made a trip to Almaty on October 4 and spent two weeks re-evaluating the project within the framework of progress made in the sector, and evaluating the obstacles inherent in re-mobilizing. There had also been major restructuring within the Government of Kazakhstan, and specifically within the Ministry of Energy, along with new Decrees that directly affect the Commercialization of the Power Sector in Kazakhstan.

The Government of Kazakhstan had also negotiated (unsuccessfully) with ABB and National Grid Company of the UK for an operational concession of the high voltage transmission company Kazakhstan Electric Grid Operating Company (KEGOC). These negotiations are continuing, and most recently, KEGOC itself has been restructured and corporatized.

Recently Decree 1206 returned the ownership of many Distribution Companies to KEGOC, effectively postponing their privatization. Additionally, the sale of Ekibastuz GRES-2 was canceled and ownership of the generator given to KEGOC. This was thought necessary by the Government to assure that some power generation was maintained under Government control.

On 4 August 1997 Decree 1210 "On Urgent Measures to Facilitate Activities of the Joint Stock Company 'KEGOC'" was issued to clarify transmission assets under the ownership and control of KEGOC. The actual transfer of ownership will take some time.

Decree 1193 of 31 July 1997 outlines the creation of a wholesale and retail electric supply market using three stages of implementation. This decree mandates "appropriate reserve capacity" and envisions the creation of a wholesale market based on "Forward" contracts for the supply of electricity and "Options" for supply of peak capacity. This seems to be an effort to alleviate the

non payment settlements issue by transferring wholesale marketing to "trading companies, energy pools and industrial customers"

During the first stage KEGOC is instructed to install necessary metering and obtain outside financing in order to act as a wholesaler of electricity. The Antimonopoly Committee will continue to set tariffs. The second stage is to be completed between June and December of 1998, and by September of 1998 there will be a separation of the wholesaling of electricity from KEGOC.

The third stage is anticipated to begin in January 1999 and end in December 2000. Tariffs for transportation of electricity will either be established by competition or by antimonopoly regulation. The wholesale market will be accomplished totally with the use of 'forwards' and 'options'.

This Decree has a potentially serious impact on setting up a true economic-dispatched based power pool. This includes the implication that a power pool is a buyer and seller of electricity operating through a depository. Another is the control of tariffs by the Antimonopoly Commission instead of an independent regulatory agency.

## **Overview**

There is some misunderstanding within the Government of Kazakhstan and the Ministries about the goals of the creation of a Power Pool within Kazakhstan. The Government appears to believe that a Power Pool would solve the problems of non-payment and debt in the Power Sector by becoming the buyer and seller of electricity in the wholesale market, which is not the function of a Power Pool.

There is a fair amount of resistance within the sector to the creation of a Power Pool. With the present settlements system, generators have some recourse to go directly to a user and leverage payments. With a power pool this is not possible, as the only recourse for payment would be within established market rules and contractual framework, which are not yet instituted in Kazakhstan.

It must be clearly understood that a Power Pool is not a buyer and seller of electricity, rather it is a settlements agency that functions to optimize the economic marketing of electricity within the sector. A Power Pool cannot assume, non-payment risk. A properly functioning Power Pool requires strong regulatory rules, licensing procedures and legal framework.

The structure for a power pool does not exist in Kazakhstan, and the supporting framework necessary for the creation of this power pool is either in transition or under development. For this reason, the initial steps for its creation must be the setting up of this structure. It is necessary to move forward addressing both technical and commercial issues in a logical stepwise manner. Without properly identifying and solving all issues necessary for operation of a power pool, prior to implementation of the Power Pool, it will not be successful.

## **Technical Issues**

The initial steps necessary for creating the structure for implementation of a power pool are technical. These include

- installation, repair, or calibration of necessary meters at the wholesale level, both at generators and at transmission-distribution substation interfaces,

- upgrading and modernizing communication systems to allow timely and accurate power dispatching,
- installation of accurate data processing and billing systems, and
- precise load flow analysis of the transmission system

The Kazakhstan Grid is divided into four weakly connected zones or regions. For this reason, a regional approach to a power pool is necessary. Since the North region is presently the only sector with excess capacity and therefore potential competition, the pool should begin there. As this pool develops and the capability of transferring sufficient quantities of power to the South occurs, then the Southern region can join the power pool. The addition of the Western regions will have to wait until additional transmission lines are completed.

The load flow analysis will determine the options for dispatching in each region. This will include the methods for dispatch of electricity from Hydroelectric facilities as well as Combined Heat and Power (CHP) plants. Since Hydro is presently the cheapest form of electricity production, it will be dispatched first. The CHP facilities are loaded on heat production, and therefore are dispatched on availability. Decisions on production of electricity from CHPs will have to be made when sufficient accounting information is available to make these decisions on an economic basis.

### Commercial Issues

Solving of the commercial issues are more complicated and will take more time. Commercial issues to be addressed include Accountancy, Regulatory and Legal.

Although a new Kazakhstan Accounting Standard (KAS) is in place that is consistent with International Accounting Standards, implementation has been problematic. Companies that have been sold to western firms have been converting to the new standards, however, those that have not been transferred to western ownership have not converted. Accounting issues that must be solved include:

- instituting and fully implementing new KAS including training of people,
- installation of and training on computerized financial accounting software so companies will know the true cost of production,
- an accurate inventory and valuation of the companies must be accomplished in order to produce a Balance Sheet that can be used to find the cost of production related to capital
- an audit of each company after privatization must be done, although this is usually accomplished by the purchasing firm if it is western, and
- expertise in Management Accounting, and particularly in reporting functions will have to be developed in order to create the environment for economic decision making.

An operational, funded, regulatory agency is of primary importance to attract foreign investment and to assure transparency in the setting of tariffs. Tariffs should be restructured based on cost of service and to allow sufficient funds for all expenses including proper maintenance. The tariff must also allow for capital investment and reasonable profits. In addition, the regulatory agency must develop and enforce market rules including licensing of participants.

The Government of Kazakhstan has to give assurance to consumers, investors, and the regulatory agency that the agency will be empowered to accomplish its duties. The Antimonopoly Commission can no longer set prices in the energy sector once the regulatory agency is fully operational.

In transition, several other problems must be solved. This includes aggressively addressing the non-payments and the debt issue of the privatized energy companies. The Government will have to write off or restructure debt as well as decide upon a level of tariff subsidy if required or desired. Any tariff subsidy put in place must also be transparent.

## **Legal Issues**

Legal issues for establishment of market trading mechanisms include

- the establishment of contract law that will assure enforceability of contracts,
- commercial law that will protect investors' property rights and includes enforcement of pledge law,
- enforceable and proven bankruptcy law, and
- settling of issues related to the Energy Law including
  - conflicting and unclear jurisdictions relating to the Regulatory Commission, the Antimonopoly Committee and the Ministry of Energy,
  - placing responsibility and enforcement of licensing of power sector entities within the Regulatory Commission, and
  - assurance of the independence of the Regulatory Commission

Related to the settlements issue as envisioned by creation of a Power Pool is the reliability and liquidity of the banking system. Concurrent with this is the present lack of cash in the system to even allow the use of banks for settlement between generators and the wholesale market.

## **Characteristics of Successful Power Pool**

### ***Goals and Advantages of a Power Pool***

A power pool is essentially *commercial optimization* of the sector. It is the establishment of a competitive structure to create the lowest possible price for electricity. A necessary first step is the *optimization of the technical portions* of the sector. This is necessary to assure both generation and transmission reliability so that dispatch is actually done on an economic instead of an "availability" basis. Increased reliability of generation allows proper scheduling of down time for maintenance which in turn leads to increased reliability.

### ***Power Sector Structure***

Operation of a Power Pool is usually done within an Electrical Supply structure involving Wholesale Competition. In this model Distribution Companies can buy direct from a producer and deliver over a transmission system that has open access, although the Distribution Company still maintains a monopoly over final consumers in its region. The main requirements for this system include

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- An independent dispatch "system operator" who maintains stability in the frequency and voltage of the transmission system. Thus the operator requires access to lines, voltage support, frequency support, and reserve energy
- A spot market or power exchange for electricity into which buyers and sellers of electricity bid to establish a spot price for electricity (in developed markets this is on an hourly or half-hourly basis)
- Transmission prices which reflect the marginal costs of transmission, and which prioritize and manage the use of lines in an economically rational manner
- A forward market into which individual parties can negotiate and sign bilateral contracts
- Last and very important is the requirement that the market is open to entry and exit. This means that owners must be able to open and close facilities in response to market forces, and that the market must be left free to provide the necessary reserves

It should be understood that regulation is still required. The transmission system is still a monopoly to be regulated and the structure of the other competitive parts of the market still need to be regulated.

One result of the implementation of this structure is that the ability of generators to accommodate social policy obligations virtually disappears. The purchase of uneconomic inputs such as high priced fuel, excess labor, or excessive environmental standards cannot be sustained in a competitive market. However, since customers are still supplied under a regional distribution monopoly, subsidies as *defined by the regulatory agency* can be supported.

There are many larger issues involved in the application of a Wholesale Competition structure into any country. In countries like Kazakhstan where the electricity system is not yet on a sound commercial footing it may be necessary to first get tariffs in order, persuade people to pay their bills, and get the accounting system in place before introducing the further complications of spot markets and open access. In addition, countries without a firm legal framework of commercial activity may need enforceable company, contract, property and bankruptcy laws.

### ***Successful Power Pool Characteristics***

Characteristics of a successful Power Pool include

- a regional transmission system with interconnected generating plants,
- a mechanism for dispatching generating plants that recognizes the need for physical control, but permits and encourages economic (least cost) dispatch,
- and a method for
  - coordinating commitment and maintenance of generators,
  - ensuring that adequate generating capacity is built,
  - ensuring system-wide minimum cost investment, with a
  - methodology for dealing with emergencies

In addition, there are two requirements for an electricity trading arrangement to result in economic dispatch. One is that the system operator knows the marginal costs of the facility so that they can dispatch them in merit order. The second is the assurance that generators are paid more than the

marginal cost of the facility so that they have an incentive to operate. In the end, they will not operate their facility unless all variable costs are covered, and they will not build new facilities unless all the costs of capital are covered.

In order that a generator knows his cost of production, accounting systems must be in place that allow accurate calculation of marginal costs. Without knowledge of costs it will be impossible for the generator to bid accurately into a power pool, and to maintain competition in the market place, all generators must accurately know their costs.

It is important to understand that prior to implementation of a power pool system, other countries have operated many years under a merit order dispatching system. Generating plants had been dispatched using a price ranking of generation. This ranking took into account the cost of fuel, capital building costs, depreciation costs, costs of operation and cost of decommissioning. Transmission costs were also taken into account. Without this previous history of economic dispatching, implementation of a merit order based power pool becomes increasingly difficult to put in place.

### ***Conditions for Implementation of a Successful Power Pool***

In order for a power pool to operate successfully the hardware and software systems in place must support three key areas. These are:

- accurate and reliable metering of quantities generated by individual producers and quantities transferred or sold to individual distribution companies (an overall maximum error in metering of 0.2% is the norm),
- timely and reliable telemetering (communication) of quantities generated and data sent to the system operator, and
- a settlement and billing mechanism must be in place.

In addition there must be enough cash in the system to allow payments to the generators. This means that:

- payments for services must be in cash,
- consumers must pay for services,
- distributors must have recourse for non-payment, including the termination of service, and
- licenses and rules for generators, distributors, and consumers must be in place.

### ***Regulatory Requirements***

The Regulatory Agency in a marketplace operated under a power pool must be formed in such a way that it is fair and most critically apolitical. Membership of the Regulatory Agency should consist of industry specialists not directly involved in companies that will be under regulation to avoid a conflict of interest. The duties of this agency usually include:

- acting as a moderator between the interests of consumers, investors, the government and the enterprise being regulated,

- regulating retail tariffs (and wholesale tariffs when a monopoly) in a transparent manner,
- helping to maintain financial viability of the regulated enterprises,
- assuring the reliable supply of electricity, and
- maintaining security of the supply of electricity

The existing Energy Act in Kazakhstan sets up the framework of a Regulatory Agency, however, the Agency has not yet been put in place and needs further definition of its

- goals and membership,
- rules for implementation,
- source of operating funds and accountability,
- jurisdictional arena,
- applicability of licenses, and
- enforcement of decisions and rules

## **Present Situation in Kazakhstan**

### ***Capacity of Facilities and Trends***

The Kazakhstan Electric Power sector is characterized by

- the predominant use of coal as a fuel, accounting for over 77% of the total installed (and 73% of the operating) capacity in the system,
- importance of hydroelectric generation, with about 15% of the total operating capacity in the system, generating over 16% of the electricity consumed in the country,
- dependence on combined heat and power plants for regional heating and industrial steam supply,
- lack of transportation facilities for natural gas from gas fields in Kazakhstan, resulting in dependence on Uzbekistan natural gas,
- until recently the absence of any combined cycle gas turbine facilities, commonly used in the west for marginal loading,
- separation of the country into four separate regions with no or limited transmission capability between the regions,
- Large percentage of generation capacity in the Northern region (76% of installed and operating)

- continued dependence on the importing of power from Russia in the North and on Central Asia (predominantly Kyrgyzstan, Turkmenistan and Tajikistan) for power in the South—12.4% of all electricity consumed in 1996 was imported, or 34% of that consumed in the South, 63% of that in the West and 5% of that in the North,
- large and increasing debt for imported power,
- unacceptable level of nonpayment by consumers,
- large requirement for investment in maintenance and rebuilding of equipment in all sectors,
- a critical shortage of cash and dependence on such instruments as barter and mutual debt cancellation,
- unacceptably high system losses, as a result of technical and other unaccounted system losses—approaching 30%,
- rapid restructuring and privatization leading to some sector instabilities,
- decreases in available capacity of the generators—in the country 76% of the installed capacity is reported as available,
- poor availability and reliability of generators as a result of marginal maintenance,
- potential reliability issues in transmission due to condition of equipment, and
- insufficient number of meters and poor metering accuracy of electricity at generators and consumers as well as at substations. This has created a system incapable of monitoring generation and consumption of electricity and further leads to poor capability for electronic billing.

### ***Technical Considerations***

#### **Plants Loaded on Heat Generation**

About 30% of installed electrical generating capacity (and 32% of present operating capacity) is based on the generation of heat and/or steam for domestic and industrial use. In most cases this heat generation is “sole source”, and users do not have a back-up heating source available to them. In addition, these facilities lack condensing equipment for generation of electricity without the production of heat. As a result, these generating plants are effectively dispatched according to heat load requirements and will not be available for economic dispatch. (Appendix *Table 1*)

It is possible for these Combined Heat and Power plants to be part of a power pool during periods when they are not dispatched by heating load. However in most if not all of these cases they must invest in the capital equipment necessary for production of electricity in the summer period. This would include installation of condensing equipment. Because of their lower efficiency in a pure electrical generation mode, their cost of electricity production would be higher.

### Importance of Hydro Electric Generation

Hydro Electric is of importance in both the Southern and Northern regions in the country. In 1996 about 16% of the total electricity generated in the country was from Hydro Electric. With the drop in capacity of fossil fuel fired generators, Hydro Electric now accounts for almost 15% of the country's installed capacity (Appendix *Table 1*)

Quantities of electricity available from these facilities is determined by the Water Board, agricultural departments and other environmental agencies such as fisheries. These agencies determine water flow rates by season to maintain a balance between irrigation requirements, flood control, and ecological issues.

Since this generation is the cheapest form of electrical generation, it will be first in line for economic dispatch in a power pool when capacity is available, and not required for system control.

### Transmission Limits

There are severe constraints to the transmission of electricity in Kazakhstan. The Zapkaz (Northwest) region has no direct connections with the other regions of Kazakhstan, but is strongly connected to the Urals and Middle Volga regions of Russia, and weakly to the Central region of Russia. It is also effectively dispatched from regions in Russia due to these connections.

The Southwest region is totally isolated from the rest of Kazakhstan. This region has limited connection to the Northwest, but is effectively an island from the rest of the electrical distribution and generation system in the country.

The majority of generation is situated in the Northern part of the country. This region has strong transmission connections with the Siberian and Urals regions of Russia. The 1150 kV transmission line in the North continues to be the only connection between these two Russian regions. For these reasons, the line is strategically very important to both Kazakhstan and Russia. The control of this 1150 kV line is not clear, as it was privatized separately. Recently it has been understood that ownership will remain with KEGOC to maintain integrity of the overall transmission system. It is understood that the portion of this line into Siberia is presently not operating.

The connection with Southern Kazakhstan consists of one line and is limited to about 300 MWe of capacity due to technical balancing issues. The completion of the Southern Kazakhstan generating facility at Balkash will help solve these technical issues and will allow increased supply of electricity to the South. With the installation of a 300 MWe facility at Balkash an additional 300 MWe can be transferred from the Northern Region by solving these technical problems. This will mean a total of 900 MWe of power capacity available to the South. There are also plans for installation of an additional 500 kV line.

The low capacity and availability of the large generators in the North has meant that there has actually been transmission of electricity purchased from Kyrgystan to the North. Since October of this year, the North South transmission line has been inoperable. The reason has been problems with frequency due to the importing of electricity to Zhezkazgan from Kyrgystan.

Additional investment in transmission in regards to maintenance of existing lines, construction of new lines, replacement of transformers and circuit breakers to ensure reliability in transmission will approach or exceed \$200 million.

## Status of Systems

Computer systems There is

- lack of standardization of computer hardware and application software at central dispatch and regional dispatch,
- lack of standardization of operating systems, and particularly use of an obsolete operating system at the communication server,
- insufficient capacity of the file servers in local computer networks,
- low speed of data transfer within the local computer networks, and
- insufficient reliability of information storage to central file servers

The Telemetry systems

- are of predominantly mechanical type,
- date from 1975 to 1989, usually in operation from 10 to 20 years,
- consist of about 22 different types, many of which are no longer produced,
- over 90 % of the meters cannot be connected to modern systems for data interpretation and
- data is "surveyed" in a cyclical manner, usually manually

## System Ownership and Control

Total generation of electricity in Kazakhstan in 1996 amounted to 55, 292 million MWhrs, with consumption of 60,257 MWhrs. Of this amount, 2,600 MWhrs of generation and 4,200 MWhrs of consumption were in the Western part of Kazakhstan and not part of the integrated Kazakhstan transmission system (Appendix *Table 2*) This leaves the following balance of production and consumption by generator type

	Generation	Consumption	Capacity from Thermal Electric Power Plants*	
	Million MWhrs	Million MWhrs		
N Kazakhstan	43,202	43,192	61%	
S Kazakhstan	9,529	12,890	36%	

\*Figure is approximation from 1995 data

As explained earlier, power generated at Hydroelectric facilities will be dispatched first (as lowest cost) when generation from the facilities is available. Power generated at Combined Heat and Power facilities although substantially higher cost for production is a result of the production of heat or steam for residential or industrial use. This electricity is difficult to dispatch on cost of production due to the need for heat and steam.

As a result, electricity generated in Kazakhstan that can be part of a power pool (economic lowest cost) method of dispatching is effectively only that generated at thermal electric stations. These are listed below

		Fuel	Design MWe	Nominal Operating MWe
<b>North Kazakhstan</b>				
Ekibastuzenergo	Ekibastuz Electric Station No 1	Coal	4000	1914
	Ekibastuz Electric Station No 2	Coal	1000	771
Karagandaenergo	Karaganda Electric Plant No 1	Coal	151	104
Karagandaenergo	Karaganda Electric Plant No 2	Coal	608	608
Pavlodarenergo	Yermak Electric Station	Coal	2100	1859
		<b>Total</b>	<b>7659</b>	<b>5256</b>
<b>South Kazakhstan</b>				
Yuzhkazenergo	Dzhambyl Electric Station	Gas, Mazut	1230	1104
Almatyenergo	Almaty Electric Station	Coal	173	165
		<b>Total</b>	<b>1403</b>	<b>1269</b>

There remains the potential to import electricity from other countries, as long as the marginal cost of this imported electricity is below that of electricity generated in Kazakhstan

A substantial portion of all electricity generated in Kazakhstan does not travel on the high voltage transmission lines controlled by KEGOC. According to KEGOC, in 1996 less than 28% of electricity generated and consumed in Kazakhstan was transmitted over KEGOC lines. With ownership of additional lines anticipated to be transferred to KEGOC (with decree 1210 of 4 August, 1997), this amount should increase to almost 40% in 1997.

This means that of the approximately 60,000 MWhrs consumed annually, only 15,000 to 22,000 MWhrs are (or will be) transmitted over high voltage transmission lines owned by KEGOC. The remainder is either direct connected (host) generators or transmitted over 110 kV lines controlled by regional distribution companies.

It is very important that KEGOC control all transmission lines and substations in such a way that those not under their control cannot affect the stability and reliability of KEGOC lines.

Only the generation from the facilities listed above are effectively capable of being dispatched on an economic basis. A substantial portion of the electricity generated and consumed is not transmitted over KEGOC owned (and dispatched) lines. In addition to other technical issues discussed, this brings more questions of how much of the total electricity generated and consumed in Kazakhstan can be dispatched under a power pool concept.

Without completion of an accurate load flow modeling study, the actual amount of electricity that can be dispatched using a power pool concept is unclear.

### ***Accounting Policies and Procedures***

The financial statements produced by the Company are based on the Kazakhstani Chart of Accounts, and the accounting policies applied are those prescribed by Kazakhstani Accounting Regulations. The following is a summary of the most important accounting policies applied by Kazaktelecom and their comparison with International Accounting Standards (IAS) which represent the most convenient and relevant set of standards to draw comparisons with.

As is common in the region, the statutory accounts do not contain the depth of analysis and disclosure that is usual in Western financial statements. This is because the statutory financial statements were designed to support the taxation amount payable by an enterprise. Western financial statements are designed to impart useful information to a variety of users including lenders, shareholders and employees.

In particular many expenses that would normally appear in the Profit and Loss Account are accounted for in the reserves on the Balance Sheet. Generally, tax deductible items appear in the Profit and Loss Account, and non tax deductible items appear in reserves. Reserves may also contain certain provisions such as loan loss provisions and depreciation which would normally be netted off against the corresponding asset on the Balance Sheet.

All financial reporting is directed towards providing statutory financial information. In the previous regime there was no need for the discipline of financial decision making. Accordingly there is very little useful and relevant financial analyses available. For example, costs cannot be analyzed accurately between fixed and variable which prevents basic break-even analysis from being performed.

It should be noted that as from 1 January 1997 a new set of Accounting Standards based on IAS was mandated by the Government, but not implemented. However, the Company has not yet adopted the new standards and its financial accounts are based on the standards as valid on 31 December 1996.

### ***Financial Reporting in the Kazakhstan Power Sector***

#### **Recent Developments**

The Republic of Kazakhstan recognized the need to establish a more flexible approach to financial reporting and began steps to enhance the process in 1995. With the establishment of the National Accounting Commission, the Republic initiated a program for developing accounting standards harmonized with the International Accounting Standards. There has been substantial progress made with this, culminating with the November 1996 issuance of the Kazakhstan Accounting Standards by the National Accounting Commission of the Republic of Kazakhstan.

Presidential Edict # 2983 dated 8 May, 1996 established the National Accounting Commission of the Republic of Kazakhstan (NAC). The NAC was charged via the edict with the responsibility for authorizing basic principles and general accounting rules, requirements on internal control, and standards for external audits for entities operating in the Republic of Kazakhstan.

#### **History of Financial Reporting in the Republic of Kazakhstan**

Through 1996, financial reporting was based solely on the accounting standards and reporting formats utilized within the Former Soviet Union, except for an order requiring use of the accrual methodology beginning 1 January 1996.

The basis for these standards was a universal chart of accounts (Appendix *Figure 1*) consisting of three major categories

- Fixed Assets and Other Long-Term Investments
- Production Resources
- Production Expenses

The chart of accounts, reporting formats, and accounting procedures were universally applied to all enterprises regardless of the information needs specific to the nature of the business activities. Operating under a command economy, the reporting system(s) in place were adequate for the perceived needs. Primarily, these were to

- monitor activity according to a central plan,
- calculate taxes and transfers, and
- generate data for national income and statistics

The primary user of accounting and statistical data was the government, and there was little or no interest in measuring financial performance. Operating decisions were made on the basis of required production and resources were made available as necessary to support the operations.

There were two primary financial reports required of all entities on a quarterly basis. These were Form 1 (Appendix *Form 1*), a variation of a balance sheet and Form 2 (Appendix *Form 2*), a statement of financial results and utilization of profit. An additional form, (Appendix *Form 3*) was attached to the balance sheet, providing analytical data on selected funds and investments. There was nothing comparable to a statement of cash flows, and there were no disclosure requirements other than for specific information provided on subsidiary forms.

While the form titles resemble those of internationally accepted formats, the contents do not. Several categories were often recorded on the financial reports in terms of norms (standard costs) rather than actual. Additionally, the category titles were not necessarily reflective of the presumed contents (under internationally accepted concepts).

### Current Financial Reporting Requirements

Three important changes have recently taken place regarding financial reporting in the Republic of Kazakhstan.

- For 1996, all business accounting was to be conducted under the accrual basis, while the use of accruals remained optional for tax accounting.
- Effective 1 January, 1997, all business/financial reporting is to be conducted in accordance with the Kazakhstan Accounting Standards (KAS).
- In 1995, the Chamber of Auditors of the Republic of Kazakhstan adopted a code of ethics and a base set of twelve auditing standards.

The issuance of the Kazakhstan Accounting Standards represents substantial progress in promoting international acceptance of financial information related to legal entities within the

Republic of Kazakhstan Full compliance with the standards as issued will enable local entities to generate basic financial statements (income statement, balance sheet, statement of cash flows, and adequate disclosures) in substantial conformity with the International Accounting Standards This will provide a higher level of assurance to potential investors, permitting them access to reliable information for financial analyses The end result should be more extensive consideration of Kazakhstan enterprises as investment opportunities

Of the twenty Kazakhstan Accounting Standards issued (Appendix *Figure 2*), seventeen were effective 1 January, 1997 The remaining three will take effect 1 January, 1998 The three taking effect in 1998 all relate to multiple entity accounting (consolidations, subsidiaries, etc ) It is apparent that consideration was given to the current economic trends when developing the standards This is evidenced by the extensive level of coverage of oil and gas (KAS 20) and the standards relating to multiple entities

- Comparison of the KAS with the IAS (Appendix *Figure 3*) shows the KAS do cover most of the "groundwork" principles These include primary disclosures, required financial statements, income taxes, assets and liabilities However, there are several topics that will require future effort These topics are identified under "Recommendations "

## ***Republic of Kazakhstan Tax Structure***

### **Overview of Tax Legislation**

Taxes within the Republic of Kazakhstan are governed by Presidential Edict # 2235 "Concerning Taxes and Other Obligatory Payments to the Budget" dated 24 April, 1995, as amended by Edicts 2370 (20 July, 1995), 2703 (21 December, 1995), 2824 (26 January, 1996), 2827 (26 January, 1996), and Law No 13-1 (26 June, 1996) of the Republic of Kazakhstan This body of information establishes the bases for all State and Local taxes with the exception of customs payments, which are regulated by customs legislation

As of 1 January, 1997, all legislative and other acts contradicting Edict # 2235 have no legal force Additionally, all acts of tax legislation are subject to publication, and matters of taxation may not be associated into non-tax legislation

All-state taxes include

- Income tax from legal entities and physical persons
- Value added tax
- Excise tax
- Tax on securities transactions
- Special purpose payments and extraction taxes

In addition to the above there are a number of local taxes and levies

- Land tax
- Property tax
- Transport vehicle tax

- Business registration levy
- Levies for engaging in certain entrepreneurial activities
- Auction sales levy

All taxes must be calculated and paid in Tenge except as provided for in accordance with customs legislation and/or when tax legislation stipulates their payment in kind

### **Income Tax From legal Entities and Physical Persons**

All physical persons and legal entities except for the National Bank of Kazakhstan, having taxable income in the fiscal year are subject to the income tax. This includes persons residing within or without Kazakhstan and all legal entities, provided the entities are either permanently established or are receiving income from Kazakhstan sources. Only Kazakhstan source income is taxable, unless the taxpayer has resident status.

Other entities exempt from income tax include charities, non-profits, international organizations as defined by the State, entities using humanitarian aid as specified, and those engaged in building activities in the city of Akmola.

Generally, income includes wages and business income, plus all capital gains on other than a person's personal residence. Dividends and interest are excluded for persons, provided tax was paid by the payer (as is generally required). Gains on currency exchange related to entrepreneurial activities and subsidies received from the State Budget are excluded for both persons and legal entities. Taxable income may be calculated on either the cash or the accrual basis.

Personal income tax rates for residents are graduated, ranging from 5% to 40% of taxable income. Non-residents must pay between 5% and 20% of aggregate income without deductions. The rate for legal entities is 30% of taxable income (20% if registered and carrying out activities in a special economic zone, or if land is the only means of production, 10% of the income received directly from its use). Capital gains on securities of resident legal entities are excluded from aggregate annual income, but are taxed at a 15% rate. Generally, any capital gains are calculated subject to inflation adjustments.

Acceptable deductions are globally defined as "all expenditures which are associated with earning aggregate annual income of legal entities and physical persons." Specific reference is made to personal and non-business expenses as being non-deductible. Other qualifications placed on deductions are as follows:

- Interest expense is limited to 150% of the refinancing rate at the Kazakhstan National Bank.
- Doubtful debts are deductible provided the amounts had previously been included in income. A debt is doubtful only if it remains unpaid for two years. Only banks may deduct a provision for doubtful debts.
- Land and inventories are not subject to depreciation.
- Losses on securities may be deducted only to the extent of gains. Any balance may be carried forward for five years.
- "Technical equipment" directly used in production will be depreciated for three years, at which time the balance may be deducted.

- Depreciation is based on groups of assets, and is calculated by applying a percentage to the group balance at the end of the year. Maximum rates for groups are specified in the tax law. Upon reaching specified minimum amounts (either 40 or 100 "calculation bases" depending on the nature of the asset(s)), the remainder is deducted. Revaluations are incorporated into the group balances.
- Asset repairs in excess of 10% of the group balance at the end of the year must be capitalized rather than expensed.

### **Value Added Tax**

In addition to the income tax, the Republic of Kazakhstan imposes a tax of 20% on the increase of the value added in the course of manufacture and circulation of goods, work and services, including assessments in import of goods to the State. The tax is applicable to both legal entities and physical persons.

The amount payable by an entity is the difference between the amounts accrued on sold goods, work or services and the amounts paid for purchased goods, performed work or services rendered.

### **Other State Taxes**

Excise taxes are imposed upon gambling business, alcohol products, beers, wines and liquors, tobacco products, jewelry (if gold, silver or platinum) and furs, most fuels, passenger automobiles, and crystal or crystal illumination devices.

Securities taxes are imposed upon issuances and sales, except for those of state securities.

The extraction industries are subject to a variety of taxes, including royalties, windfall profit taxes and one-time or periodical "bonuses" for exploration rights and commercial development of reserves.

Annual land taxes are payable from all persons and legal entities having land plots in their ownership or use. Amounts are based on the quality, location and water availability rather than the nature of utilization of the land. However, separate categories are established for agricultural land, populated areas, industrial usage, recreational, and forestry or water reserves.

A tax on transport vehicles is due from all legal entities and physical persons having transport vehicles registered by the State.

All legal entities and physical persons owning or managing entrusting properties are subject to a property tax. Taxable assets include productive and non-productive assets of both legal entities and physical persons, plus residential premises, dachas and garages/structures of physical persons.

### ***Financial Reporting Requirements***

#### **General Requirements**

The body of International Accounting Standards was developed to provide a universal level of comfort in the nature of financial information provided to interested parties in support of multinational securities offerings and cross-border capital raising. To date, the International

Accounting Standards Committee (IASC) has issued 31 standards (Appendix *Figure 4*) that are applicable to financial statements for fiscal years beginning on or after 1 January, 1996

According to the Framework developed by the IASC, the impetus of financial accounting is the resulting financial statements. The primary users of financial statements include

- present and potential investors,
- employees,
- lenders,
- suppliers and other trade creditors,
- customers,
- governments and their agencies, and
- members of the public at large

It must be noted that compliance with the International Accounting Standards alone does not necessarily ensure accomplishment of goals. The IAS are viewed internationally as providing a minimal level of assurance of the nature of the information contained therein. For example, an entity seeking cross-border capital and/or listing will most likely be required to restate certain items of information and will also be required to provide extensive disclosure on various financial and non-financial categories. This problem is not unique to Kazakhstan, and is commonly experienced by entities around the world. To minimize the impact of this, the International Accounting Standards Committee (IASC) has reached agreement with the Technical Committee of the International Organization of Securities Commissions (IOSCO) on necessary revisions and additions to the IAS in order to develop a comprehensive core set of standards. This agreement has been incorporated into a work plan for the IASC, with completion scheduled for 1999.

The body of International Accounting Standards governs only financial reporting. There are other aspects of accounting that are equally important to ensure survival of a business entity. These include

### Management Accounting

Management accounting is the process of accumulating, processing and disseminating information to assist internal users in the effective discharge of their responsibilities. This differs from financial accounting in that

- There are no standards or regulations governing management accounting functions
- Management accounting tends to be analytical and future-oriented rather than historical
- There is less emphasis on precision in management accounting
- Whereas financial accounting incorporates only financial data, management accounting often includes both financial and operating data

An effective management accounting system will generally include the use of responsibility (or cost) centers and resource codes for cost identification. Additionally, the system will enable the

categorization of costs in several different formats and groupings. The supporting framework must incorporate a budget system and requires extensive computerization.

While management accounting is unique from financial accounting, the system is only effective if the underlying data is derived from the financial accounts. Accordingly, the financial data utilized for management accounting is greatly enhanced when compiled in compliance with IAS.

### **Tax Accounting**

Tax accounting is most easily performed when tax laws are closely related to financial accounting concepts. This enables the entity to prepare the required materials with information taken from the financial accounting system, making adjustments as appropriate. Additionally, the effects of tax adjustments must be reflected on financial statements, generally as deferred taxes.

### **Accounting Demands of the Power Sector**

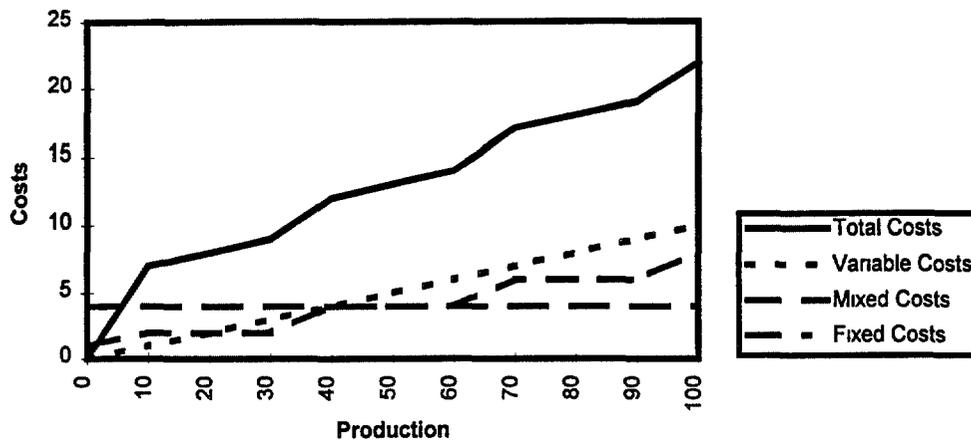
Whatever its role, any entity involved in the sector must expect rapid change in the near future. Accompanying the changes will be increasing demands for information, both financial, operational and various combinations thereof. The information requests will come from a variety of parties with differing needs. The common premise will be that the information be produced in a timely manner, and that the contents be accurate. Investors and creditors will look for financial information in order to make investment decisions, regulators will demand detailed cost and revenue data, and management must possess adequately detailed financial and operational data to enable educated decision making.

With the restructuring of the sector, all entities must be able to identify revenues and the associated costs of operation in a timely manner. This will be particularly necessary to support tariff applications, perform lease versus buy analyses, and to attain more efficient operations to permit them to compete in the marketplace.

Of particular importance is the ability to determine marginal costs of operation. Simply defined, marginal cost is the cost of producing the next unit of output. Marginal costs within an industry will vary dramatically depending on a number of factors. For a generating company, the primary factors would be depreciation, staffing, boiler efficiency and the type of fuel used.

Depending on how a cost will react or respond to changes in the level of activity, costs may be viewed as either variable, fixed, or mixed (semi-variable).

Figure A  
Cost Behavior Analysis



- Fixed costs are generally charged by a period of time (e.g. depreciation or insurance), and will continue to be incurred regardless of the level of operation
- Variable costs are generally those that are consumed in the operation (e.g. fuel or raw materials) and are incurred in direct correlation to production
- A mixed cost is viewed as one that remains fixed within a relevant range, but that will increase or decrease in increments disproportionate to increments in production when the range is exceeded (e.g. staffing of support positions)

Determination of marginal costs, required for economic dispatch, necessitates the derivation of precise data depicting costs of operations. With the establishment of a power pool within Kazakhstan, calculation of marginal cost will dictate the generators' bid prices. The ability of the generators to bid into the power pool will be severely restrained without the capability of generating accurate financial information in a timely manner.

### Issues and Concerns

#### Insufficient Liquidity in the Sector

Although firm data is not available, cash collections in the system range from a high of 80% to as low as 10%. The extreme variance is caused by a number of factors, particularly geographical location (urban versus rural), type of entity (distribution versus generating) and positioning in the "payment chain". Regardless of the cause of the lack of cash in the system, the resulting lack of liquidity negatively impacts the sector in many ways.

A business entity unable to obtain payment for its services will inevitably proceed into bankruptcy, or else will require extensive cash infusions from an external source (generally from the government). Rather than resort to either of these actions, many entities revert to barter transactions, causing problems of a different nature. When a substantial portion of an entity's dealings are conducted in barter transactions, access to capital markets becomes severely

restrained. This is due to the entity's ability, whether real or perceived, to repay its debts. Third party financiers will rarely have a desire to participate in the barter transactions when alternative investment opportunities are available that would culminate in cash returns. Additionally, the flexibility in valuing barter transactions (provided they are actually recorded on the books) casts a shadow on the financial statements of the entity.

Potential suppliers will view the entity in a manner similar to capital providers. Unless the bartered goods are valuable to the supplier, and are viewed as fairly priced, they well might refuse to sell to the entity. This restriction in the number of potential suppliers leads to a semi-captive market, reducing competition within the market and resulting in a higher cost of goods and materials. In its most severe condition, suppliers will request payment in assets. As only the more valuable assets (i.e. those generating cash flow) are desirable to third parties, the entity basically embarks on a downward spiral.

Finally, employee morale and finances are negatively affected when paid in goods, whether those produced by the company or those stockpiled from barter transactions. As has been seen in many cases within the Former Soviet Union, employees quickly accumulate far more bartered goods than they can personally consume and must utilize their free time attempting to retail the goods. At best this results in unnecessarily wasted hours for the employees. At worst, they are unable to dispose of the goods at even discounted prices. Overall, payment of wages in goods results in what can be construed as constructive wage reductions.

#### **Extent of Compliance With Kazakhstan Accounting Standards**

As stated previously, the establishment of the National Accounting Commission (NAC), and the resultant issuance of the Kazakhstan Accounting Standards is viewed as a most positive step forward. These actions serve to create the foundation for an accounting/financial framework that will enable Kazakhstan enterprises to compete on the international financial markets.

It remains to be seen whether the NAC can effectively implement the standards. Observations to date indicate that few accountants outside the professional accounting/auditing community have developed an appreciation of the severity of the differences between the new Kazakhstan Accounting Standards and the standards in place prior to 1 January, 1997. While each of the accountants present in meetings was aware of the new standards, there was a wide range of interpretation of the differences. Some viewed the changes as only surface changes to the numbering on the chart of accounts. Others understood there are to be substantial changes to the methodologies for preparing accounting entries. There is some question whether even the requirement to utilize accrual accounting for 1996 financial reporting was implemented in actuality.

The NAC was to release additional guidance consisting of transitional support methodologies and instructional materials 15 January, 1997. This was delayed until 15 February, 1997, and it remains to be seen whether the guidance will be either timely or comprehensive.

While there is accounting software in place in some entities within the power sector, not all entities have access to computers for accounting activities. Regardless, the software commonly used (transferred from a center in Russia several years ago) does not support the new financial accounting standards. The organization responsible for supporting the software operates under the auspices of the Data Processing (DP) Center for KEGOC. Per discussion with DP Center personnel, they are unable to make the necessary revisions without direction from the National Accounting Commission. This may be an academic issue, as the DP Center lacks the funds to move forward with new programming activities.

As the tax regulations are not conformed to the accounting methodologies, there is an increasing divergence between tax and financial accounting. With the historical emphasis on tax, there will no doubt be a tendency for local accountants to revert to tax accounting concepts for financial reporting, without extensive training and education. There are still substantial differences and/or conflicts between tax and financial accounting requirements. Among these are

- The Kazakhstan Accounting Standards (KAS) require assets to be shown on the balance sheet at the realizable amount. This means accounts receivable must be shown net of a provision for bad debts. However, this provision cannot be utilized for tax purposes for other than financial institutions. Actual bad debts can be written off, although the entity must wait three years (two for financial institutions)
- Under KAS, the concept of realizable value requires the write-off of obsolete items, while this is not permissible for tax purposes

Each of the above items caused entities to report higher profits than actually realized due to the inability to expense items for tax purposes. Particularly with bad debts, the end result is higher profit taxes.

### Revaluations

The Ministry of Finance began issuing guidelines for revaluation in 1993, then reissued guidelines annually. The revaluations apply to all non-monetary assets, including work in progress. The process of revaluation in the Republic of Kazakhstan, as is common elsewhere, is relatively simple. Using fixed assets as an example, the historical cost of the asset(s) is increased by an index, then the corresponding accumulated depreciation is increased by the same index. The indices used are provided by the Ministry of Finance. Although the guidelines for revaluation come from the government, asset revaluations are not mandatory.

Because the historical cost of the assets is somewhat nebulous at best, plus the historical depreciation has been only loosely related to the useful lives, the book values of assets most likely bear little or no relationship to market value.

### Financial Reporting Capability

Although there has been progress made in the financial reporting framework, much remains to be done with the individual entities. Given the current status of accounting and the limited extent of computerization, most entities are very likely not capable of generating adequate financial statements or producing sufficient management information. There is extensive training required, both on the new standards and on the computer hardware and software that will be necessary.

Currently, the entities do not possess the ability to report costs or revenues on an actual basis. The only exceptions to this might be those entities that are already privatized and have been exposed to international financial techniques.

### Payment Issues

Debt as a result of non payment for electricity delivered from Russia and Central Asia remains a large problem. As of the first of 1997, debt for imported electricity amounted to

As of April, 1997

	Tng bn	Million US\$	Share
Russia	24.8	\$ 330.67	59%
Ministry of Finance (taken over from Russia)	3.2	\$ 42.67	8%
TOO AES-ST Ekibastuz	2.7	\$ 36.00	6%
Kuvvat Corp, Turkmenistan	2	\$ 26.67	5%
Ministry of Energy, Uzbekistan	1.3	\$ 17.33	3%
Adel Corp	1.2	\$ 16.00	3%
AOOT EEK	0.9	\$ 12.00	2%
Tadzhikenergo, Tajikistan	0.8	\$ 10.67	2%
Ural Trading	0.6	\$ 8.00	1%
Other	4.7	\$ 62.67	11%
<b>Total trade payables</b>	<b>42.2</b>	<b>\$ 562.67</b>	<b>100%</b>

Long term internal debt (payable by consumers) for non-payment of electricity and heat delivered has been as high as \$930 Million. This number as of April 1997 has decreased to about \$573 Million primarily due to the writing off of bad debt as detailed below.

As of 1 April, 1997

	Tng bn	Million US\$	Share
Karaganda REC	10.1	\$ 134.67	23%
Kustanayskaya REC	7.2	\$ 96.00	11%
Akmolinskaya REC	4.6	\$ 61.33	11%
South Kazakhstan REC	3.5	\$ 46.67	8%
Altayenergo	3.4	\$ 45.33	8%
Northern Kazakhstan REC	3.0	\$ 40.00	7%
Torgayskaya REC	2.1	\$ 28.00	5%
Kokchetskaya REC	2.1	\$ 28.00	5%
Zhambylskaya GRES	1.0	\$ 13.33	2%
Other	6.0	\$ 80.00	14%
<b>Total gross trade receivables</b>	<b>43.0</b>	<b>\$ 573.33</b>	<b>100%</b>

Actual payments for electricity delivered is in the range of 50% of billing in the country. This has risen recently to as high as 75% in the Almaty region. Unfortunately, payments to generators, particularly those already privatized is as low as 10% of the electricity they have delivered. In addition, about 80% of payments received is in the form of barter. The remainder is in cash or in the form of mutual debt cancellation. The industry remains in a very cash poor situation particularly since taxes and payroll must be paid in cash.

### Present Tariff Structure

Historically retail tariffs have been set by the central Antimonopoly Committee (AMC) in conjunction with the regional 19 oblast Antimonopoly Committees. These tariffs were varied according to the type of end user (such as industrial, agricultural, individual, etc.)

Kazakhstanenergo remained the monopoly provider of electricity and supplied the AMC with the rational and cost support data for a requested tariff

From November 1993 until September 1994 there was one "unified" tariff throughout the country that did not vary by region. This tariff by user type is given in Appendix *Table 3a* stated in 1997 dollars. There was a two part tariff for high voltage industrial users (capacity and usage) and a single part tariff for other consumers.

From October 1995 until the present, tariffs set by the AMC have varied by region. These tariffs are listed in the Appendix *Table 3b*, and take into consideration the combining of oblasts resulting in a total of 14 oblasts in the country. These oblasts are now effectively the basis for regional distribution companies. Previously there were nine regional "Energos" and as a result much of the management of the new oblast based distribution companies is in transition, and there is a need for metering to determine actual amounts of electricity delivered within this new regional structure.

Historic generation and consumption of electricity is only available on the basis of the "old" nine energo structures. Appendix *Table 2* shows a breakdown of generation and consumption based on this "old" energo structure, and *Table 4* gives a further breakdown of consumption by users in the regions. This information is based on actual 1996 data obtained from KEGOC.

From the tariff data in *Table 3b* and consumption data in *Table 4* it is possible to arrive at a gross estimate of sales by user and region. *Table 5a* shows this estimate based on 1996 consumption data and on 1996 tariffs, while *Table 5b* represents the estimate based on 1996 consumption data while applying 1997 tariffs.

These estimates using the tariff data and structure with consumption data show an average annual country wide tariff increasing from about \$0.035/kWhr to about \$0.044/kWhr. Although still comparatively low, this increase indicates that tariffs are starting to reflect the cost of production and should begin to allow adequate investment. It must, however, remain a priority to address the issue of non-payment in the sector. Not included in this estimate are any Government or other subsidies.

The AMC also sets generation tariffs for individual generators based on costs supplied by the generators. These tariffs are very low and without full implementation of KAS probably do not reflect the true cost of production. These rates also appear to not allow a reasonable return on capital or to return profits adequate for investment. Appendix *Table 6* lists these power generation tariffs by facility as approved by the AMC. Based on actual facility capacities as supplied by KEGOC, and a broad estimate of outputs, estimated gross sales by facility are also calculated. This indicates a probable estimated "wholesale" tariff in Kazakhstan of about \$0.0169/kWhr.

The tariff from generators that are owned (or controlled) by the local distribution companies is not set directly by AMC. This includes those generators in the Almaty and the Altai regions.

On September 30, 1997 the Ministry of Economy and Trade and the Ministry of Energy and Natural Resources issued order number 178 and number 127 respectively. This order sets a new methodology for calculation of transmission tariffs based on two components:

- a constant rate of 25.1 tyin per kWhr, and
- a variable portion dependent on the length of the transmission line of 0.051 tyin per kWhr per kilometer.

These rates are set as average, and the order sets up a methodology for calculating individual rates for transmission:

- between regions (1150 kV, 500 kV and 220 kV),

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- regional transmission (110 kV and 35 kV), and
- distribution networks at the local level

For high voltage (between region) transmission, the methodology assumes a division between "apparatus" costs for the constant rate calculation and apply costs related to maintenance of the lines and capital investment for the variable portion

At the regional level the transmission tariff is a single constant tariff (tyin/kWhr) based on total costs at the regional level and volume of power transferred

For distribution networks costs are divided into three portions

- full costs of the distribution company,
- the cost of purchased power, and
- cost of transmission of the purchased power through the distribution network

The "full costs" are divided by the amount of contracted electricity, while both the cost of purchased power and the cost of its transmission are divided by the "useful" power delivered to the internal users. These three components are added to determine a total tyin/kWhr tariff for the region

The order also gives an equation for calculation of a coefficient to be temporarily applied to the tariff calculation for transmission up to 300 kilometers

Although this new method of tariff calculation is better than the previous system based totally on tyin per kWhr per kilometer, there remains several problems

- it is based on a predetermined "contracted" amount, not actual amounts transmitted,
- the amount collected at the high voltage level remains low (36% of billing), and there is little cash received (about 12%),
- it is necessary to implement full KAS in order to adequately determine the cost components for tariff calculation, which has not been done,
- the method is difficult to accurately measure,
- the tariff is still under control of anti-monopoly and both the Ministry of Economy and the Ministry of Energy and Natural Resources, (although the Regulatory Commission initially considers the tariff), and
- it is determined on projected--not actual--transfer of electricity

There is also an "informal" dispatch tariff instituted by Central Dispatch to cover their costs. They receive about 35% of the amount they bill for this dispatch tariff

## ***Present Legal Environment***

### **Contract Law**

The market trading mechanisms required by a pool cannot be established without a means to enforce Power Purchase Agreements (PPAs) and other supply contracts

- Contract law in the Republic of Kazakhstan is not adequate to ensure the enforceability of contracts

- The Anti-Monopoly Committee is currently involved in approving all bilateral contracts in the energy sector, even between customers and private operators
- There are no provisions for cutting off energy to industrial, governmental or commercial users for non payment, but there are such provisions for residential users

### **Commercial Law**

Commercial law is necessary to protect investors' property rights, and to promote free entry and exit into a competitive market. Issues discovered included

- creditor's rights are not clearly defined if the debtor company is more than 50% state owned,
- pledge law is in effect in Kazakhstan, but there is no enforcement mechanism, and
- because there is no centralized registration procedure, creditors' claims to debtors' property cannot be substantiated

### **Bankruptcy Law**

Bankruptcy laws will ideally serve all concerned parties (i.e. debtors and the claimant). Here it was noted that

- Under the old bankruptcy law asset sales of bankrupt companies were allowed. In these cases, insolvent companies sold their assets to a new company, leaving merely a shell with the liabilities
- The new bankruptcy law stipulates that if the asset sale occurs within one month of the declaration of bankruptcy, the creditor may petition to regain the assets. However, this has not yet been proven in practice

### **Banking System**

The power pool plans envision the payments and settlements relying heavily on the banking sector, however

- the nationalization of Alem Bank by the Government of Kazakhstan raises questions of the reliability of the banking sector,
- it would be possible for the bank to divert payments from energy producers and users to meet other needs, and
- the use of banks for settlements assumes that there will be enough cash in the system for energy producers and consumers to pay in cash

### **Energy Law**

Basic provisions of The Decree of the President of the Republic of Kazakhstan on Energy Power, approved December 23, 1995 are

- state regulation of power,
- state regulation of pricing,
- safety inspection by the state,
- compliance with environmental standards,
- rules which govern all players in the market, however

- the decree does not provide for protection of energy suppliers, only for energy consumers

### Conflicting Jurisdictions

The Decree on Energy Power does not clearly define the roles and competencies of the various bodies established by this legislation. The following conflicts exist:

- Tariffs are to be determined by the State Regulatory Commission for energy power. However, the Anti-Monopoly Committee currently reviews generators' costs and on this basis determines tariffs. There is no evidence that its role will change.
- Transmission and the organization of a single market will be overseen by the National Energy Power System, however these functions will also be overseen by the Central Executive energy power administrative body and local executive bodies.
- The Central Dispatching Administration will carry out the operational management of the system, but its jurisdiction is not clear since the ruling on this body is yet to be approved by the Central executive energy power body.

### Independent Regulatory Agency

The Decree on Energy Power provides for the establishment of an independent state regulatory commission for energy power. The commission is to ensure the following:

- competition,
- rules for participation in the market,
- equal access to market for all participants regardless of ownership,
- technical regulation,
- compliance with safety standards,
- compliance with environmental standards,
- determination of tariffs, and
- protection of consumers.

Two important issues are not included among the competencies of the Regulatory Commission:

- The Regulatory Commission should protect energy producers as well as consumers. However, there are no provisions for financial protection for producers in cases of non-payment, etc.
- Licensing would normally fall under the jurisdiction of the Regulatory Commission. In the Kazakhstan Decree on Energy Power there is no provision for licensing by the Regulatory Commission. Licensing is handled by the Central executive energy power administrative body.

### Unclear Jurisdiction

Under the Decree on Energy Power, there is overlap in the competencies of several agencies:

- Both the Regulatory Commission and the Anti-Monopoly Commission are responsible for setting and approving tariffs. It is not clearly stated how these agencies will work together.

- The decree stipulates that the Regulatory Commission will be responsible for dispute mediation. Any overlap between procedures defined by the pool rules and the decree must be addressed.

### **Ruling on Commission**

Finally and perhaps most importantly, article 7.3 of the Decree on Energy Power states that "A ruling on the State Regulatory Commission for energy power shall be approved by the Government of the Republic of Kazakhstan." This clause casts doubt on the status and independence of the Regulatory Commission. Until the Government has taken this ruling, it is difficult to count the Regulatory Commission as a reliable, independent body.

## **Recommendations**

### ***Preliminary Steps***

As has been described in this report, there are serious obstacles for establishment of a Power Pool in the Republic of Kazakhstan. Significant technical and commercial issues must be addressed before a Power Pool can be successfully and fully implemented.

Initial steps for the creation of a Power Pool can be taken, including market rules and settlement procedures. This would entail the formation of a basic structure or foundation into which a Power Pool would be constructed.

First in importance for the establishment of a Pool is accountability of the Pool participants. This means an inventory of assets, valuation of the assets and an audit of the firms participating in the Pool to determine accurate capital costs. Concurrently with this must be full implementation of the new Kazak Accounting Standards. Without these steps being made, the true cost of production, transmission and distribution cannot be determined, and tariffs cannot be set based on costs.

The next step is to find a solution to the problems of non-payment and the lack of cash in the system. Without cash in the system and payments for delivery of electricity, a Pool is impossible. Lessons learned by Tractebel in operation of AlmatyEnergO should be applied system wide.

After there is accountability and cash in the system, installation of sufficient and accurate metering capability must be made at all levels from generation through the wholesale market to end users. With accurate metering it will then be possible to find, address, and solve the problem of commercial and technical losses in the system.

With accurate metering in place, installation of upgraded communication systems are next. Timely and accurate knowledge of electricity sold then allows creation of a computerized customer billing system.

After the above steps are taken, the problem of insufficient generation should solve itself, since the main reason for lack of generation is lack of payment for electricity generated.

### ***Beginning Power Pool Implementation***

In order to implement a power pool based on economic (lowest cost) dispatching, the following must be established:

- transparent generation, transmission and distribution pricing mechanisms,

- energy trading rules,
- settlements processes, and
- funds administration

Only after establishing these structures, can a Power Pool begin to be implemented. Primary elements in this implementation are

- establishment of operational control boundaries,
- establishing initial metering capability,
- establishing regulatory, legislative and licensing framework for generators, distribution companies, the transmission and dispatch company and the power pool
- creation of a revised grid code or operating protocol including arrangements for scheduling and dispatch,
- implementation of pool rules and agreements,
- establishment of contractual framework for the pool,
- as required, put in place Contracts for Differences, Power Purchase Agreements or other contractual arrangements between buyers and sellers,
- implementation of settlements procedures and systems,
- development of pool funds administration, procedures and systems,
- establishing procedures for pool rules modification in line with market development,
- determine the schedule for introduction of the pool,
- undergo a trial period for operation of the pool, and
- introducing final metering, billing and settlements system

### ***Accounting Systems***

There is a shortage of available accounting software packages capable of supporting the current and projected requirements of sector enterprises. These needs include not only financial accounting, but also require extensive cost accounting, pricing analysis, and financial modeling. Initially, each entity should possess at least a minimal level of computerization, capable of generating information to support financial operations. Ultimately, the enterprises will require implementation of an integrated financial management system.

A master plan should be developed providing a complete overview of desired information systems for the energy sector. The plan should contain high level system requirements, interrelationships and priorities. Information should be obtained on reasonable estimated time requirements and costs. It must be recognized that attaining full computerization of all desired functions will be extremely costly, and that phasing in of the systems will most likely be the only way this can be accomplished.

Regardless of the availability of software, each entity must develop the capability to prepare its financial reports under KAS. In addition to developing competencies in financial and cost accounting, the enterprises must implement detailed budgeting systems with financial forecasting capability.

### ***Enhancements to KAS***

The Ministry of Energy should initiate coordination of accounting requirements with the Ministry of Finance to ensure the energy sector's needs are met. Of immediate concern is the need for additional standards. Specific standards are needed for regulatory accounting, financial reporting in a hyperinflationary environment, accounting for contingencies, borrowing costs, and the effects of changing prices.

With the exception of regulatory accounting, each of the above topics is addressed in an existing International Accounting Standard. The need for a standard on regulatory accounting is created by aspects of the tariff development and approval process. Due to the nature of the regulatory process, utilities (along with other regulated institutions) must often deviate from generally accepted accounting practices in order to accommodate rate orders etc. Examples of these are

- Deferral of costs for which the regulatory "promises" future recovery that otherwise would be required to be expenses in the current period
- Expensing a cost item that might normally be capitalized, or the reverse

Ideally, a standard would be developed permitting the entity to treat these items in accordance with the order, yet remain in compliance with KAS.

### ***Training***

The Ministry of Energy should initiate an intensive accounting and financial management training program for all entities under its control. Primary areas of emphasis for training should be the following:

- Financial accounting under the new Kazakhstan Accounting Standards
- Cost accounting, particularly the concepts of marginal costing and transfer pricing
- Management accounting, including budgeting and financial forecasting techniques
- Tax accounting, and how tax accounting differs from financial accounting

The training should encompass both classroom and on the job efforts to ensure the maximum effect, and should focus on both the practical aspects of accounting and accounting theory. Traditional accounting in the former Soviet Union was highly procedural, with little emphasis on the basic concepts and theory. To facilitate the ability to function independently, it is important for individuals to understand the background for the new policies and procedures.

Some education and training will accompany privatization as various enterprises undertake the process, however adequately trained accounting personnel would add value to the transition. An additional benefit of training accounting personnel would be the increased possibility of retention for accountants that are knowledgeable in a variety of systems.

***Internal Controls***

The internal control systems in place under a command economy generally do not meet the needs of a market economy, particularly when change is occurring rapidly. To ensure that assets are properly safeguarded and to make the transition to a market economy and competitive environment more effective, the Ministry of Energy should perform high level control reviews on a sample of entities to gain an overall understanding of the control environment. Major areas of concern (e.g. cash and accounts receivable) should be identified and analyzed in more detail.

Upon determining the status of controls, a control model should be developed that provides adequate controls over the areas of concern. The model should be distributed to each entity with the request the systems be modified to incorporate the needed controls.

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*APPENDIX*

## **Appendix**

## Figure 1

### Universal Chart of Accounts

#### Section 1 FIXED ASSETS AND OTHER LONG-TERM INVESTMENTS

- 01 Fixed Assets
- 02 Depreciation Of Fixed Assets
  - 1 Depreciation Of Owned Fixed Assets
  - 2 Depreciation Of Fixed Assets On Long Term Lease From Others
- 03 Fixed Assets On Long Term Lease From Others
- 04 Intangible Assets
- 05 Amortization Of Intangible Assets
- 06 Long Term Financial Investments
  - 1 Stocks
  - 2 Bonds
  - 3 Loans
- 07 Equipment To Be Installed
- 08 Capital Expenditures
  - 1 Construction And Obtaining Of Fixed Assets
  - 2 Expenditures Not Increasing The Value Of Fixed Assets
- 09 Lease Obligations Receivable

#### Section 2 INVENTORIES

- 10 Materials
  - 1 Raw Materials And Chemicals
  - 2 Purchased Semi-Finished Goods, Structures And Components
  - 3 Fuel
  - 4 Tare
  - 5 Spare Parts
  - 6 Other Materials
  - 7 Materials Transferred For Processing To Third Parties
  - 8 Construction Materials
- 12 Low-Value And Short Term Assets
  - 1 In Warehouse
  - 2 In Process
- 13 Depreciation Of Low-Value And Short Lived Assets
- 15 Inventory In Transit

#### Section 3 PRODUCTION COSTS

- 20 Main Production
- 21 Components Produced By The Enterprise
- 23 Subsidiary Production
- 25 General Production Expenses
- 26 Administrative Expenses
- 28 Defective Products
- 29 Support Services For Employees
- 30 Non Capital Works
- 31 Prepaid Expenses
- 36 Goods Not Corresponding To The Order
- 37 Issue Of Production, Works, Services

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**Section 4 FINISHED PRODUCTS, GOODS AND REALIZATION**

- 40 Finished Goods (At Normative Cost)
- 41 Goods
  - 1 Goods In Warehouse
  - 2 Goods In Retail Trade
- 43 Marketing And Selling Expenses
- 44 Handling Costs
- 45 Goods Dispatched
- 46 Realization Of Goods And Services
- 47 Realization And Other Disposal Of Fixed Assets
- 48 Realization Of Other Assets

**Section 5 FUNDS**

- 50 Cash
- 51 Settlement Account
- 52 Currency Account
- 55 Special Bank Accounts
  - 1 Loans And Letters Of Credit
  - 2 Checkbooks

**Section 6 SETTLEMENTS**

- 60 Settlements With Suppliers And Contractors
- 61 Advances Paid Out
- 62 Settlements With Buyers And Customers
- 63 Settlements Of Claims And Erroneous Transactions
- 64 Advances Received From Customers
- 65 Settlements Of Personnel And Property Insurance
- 67 Settlements Of Non-Budget Payments
- 68 Settlements Of Budget
- 69 Settlements Of Social Security And Insurance
  - 1 Settlements On Social Insurance
  - 2 Settlements On Pensions
- 70 Settlements On Wages
- 71 Settlements With Employees
- 73 Other Settlements With Employees
  - 1 Settlements On Goods Sold On Credit
  - 2 Settlements On Presented Barters
  - 3 Settlements On Redeemed Losses
- 75 Settlements With Founders
  - 1 Settlements On Founder Investments Into Paid Fund
  - 2 Settlements On Dividends
  - 3 Settlements On Special Purpose Funds
- 76 Settlements With Other Debtors And Creditors
- 78 Settlements With Daughter Enterprises

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**Section 7 FINANCIAL RESULTS AND USES OF PROFIT**

- 80 Profit
- 81 Use Of Profit
  - 1 Profit Tax Paid To Budget
  - 2 Use Of Profit For Other Purposes
  - 7 Profit Tax
- 82 Reserve For Doubtful Debts
- 83 Revenues Of Future Periods
  - 1 Received On Account Of Future Periods
  - 2 Receipts Of Debts Related To Identified Shortages Of Prior Years
  - 3 Net Value Of Shortages
- 84 Losses And Spoilage

**Section 8 RESERVE FUNDS**

- 85 Paid In Fund
- 86 Reserve Fund
- 87 Undistributed Profits
  - 1 Current Year
  - 2 Prior Years
- 88 Special Purpose Funds According To The Types Of Funds
- 89 Reserve For Forthcoming Expenses And Payments According To The Types Of Funds

**Section 9 LOANS AND FINANCING**

- 90 Short-Term Bank Loans According To The Type Of Loan
- 92 Long-Term Bank Loans According To The Type Of Loan
- 93 Bank Loans For Employees According To The Type Of Loan
- 94 Short-Term Loans
- 95 Long-Term Loans
- 96 Directed Financing And Allocations
- 97 Long-Term Lease Liabilities

**OFF- BALANCE SHEET ACCOUNTS**

- 001 Rented Fixed Assets On Short Term Lease
- 002 Working And Fixed Assets Received For Storing
- 003 Materials Received From Customer For Processing
- 004 Goods Received From Customer On Commission
- 005 Equipment Received For Installation
- 006 Forms For Strict Reporting
- 007 Bad Debts Of Insolvent Debtors Written Off To Losses
- 008 Security Received For Liabilities And Payments
- 009 Security Issued For Liabilities And Payments

## **Figure 2**

### **National Accounting Commission of the Republic of Kazakhstan Accounting Standards**

#### **Standards Included In 1996 (Original) Issuance**

- AS 1 Accounting Policy And Its Disclosure (eff 1 Jan, 1997)
- AS 2 Balance Sheet And Main Financial Statement Disclosures (eff 1 Jan, 1997)
- AS 3 Statement Of Operations (eff 1 Jan, 1997)
- AS 4 Cash Flow Statements (eff 1 Jan, 1997)
- AS 5 Revenue (eff 1 Jan, 1997)
- AS 6 Accounting For Fixed Assets (eff 1 Jan, 1997)
- AS 7 Accounting For Inventories (eff 1 Jan, 1997)
- AS 8 Accounting For Financial Investments (eff 1 Jan, 1997)
- AS 9 Foreign Currency Transactions (eff 1 Jan, 1997)
- AS 10 Related Party Disclosures (eff 1 Jan, 1997)
- AS 11 Accounting For Taxes On Income (eff 1 Jan, 1997)
- AS 12 Accounting For Construction Contracts (eff 1 Jan, 1997)
- AS 13 Consolidated Financial Statements And Accounting For Investments In Subsidiary Partnerships (eff 1 Jan, 1998)
- AS 14 Accounting For Investments In Associated Partnerships (eff 1 Jan, 1998)
- AS 15 Financial Reporting Of Interest Under Joint Activities (eff 1 Jan, 1998)
- AS 16 Accounting For Retirement Benefit Costs (eff 1 Jan, 1997)
- AS 17 Accounting For Leases (eff 1 Jan, 1997)
- AS 18 Accounting For Investment Funds (eff 1 Jan, 1997)
- AS 19 Accounting And Reporting In Non-Governmental Voluntary Pension Funds (eff 1 Jan, 1997)
- AS 20 Accounting And Reporting In Oil And Gas Producing Companies (eff 1 Jan, 1997)

### Figure 3

#### International and Kazakhstan Accounting Standards

#### Comparison of Topics Included by Title

Accounting Topic	Inter-national Accounting Standard	Kazakhstan Accounting Standard
Disclosure of Accounting Policy	IAS 1	KAS 1
Inventories	IAS 2	KAS 7
Depreciation	IAS 4	<sup>1</sup>
Information to be Disclosed in Financial Statements	IAS 5	KAS 2
Cash Flow Statements	IAS 7	KAS 4
Net Profit/Loss, Errors, Changes in Accounting Policies	IAS 8	KAS 3
Research and Development Costs	IAS 9	
Contingencies and Events After the Balance Sheet Date	IAS 10	
Construction Contracts	IAS 11	KAS 12
Income Taxes	IAS 12	KAS 11
Current Assets and Liabilities	IAS 13	
Reporting Financial Information by Segment	IAS 14	
Effects of Changing Prices	IAS 15	
Property, Plant and Equipment	IAS 16	KAS 6
Leases	IAS 17	KAS 17
Revenue	IAS 18	KAS 5
Retirement Benefit Costs	IAS 19	KAS 16
Government Grants and Disclosure of Assistance	IAS 20	
Changes in Foreign Exchange Rates	IAS 21	KAS 9
Business Combinations	IAS 22	
Borrowing Costs	IAS 23	
Related Party Disclosures	IAS 24	KAS 10
Investments	IAS 25	KAS 8
Retirement Benefit Plans	IAS 26	KAS 19
Consolidations and Investments in Subsidiaries	IAS 27	KAS 13
Investments in Associates	IAS 28	KAS 14
Financial Reporting in Hyperinflationary Economies	IAS 29	
Disclosures in the Financial Statements of Banks	IAS 30	
Financial Reporting of Interests in Joint Ventures	IAS 31	KAS 15
Financial Instruments Disclosure and Presentation	IAS 32	

<sup>1</sup> Depreciation is summarily covered in Standard 6 "Accounting for Fixed Assets "

## **Figure 4**

### ***International Accounting Standards***

#### **Standards and Exposure Drafts as of November 1997**

- IAS 1 Disclosure of Accounting Policies<sup>1</sup>
- IAS 2 Inventories
- IAS 4 Depreciation Accounting
- IAS 5 Information to be Disclosed in Financial Statements
- IAS 7 Cash Flow Statements
- IAS 8 Net Profit or Loss for the Period, Fundamental Errors and Changes in Accounting Policies
- IAS 9 Research and Development Costs
- IAS 10 Contingencies and Events Occurring After the Balance Sheet Date
- IAS 11 Construction Contracts
- IAS 12 Accounting for Taxes on Income
- IAS 13 Presentation of Current Assets and Current Liabilities
- IAS 14 Segment Reporting
- IAS 15 Information Reflecting the Effects of Changing Prices
- IAS 16 Property, Plant and Equipment
- IAS 17 Accounting for Leases
- IAS 18 Revenue
- IAS 19 Retirement Benefit Costs
- IAS 20 Accounting for Government Grants and Disclosure of Government Assistance

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<sup>1</sup> IAS 1 (Disclosure of Accounting Policies) was replaced in August 1997 by "Presentation of Financial Statements" Effective for accounting periods beginning on or after July 1, 1998, the revised standard will also replace standards 5 (Information to be disclosed in Financial Statements) and 13 (presentation of Current Assets and Current Liabilities)

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IAS 21 The Effects of Changes in Foreign Exchange Rates

IAS 22 Business Combinations

IAS 23 Borrowing Costs

IAS 24 Related Party Disclosures

IAS 25 Accounting for Investments

IAS 26 Accounting and Reporting by Retirement Benefit Plans

IAS 27 Consolidated Financial Statements and Accounting for Investments in Subsidiaries

IAS 28 Accounting for Investments in Associates

IAS 29 Financial Reporting in Hyperinflationary Economies

IAS 30 Disclosures in the Financial Statements of Banks and Similar Financial Institutions

IAS 31 Financial Reporting of Interests in Joint Ventures

IAS 32 Financial Instruments Disclosure and Presentation

IAS 33 Earnings Per Share

**Exposure Drafts**

E48 Financial Instruments (now partly superseded by IAS 32)

E49 Income Taxes

E50 Intangible Assets

E52 Earnings Per Share

E54 Employee Benefits

**Form 1**

Approved by the National  
 Accounting Commission  
 for 1996 financial reporting

**Balance Sheet**

**Format # 1**

for 1 _____ 199 ____	Date	Codes
Description		
Industry (type of business)		
Body of State Property Management		
Unit of Measuring 1 000 tenge		
Address		
	Date of sending	
	Date of receiving	
	Date of presentation	

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ASSETS	Page Code	For the beginning of year	For the end of year
1	2	3	4
I FIXED ASSETS			
AND OTHER NON-CURRENT ASSETS			
Intangible assets			
acquisition cost * (04)	010		
depreciation (05)	011		
residual value	012		
Fixed Assets			
acquisition cost ( 01, 03)	020		
depreciation (02)	021		
residual value	022		
Equipment for installation (07)	030		
Capital investments in progress (08, 61)	040		
Long -term financial investments (06)	050		
Settlements with founders (75)	060		
Other non-current assets	070		
Total on Section I	080		
II INVENTORY AND COSTS			
Materials (10 15, 16)	100		
Livestock at //	110		
Low value and items//			
acquisition cost (12, 16)	120		
depreciation* (13)	121		
residual value	122		
Work in process (20, 21, 23 29 30 44)	130		
Deferred expenses (31)	140		
Finished goods (40)	150		
Merchandise			
sale price* (41)	160		
extra charge* (42)	161		
acquisition price	162		
Other inventory and costs	180		
Total on Section II	190		
III Monetary Items Settlements and Other assets			
Settlements wit debtors			
for goods works and services (45 62 76)*	200		
VAT for sold items (18) *	201		
for goods, works and services less VAT	205		
for notes received (62)	210		
with subsidiaries (78)	220		
with budget (68)	230		
with personnel for other transactions (73)	240		
with other debtors (76)	250		
Advances made to suppliers and contractors (61)	260		
Short-term financial investments (58)	270		
Monetary items			
Cash (50)	280		
Settlement account (51)	290		
Foreign currency account (52)	300		
Other Monetary items (55 56 57)	310		
Other current assets	320		
Total on Section III	330		
Balance (sum of lines 080, 190, 330)	360		

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LIABILITIES	Page Code	For the beginning of year	For the end of year
<b>I Owner's Capital Sources</b>			
Charter Fund (capital) (85)	400		
Reserve Fund (86)	410		
Special Purpose Funds (88)	420		
Special Purpose Financing and receptions (96)	430		
Lease liabilities (97)	440		
Retained Earnings of prior years (87)	450		
Profit			
of reporting year*(80)	470		
spent* (81)	471		
Retained Earnings of reporting year	472		
Losses			
of prior years** (87)	475		
of reporting year**	476		
<b>Total on Section I</b>	<b>480</b>		
<b>II SETTLEMENTS AND OTHER LIABILITIES</b>			
Long-term Bank Credits (92)	500		
Long-term Loans (95)	510		
Short-term Bank Credits (90)	600		
Bank Credits for employers (93)	610		
Short- term Loans (94)	620		
Settlements with creditors			
for goods, works and services (60, 760*	630		
VAT on purchased materials (17)	631		
for goods, works and services less VAT	635		
on notes payable (60)	640		
on pay-roll (70)	650		
on social insurance and benefits (69)	660		
on property and personal insurance (65)	670		
with subsidiaries (78)	680		
on non- budget payments(67)	690		
with budget (68)	700		
with other creditors	710		
Advances, received from customers and clients (64)	720		
Settlements with Founders (75)	725		
Deferred Income(83)	730		
Utilisation Fund (88)	735		
Reserves for future expenses and payments (89)	740		
Doubtful Debts Allowances (82)	750		
Other current liabilities	760		
<b>Total on Section II</b>	<b>770</b>		
<b>BALANCE ( SUM OF LINES 480 AND 770)</b>	<b>800</b>		

\* Data on these lines are expressed in other currency than in this table

\*\* While defining the line 480 (Total on Section I) data on these lines are deducted

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Description of Off-balance Sheet account	Page code	For the beginning of year	For the end of year
Leased fixed assets	810		
Inventory, taken for consignment (002)	820		
Materials, taken for processing (003)	830		
Materials, taken for commission (004)	840		
Equipment, taken for assembling (005)	850		
Forms for strict reporting (006)	860		
Debt of insolvent debtors, written off to losses	870		
Liabilities and payments security receivable ( 9008)	880		
Liabilities and payments security payable (009)	890		
	900		
	910		
Amortisation of Housing Fund	911		
Depreciation of Objects of External Equipping and other analogous objets (015)	912		
Head			
Chief Accountant			

## Form 2

Approved by the  
 National Accounting Commission  
 for 1996 financial reporting

**STATEMENT OF OPERATIONS**  
 for the period from January 1 to 1 \_\_\_\_\_ 199 \_\_\_\_\_

Format # 2

	Date	Codes
Description		
Industry (type of business)		
Body of State Property Management		
Unit of Measuring 1,000 tenge	Control Amount	

### I FINANCIAL PERFORMANCE

DESCRIPTION	Page Code	Profit	Losses (expenses)
1	2	3	4
Revenue (Gross margin from sales of goods, (works, services)	010		X
VAT	015	X	
Excise	020	X	
	030	X	
Cost of production of sold products (works, services)	040	X	
Sales (010-015-020-030-040)	050		
Other sales	055		
Income and expenses from non-sales transactions	060		
Including			
on securities and interest in joint ventures	061		X
exchange differences on foreign currency accounts and foreign currency transactions	062		
Total profit and losses (070 +075 +080)	065		
Balance profit and losses	070		
FOR REFERENCES			
Actual volume of sold goods at sales prices	101		X

### II INCOME UTILISATION

DESCRIPTION	Page Code	for the end of reporting period
Payments into the budget	200	
Deductions into the Reserve (Insurance) Funds	210	
deducted for accumulation fund	220	
utilisation fund	230	
other purposes	250	
Head		
Chief Accountant		

**Form 3**

Approved by the  
 National Accounting Commission  
 for 1996 financial reporting

**ATTACHMENT TO BALANCE SHEET  
 for 1996**

	Date	Codes
Description		
Industry (type of business)		
Body of State Property Management		
Unit of Measuring 1,000 tenge	Control Amount	

**I OWNER'S CAPITAL AND FUNDS MOVEMENT**

FUND DESCRIPTION	P C	Beginning Balance	Receipts at the reporting year	Spent at the reporting year	Closing balance
I OWNER'S CAPITAL					
Charter Fund (capital)	010				
Reserve Fund	020				
Retained Earnings of prior years	030				
Total - Accumulation Fund	040				
	041				
	042				
	043				
Social Sphere Fund	044				
Property Indexation Fund	045				
Own Current Assets Replacement Fund	046				
Special Purpose Financing from Budget	050				
Special Purpose Financing and receipts from Industrial and Inter-industrial Funds	060				
	070				
	080				
	090				
Total for Section I	091				
II Other Funds					
Total - Consumption Fund	100				
	101				
Total for Section II	102				

**Installed and Actual Capacity by Region and Type  
MegaWatts Electric**

	Hydro		CHP		CHP Host		TPP		Total	
	Installed	Actual	Installed	Actual	Installed	Actual	Installed	Actual	Installed	Actual
<b>NORTHERN KAZAKSTAN</b>										
<b>East Kazakhstan Region</b>										
Ust Kamenogorsk CHP 1			242	232					242	232
Leninogorsk CHP			47	45					47	45
Sogrinskaya CHP					50	50			50	50
Balashinskaya	675	672							675	672
UstKamenogorsk	312	312							312	312
Leninogorskaya GES	14	2							14	2
<b>Semipalatinsk Region</b>										
<b>Semipalatinsk CHP</b>										
Shuibinsk	702	702	6	6					6	6
<b>Karaganda Region</b>										
<b>Karaganda TPP 1</b>										
Karaganda TPP 1							151	104	151	104
<b>Karaganda TPP 2</b>										
Karaganda TPP 2							608	608	608	608
<b>Karaganda CHP 1</b>										
Karaganda CHP 1			32	32					32	32
<b>Karaganda CHP 3</b>										
Karaganda CHP 3			440	395					440	395
<b>Karaganda CHP 2</b>										
Karaganda CHP 2					435	377			435	377
<b>TETZ 1 KMK</b>										
TETZ 1 KMK					132	70			132	70
<b>Tentetskaya CHP</b>										
Tentetskaya CHP			18	18					18	18
<b>Zheshkasgan Region</b>										
<b>Balkash CHP</b>										
Balkash CHP					125	123			125	123
<b>Dzhezkazgan CHP</b>										
Dzhezkazgan CHP					177	168			177	168
<b>Kustanal Region</b>										
<b>Kustanay CHP 1</b>										
Kustanay CHP 1			12	12					12	12
<b>Rudnenskaya CHP</b>										
Rudnenskaya CHP			123	103					123	103
<b>Torgai Region</b>										
<b>Arkalyk CHP</b>										
Arkalyk CHP			7	6					7	6
<b>Pavlodar Region</b>										
<b>Pavlodar CHP 1</b>										
Pavlodar CHP 1					350	307			350	307
<b>Pavlodar CHP 2</b>										
Pavlodar CHP 2					110	83			110	83
<b>Pavlodar CHP 3</b>										
Pavlodar CHP 3					440	385			440	385
<b>EEK* JSC TPP</b>										
EEK* JSC TPP							2 100	1 859	2 100	1 859
<b>AEC ST* JSC TPP 1</b>										
AEC ST* JSC TPP 1							4 000	1 914	4 000	1 914
<b>Ekibastuz TPP 2</b>										
Ekibastuz TPP 2							1 000	771	1 000	771
<b>North Kazakhstan Region</b>										
<b>Petropavlovsk CHP 2</b>										
Petropavlovsk CHP 2			380	301					380	301
<b>Akmola Region</b>										
<b>Akmolinsk CHP 1</b>										
Akmolinsk CHP 1			26	10					26	10
<b>Akmolinsk CHP 2</b>										
Akmolinsk CHP 2			240	207					240	207
<b>TEZ GHT</b>										
TEZ GHT			180	80					180	80
<b>Subtotal</b>	<b>1 703</b>	<b>1 688</b>	<b>1 752</b>	<b>1 447</b>	<b>1 819</b>	<b>1 563</b>	<b>7 859</b>	<b>5 256</b>	<b>13 133</b>	<b>9 954</b>
<b>Percentage</b>	<b>13 0%</b>	<b>17 0%</b>	<b>13 3%</b>	<b>14 5%</b>	<b>13 9%</b>	<b>15 7%</b>	<b>59 8%</b>	<b>52 8%</b>	<b>100 0%</b>	<b>100 0%</b>

Source KEGOC

45-

	Installed	Actual	Installed	Actual	Installed	Actual	Installed	Actual	Installed	Actual
<b>SOUTHERN KAZAKSTAN</b>										
<b>Almaty Region</b>										
Almaty CHP 1			145	110					145	110
Almaty CHP 2			510	400					510	400
Almaty TPP							173	165	173	165
Kapchagai	364	180							364	180
Almaty Cascade	48	17							48	17
<b>Taldy Korgan Region</b>										
Tekeliskaya CHP 2			24	24					24	24
Taldy Korganskaya GES	4	1							4	1
Karazhalskaya GES	101	1							10	1
<b>Dzhambul Region</b>										
Dzhambul TPP							1230	1104	1230	1104
Dzhambul CHP 4			60	60					60	60
<b>South Kazakhstan Region</b>										
Chimkent CHP 1			30	10					30	10
Chimkent CHP 2			12	6					12	6
Chimkent CHP 3			160	80					160	80
Kentau CHP 5			18	15					18	15
Shardarinskaya GES	100	50							100	50
<b>Kzyl-Orda Region</b>										
Kzyl-Orda CHP 6			146	68					146	68
<b>Subtotal</b>	<b>525</b>	<b>249</b>	<b>1105</b>	<b>773</b>			<b>1403</b>	<b>1269</b>	<b>3033</b>	<b>2291</b>
<b>Percentage</b>	<b>17.3%</b>	<b>10.9%</b>	<b>36.4%</b>	<b>33.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>46.3%</b>	<b>55.4%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>SOUTHWESTERN KAZAKSTAN</b>										
<b>Atyrau Region</b>										
Atyrau CHP			215	196					215	196
TETZ NP3					6	3			6	3
<b>Mangistau Region</b>										
TES3 MAEK (nuclear)							630	450	630	450
<b>Subtotal</b>			<b>215</b>	<b>196</b>	<b>6</b>	<b>3</b>	<b>630</b>	<b>450</b>	<b>851</b>	<b>649</b>
<b>Percentage</b>	<b>0%</b>	<b>0%</b>	<b>25%</b>	<b>30%</b>	<b>1%</b>	<b>0%</b>	<b>74%</b>	<b>69%</b>	<b>100%</b>	<b>100%</b>
<b>NORTHWESTERN KAZAKSTAN</b>										
<b>Aktyubinsk Region</b>										
Aktyubinsk CHP 1			73	67					73	67
Altinskaya CHP					4	3			4	3
AkTurbo JSC					98	90			98	90
<b>West Kazakhstan Region</b>										
Uralsk CHP 1			30	14					30	14
<b>Subtotal</b>			<b>103</b>	<b>81</b>	<b>102</b>	<b>93</b>			<b>205</b>	<b>174</b>
<b>Percentage</b>	<b>0%</b>	<b>0%</b>	<b>50%</b>	<b>47%</b>	<b>50%</b>	<b>53%</b>	<b>0%</b>	<b>0%</b>	<b>100%</b>	<b>100%</b>
<b>TOTALS</b>	<b>2228</b>	<b>1937</b>	<b>3175</b>	<b>2497</b>	<b>1927</b>	<b>1659</b>	<b>9892</b>	<b>6975</b>	<b>17222</b>	<b>13068</b>
<b>Overall Percentage</b>	<b>12.9%</b>	<b>14.8%</b>	<b>18.4%</b>	<b>19.1%</b>	<b>11.2%</b>	<b>12.7%</b>	<b>57.4%</b>	<b>53.4%</b>	<b>100.0%</b>	<b>100.0%</b>

Source KEGOC

Note Actual capacities are as reported by KEGOC true operating capacities are thought to be lower

**Table 2**  
**1996 Generation, Consumption between Distribution Companies**  
**Million KWhrs**

"Old" Distribution Company (note 1)	"New" Oblast-Based Distribution Companies	Generation	Consumption	Net Flow	Installed MWe	Actual MWe
<b>Northern Kazakstan</b>						
AltaiEnergO	East Kazakstan Semipalatinsk	7926	7732	-194	1340 708	1313 708
KaragandaEnergO	Karaganda Zheskasgan	8272	13639	5367	1816 302	1604 291
KostanayEnergO	Kostanay Torgay	588	6085	5497	135 6 5	115 6
PavlodarEnergO	Pavlodar	23628	9256	-14372	8000	5319
TseliEnergO	N Kazakstan Akmola	2788	6480	3692	380 446	301 297
<i>Subtotals</i>		43202	43192	-10	13134	9954
<b>Southern Region</b>						
AlmatyEnergO	Almaty Taldykorgan	4916	5783	867	1240 38	872 26
YushkazEnergO	Zhambyl South Kazakstan Kyzyl-Orda	4613	7107	2494	1290 320 146	1164 161 68
<i>Subtotals</i>		9529	12890	3361	3034	2291
<b>SouthWestern Region</b>						
AtyrauEnergO	JSC Atyrauenergo Mangistau (note2)	1493	1268	-225	221 630	199 450
<i>Subtotals</i>		1493	1268	-225	221	199
<b>NorthWestern Region</b>						
ZapkazEnergO	Aktyubinsk West Kazakstan	1068	2907	1839	175 30	160 14
<i>Subtotals</i>		1068	2907	1839	205	174
<b>Totals</b>		<b>55292</b>	<b>60257</b>	<b>4965</b>	<b>16594</b>	<b>12618</b>

Note 1 Generation and Consumption figures only available under "Old" Distribution boundaries

Note 2 Nuclear facility capacity not in generation figures

**Table 3a**  
**Retail Tariffs for Electrical Power Nov 1993-Oct 1995**  
**Unified Tariff--Applied to all Regions in Kazakstan**  
**Stated in 1997 Dollars, adusted for Tenge Inflation**

	Industrial & attached users with N>=750KVA Capacity		Industrial & attached users with N<=750KVA	Electrified rail way transport	Electrified city transport	Industrial agncultural users	Non-industnal users	Budgetary Organizations	Individuals
	US\$/kW	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr
11/15/93	\$ 26 81	\$ 0 021	\$ 0 026		\$ 0 021	\$ 0 019	\$ 0 021		\$ 0 009
4/1/94	\$ 21 29	\$ 0 016	\$ 0 022		\$ 0 027	\$ 0 018	\$ 0 027		\$ 0 012
5/17/94	\$ 44 59	\$ 0 033	\$ 0 046		\$ 0 049	\$ 0 035	\$ 0 049		\$ 0 008
7/1/94	\$ 35 76	\$ 0 027	\$ 0 037		\$ 0 039	\$ 0 028	\$ 0 039		\$ 0 022
9/1/94	\$ 42 54	\$ 0 034	\$ 0 046		\$ 0 049	\$ 0 039	\$ 0 049		\$ 0 032

Source Antimonopoly Commission

**Table 3b**  
**Retail Tariffs for Electrical Power Oct 1995-Oct 1997**  
**By Region in Kazakhstan**  
**Stated in 1997 Dollars, adusted for Tenge Inflation**

	Industrial & attached users with N>=750KVA		Industrial & attached users with N<=750KVA	Electrified rail way transport	Electrified city transport	Industrial agncultural users	Non-industrial users	Budgetary Organizations	Individuals
	Capacity US\$/kW	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr
<b>NORTHERN REGION</b>									
<b>E Kazakhstan (includes Sempalitsk)</b>									
10/1/95	\$ 32 54	\$ 0 011	\$ 0 023		\$ 0 027	\$ 0 018	\$ 0 031	\$ 0 031	\$ 0 033
2/1/96	\$ 30 68	\$ 0 011	\$ 0 021	\$ 0 021	\$ 0 025	\$ 0 015	\$ 0 029	\$ 0 018	\$ 0 031
4/2/96		\$ 0 012	\$ 0 025		\$ 0 028	\$ 0 017	\$ 0 033	\$ 0 020	\$ 0 030
7/1/96	\$ 9 85	\$ 0 014	\$ 0 029		\$ 0 027	\$ 0 020	\$ 0 039	\$ 0 024	\$ 0 030
10/1/96	\$ 38 17	\$ 0 014	\$ 0 026		\$ 0 020	\$ 0 017	\$ 0 034	\$ 0 021	\$ 0 029
1/1/97	\$ 39 73	\$ 0 011	\$ 0 024		\$ 0 019	\$ 0 016	\$ 0 032	\$ 0 019	\$ 0 027
4/1/97	\$ 39 26	\$ 0 011	\$ 0 028		\$ 0 021	\$ 0 020	\$ 0 036	\$ 0 019	\$ 0 027
7/1/97	\$ 50 05	\$ 0 015	\$ 0 034		\$ 0 023	\$ 0 026	\$ 0 037	\$ 0 026	\$ 0 031
10/1/97	\$ 49 92	\$ 0 015	\$ 0 034		\$ 0 023	\$ 0 025	\$ 0 037	\$ 0 025	\$ 0 031
<b>Karaganda (includes Zhezkazgan)</b>									
10/1/95	\$ 32 54	\$ 0 028	\$ 0 030		\$ 0 031	\$ 0 030	\$ 0 031		\$ 0 033
2/1/96	\$ 32 22	\$ 0 028	\$ 0 030	\$ 0 030	\$ 0 029	\$ 0 030	\$ 0 035	\$ 0 029	\$ 0 031
4/2/96	\$ 31 95	\$ 0 029	\$ 0 033	\$ 0 033	\$ 0 029	\$ 0 028	\$ 0 035	\$ 0 029	\$ 0 030
7/1/96	\$ 37 60	\$ 0 031	\$ 0 039	\$ 0 039	\$ 0 030	\$ 0 028	\$ 0 045	\$ 0 030	\$ 0 030
10/1/96	\$ 50 67	\$ 0 044	\$ 0 052		\$ 0 030	\$ 0 028	\$ 0 058	\$ 0 029	\$ 0 029
1/1/97	\$ 43 01	\$ 0 037	\$ 0 043		\$ 0 028	\$ 0 029	\$ 0 054	\$ 0 027	\$ 0 035
4/1/97	\$ 42 49	\$ 0 038	\$ 0 044	\$ 0 042	\$ 0 042	\$ 0 042	\$ 0 042	\$ 0 041	\$ 0 040
7/1/97		\$ 0 037	\$ 0 044	\$ 0 042	\$ 0 042	\$ 0 042	\$ 0 042	\$ 0 041	\$ 0 040
10/1/97		\$ 0 037	\$ 0 045	\$ 0 041	\$ 0 041	\$ 0 041	\$ 0 041	\$ 0 041	\$ 0 040
<b>Kostanaï</b>									
10/1/95	\$ 26 03	\$ 0 019	\$ 0 023	\$ 0 023	\$ 0 025	\$ 0 020	\$ 0 025	\$ 0 020	\$ 0 033
2/1/96	\$ 6 67	\$ 0 019	\$ 0 023		\$ 0 025	\$ 0 020	\$ 0 025	\$ 0 020	\$ 0 031
4/2/96	\$ 6 85	\$ 0 020	\$ 0 024		\$ 0 026	\$ 0 021	\$ 0 026	\$ 0 021	\$ 0 030
7/1/96	\$ 9 58	\$ 0 027	\$ 0 034		\$ 0 036	\$ 0 029	\$ 0 036	\$ 0 029	\$ 0 030
10/1/96	\$ 13 66	\$ 0 041	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 028	\$ 0 029
1/1/97	\$ 50 74	\$ 0 038	\$ 0 044	\$ 0 044	\$ 0 044	\$ 0 044	\$ 0 044	\$ 0 026	\$ 0 027
4/1/97	\$ 50 13	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 033	\$ 0 033
7/1/97		\$ 0 053	\$ 0 050	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 040
10/1/97		\$ 0 053	\$ 0 050	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 040
<b>Pavlodar</b>									
10/1/95	\$ 19 52	\$ 0 022	\$ 0 023		\$ 0 020	\$ 0 007	\$ 0 020	\$ 0 007	\$ 0 033
2/1/96	\$ 18 41	\$ 0 021	\$ 0 021		\$ 0 018	\$ 0 006	\$ 0 018	\$ 0 006	\$ 0 031
4/2/96	\$ 18 26	\$ 0 025	\$ 0 021		\$ 0 018	\$ 0 006	\$ 0 018	\$ 0 006	\$ 0 030
7/1/96	\$ 17 91	\$ 0 030	\$ 0 029		\$ 0 021	\$ 0 012	\$ 0 021	\$ 0 007	\$ 0 030
10/1/96	\$ 17 35	\$ 0 029	\$ 0 028		\$ 0 020	\$ 0 012	\$ 0 020	\$ 0 007	\$ 0 029
1/1/97	\$ 24 16	\$ 0 038	\$ 0 034		\$ 0 034	\$ 0 030	\$ 0 030		\$ 0 027
4/1/97		\$ 0 022	\$ 0 022		\$ 0 022	\$ 0 022	\$ 0 022	\$ 0 022	\$ 0 027
7/1/97	\$ 21 16	\$ 0 023	\$ 0 026		\$ 0 026	\$ 0 026	\$ 0 026	\$ 0 026	\$ 0 032
10/1/97	\$ 21 11	\$ 0 023	\$ 0 026		\$ 0 026	\$ 0 026	\$ 0 026	\$ 0 026	\$ 0 032
<b>N Kazakhstan (includes Kokshetau)</b>									
10/1/95	\$ 20 63	\$ 0 019	\$ 0 018	\$ 0 031	\$ 0 016	\$ 0 016	\$ 0 016		\$ 0 033
2/1/96	\$ 19 88	\$ 0 019	\$ 0 023		\$ 0 025	\$ 0 020	\$ 0 025	\$ 0 020	
4/2/96		\$ 0 020	\$ 0 024		\$ 0 026	\$ 0 021	\$ 0 026	\$ 0 021	
7/1/96	\$ 19 34	\$ 0 019	\$ 0 018		\$ 0 017	\$ 0 016	\$ 0 027	\$ 0 017	
10/1/96	\$ 30 45	\$ 0 019	\$ 0 018		\$ 0 016	\$ 0 016	\$ 0 026	\$ 0 016	
1/1/97	\$ 28 27	\$ 0 035	\$ 0 035	\$ 0 035	\$ 0 035	\$ 0 035	\$ 0 035	\$ 0 035	\$ 0 027
4/1/97	\$ 27 93	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 027
7/1/97	\$ 34 92	\$ 0 043	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 047	\$ 0 040
10/1/97	\$ 42 74	\$ 0 050	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053	\$ 0 053
<b>Akmola (includes Torgai)</b>									
10/1/95	\$ 20 63	\$ 0 019	\$ 0 018	\$ 0 031	\$ 0 016	\$ 0 016	\$ 0 016		\$ 0 033
2/1/96	\$ 14 73	\$ 0 019	\$ 0 024	\$ 0 031	\$ 0 018	\$ 0 017	\$ 0 025	\$ 0 018	\$ 0 031
4/2/96	\$ 14 61	\$ 0 020	\$ 0 024	\$ 0 031	\$ 0 017	\$ 0 017	\$ 0 025	\$ 0 017	\$ 0 030
7/1/96	\$ 5 67	\$ 0 025	\$ 0 032	\$ 0 034	\$ 0 019	\$ 0 022	\$ 0 032	\$ 0 022	\$ 0 030

	Industrial & attached users with N>=750KVA		Industrial & attached users with N<=750KVA	Electrified rail way transport	Electrified city transport	Industrial agricultural users	Non-industrial users	Budgetary Organizations	Individuals
	Capacity US\$/kW	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr
10/1/96	\$ 7 52	\$ 0 033	\$ 0 037	\$ 0 037	\$ 0 029	\$ 0 037			\$ 0 029
1/1/97	\$ 27 92	\$ 0 039	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 034
4/1/97	\$ 27 59	\$ 0 039	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 033
7/1/97	\$ 27 51	\$ 0 039	\$ 0 043		\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 033
10/1/97	\$ 26 39	\$ 0 034	\$ 0 038		\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 033
<b>SOUTHERN REGION</b>									
Almaty (includes Taldy-Korgan)									
10/1/95	\$ 26 03	\$ 0 016	\$ 0 025	\$ 0 025	\$ 0 028	\$ 0 028	\$ 0 028	\$ 0 028	\$ 0 033
2/1/96	\$ 18 41	\$ 0 015	\$ 0 025	\$ 0 025	\$ 0 026	\$ 0 027	\$ 0 026	\$ 0 026	\$ 0 031
4/2/96	\$ 20 54	\$ 0 017	\$ 0 025	\$ 0 025	\$ 0 027	\$ 0 027	\$ 0 027	\$ 0 027	\$ 0 030
7/1/96	\$ -	\$ 0 025	\$ 0 033	\$ 0 033	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 034	\$ 0 030
10/1/96	\$ 39 91	\$ 0 032	\$ 0 043	\$ 0 043	\$ 0 039	\$ 0 038	\$ 0 045	\$ 0 033	\$ 0 029
1/1/97	\$ 37 05	\$ 0 030	\$ 0 040		\$ 0 036	\$ 0 036	\$ 0 042	\$ 0 031	\$ 0 027
4/1/97	\$ 36 60	\$ 0 040	\$ 0 050		\$ 0 042	\$ 0 046	\$ 0 052	\$ 0 046	\$ 0 053
7/1/97	\$ 36 51	\$ 0 040	\$ 0 050		\$ 0 042	\$ 0 046	\$ 0 052	\$ 0 046	\$ 0 053
10/1/97	\$ 36 41	\$ 0 040	\$ 0 049		\$ 0 042	\$ 0 046	\$ 0 052	\$ 0 046	\$ 0 053
Zhambyl									
10/1/95	\$ 32 54	\$ 0 027	\$ 0 036	\$ 0 036	\$ 0 042	\$ 0 034	\$ 0 042		\$ 0 033
2/1/96									\$ 0 031
4/2/96	\$ 23 84	\$ 0 026	\$ 0 035		\$ 0 030	\$ 0 033	\$ 0 041	\$ 0 041	\$ 0 030
7/1/96	\$ 35 81	\$ 0 030	\$ 0 040		\$ 0 030	\$ 0 039	\$ 0 045	\$ 0 045	\$ 0 030
10/1/96	\$ 34 70	\$ 0 029	\$ 0 039		\$ 0 029	\$ 0 038	\$ 0 043	\$ 0 043	\$ 0 029
1/1/97	\$ 50 90	\$ 0 042	\$ 0 051		\$ 0 040	\$ 0 049	\$ 0 046	\$ 0 040	\$ 0 033
4/1/97	\$ 50 29	\$ 0 042	\$ 0 051		\$ 0 040	\$ 0 048	\$ 0 045	\$ 0 040	\$ 0 032
7/1/97	\$ 50 16	\$ 0 042	\$ 0 051		\$ 0 040	\$ 0 048	\$ 0 045	\$ 0 040	\$ 0 032
10/1/97	\$ 56 82	\$ 0 042	\$ 0 052		\$ 0 042	\$ 0 051	\$ 0 046		\$ 0 041
S Kazakstan									
10/1/95	\$ 32 54	\$ 0 027	\$ 0 036	\$ 0 036	\$ 0 042	\$ 0 034	\$ 0 042		\$ 0 033
2/1/96									
4/2/96	\$ 23 84	\$ 0 026	\$ 0 032		\$ 0 030	\$ 0 033	\$ 0 041	\$ 0 041	
7/1/96	\$ 35 81	\$ 0 031	\$ 0 041		\$ 0 030	\$ 0 039	\$ 0 048	\$ 0 048	
10/1/96	\$ 34 70	\$ 0 030	\$ 0 040		\$ 0 029	\$ 0 038	\$ 0 047	\$ 0 047	
1/1/97	\$ 32 21	\$ 0 028	\$ 0 038		\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 042	\$ 0 035
4/1/97	\$ 31 83	\$ 0 028	\$ 0 038		\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 041	\$ 0 034
7/1/97		\$ 0 042	\$ 0 043		\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 045	\$ 0 041
10/1/97		\$ 0 036	\$ 0 050		\$ 0 050	\$ 0 050	\$ 0 050	\$ 0 050	\$ 0 041
Kyzyl Orda									
10/1/95	\$ 32 54	\$ 0 027	\$ 0 036	\$ 0 036		\$ 0 034	\$ 0 042		\$ 0 033
2/1/96									
4/2/96	\$ 23 84	\$ 0 026	\$ 0 035	\$ 0 035		\$ 0 033	\$ 0 041	\$ 0 041	
7/1/96	\$ 35 81	\$ 0 036	\$ 0 048		\$ 0 042	\$ 0 052	\$ 0 052	\$ 0 052	
10/1/96	\$ 34 70	\$ 0 035	\$ 0 047		\$ 0 040	\$ 0 050	\$ 0 050	\$ 0 050	
1/1/97	\$ 48 32	\$ 0 061	\$ 0 083		\$ 0 071	\$ 0 087			\$ 0 034
4/1/97	\$ 47 75	\$ 0 054	\$ 0 073		\$ 0 076	\$ 0 076			\$ 0 050
7/1/97	\$ 47 62	\$ 0 053	\$ 0 072		\$ 0 076	\$ 0 076			\$ 0 053
10/1/97	\$ 47 49	\$ 0 053	\$ 0 053		\$ 0 053	\$ 0 053			\$ 0 064

	Industrial & attached users with N>=750KVA		Industrial & attached users with N<=750KVA	Electrified rail way transport	Electrified city transport	Industrial agricultural users	Non-industrial users	Budgetary Organizations	Individuals
	Capacity US\$/kW	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr	US\$/kWhr
<b>SW REGION</b>									
Atrau									
10/1/95	\$ 26 35	\$ 0 020	\$ 0 028	\$ 0 028		\$ 0 021	\$ 0 026	\$ 0 026	\$ 0 033
2/1/96	\$ 27 62	\$ 0 022	\$ 0 031	\$ 0 031		\$ 0 020	\$ 0 025	\$ 0 025	\$ 0 031
4/2/96	\$ 27 39	\$ 0 022	\$ 0 031	\$ 0 031		\$ 0 023	\$ 0 030	\$ 0 027	\$ 0 030
7/1/96	\$ 26 56	\$ 0 028	\$ 0 038	\$ 0 038		\$ 0 028	\$ 0 037	\$ 0 032	\$ 0 030
10/1/96	\$ 25 74	\$ 0 027	\$ 0 037	\$ 0 037		\$ 0 027	\$ 0 036		\$ 0 029
1/1/97	\$ 35 60	\$ 0 031	\$ 0 042			\$ 0 031	\$ 0 042	\$ 0 036	\$ 0 027
4/1/97	\$ 32 15	\$ 0 031	\$ 0 031			\$ 0 031	\$ 0 027	\$ 0 031	\$ 0 033
7/1/97	\$ 36 46	\$ 0 034	\$ 0 032			\$ 0 032	\$ 0 032	\$ 0 032	\$ 0 026
10/1/97	\$ 36 36	\$ 0 034	\$ 0 032			\$ 0 032	\$ 0 032	\$ 0 032	\$ 0 026
Mangistau									
10/1/95		\$ 0 037	\$ 0 037						
2/1/96									
4/2/96			\$ 0 047			\$ 0 037	\$ 0 047		
7/1/96			\$ 0 052			\$ 0 043	\$ 0 055	\$ 0 052	
10/1/96			\$ 0 050			\$ 0 042	\$ 0 053	\$ 0 050	
1/1/97		\$ 0 036				\$ 0 036	\$ 0 036	\$ 0 036	\$ 0 034
4/1/97		\$ 0 043				\$ 0 043	\$ 0 043	\$ 0 043	\$ 0 036
7/1/97			\$ 0 038			\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 042
10/1/97			\$ 0 038			\$ 0 038	\$ 0 038	\$ 0 038	\$ 0 042
<b>NW REGION</b>									
Aktyubinsk									
10/1/95	\$ 19 52	\$ 0 023	\$ 0 024		\$ 0 008	\$ 0 020	\$ 0 025	\$ 0 024	\$ 0 033
2/1/96	\$ 18 41	\$ 0 022	\$ 0 023	\$ 0 023	\$ 0 016	\$ 0 019	\$ 0 028	\$ 0 023	\$ 0 031
4/2/96	\$ 18 26	\$ 0 023	\$ 0 025	\$ 0 025	\$ 0 019	\$ 0 017	\$ 0 029	\$ 0 023	\$ 0 030
7/1/96	\$ 17 91	\$ 0 046	\$ 0 046	\$ 0 046	\$ 0 030	\$ 0 045	\$ 0 060	\$ 0 045	\$ 0 045
10/1/96	\$ 17 35	\$ 0 045	\$ 0 045	\$ 0 045	\$ 0 029	\$ 0 043	\$ 0 058	\$ 0 043	\$ 0 043
1/1/97	\$ 16 11	\$ 0 042	\$ 0 042	\$ 0 042	\$ 0 027	\$ 0 040	\$ 0 054	\$ 0 040	\$ 0 040
4/1/97	\$ 15 92	\$ 0 041	\$ 0 041	\$ 0 041	\$ 0 027	\$ 0 040	\$ 0 053	\$ 0 040	\$ 0 040
7/1/97			\$ 0 055		\$ 0 026	\$ 0 055	\$ 0 055	\$ 0 055	\$ 0 044
10/1/97	\$ 15 83	\$ 0 054	\$ 0 055		\$ 0 026	\$ 0 055	\$ 0 055	\$ 0 055	\$ 0 044
W Kazakstan									
10/1/95	\$ 19 52	\$ 0 023	\$ 0 024		\$ 0 008	\$ 0 020	\$ 0 025	\$ 0 024	\$ 0 033
2/1/96	\$ 18 41	\$ 0 022	\$ 0 023	\$ 0 023	\$ 0 016	\$ 0 019	\$ 0 028	\$ 0 023	\$ 0 031
4/2/96	\$ 18 26	\$ 0 023	\$ 0 025	\$ 0 025	\$ 0 019	\$ 0 019	\$ 0 029	\$ 0 023	\$ 0 030
7/1/96	\$ 17 91	\$ 0 053	\$ 0 061			\$ 0 045	\$ 0 061	\$ 0 061	\$ 0 030
10/1/96	\$ 17 35	\$ 0 051	\$ 0 059			\$ 0 043	\$ 0 059	\$ 0 059	\$ 0 029
1/1/97	\$ 16 11	\$ 0 048	\$ 0 055			\$ 0 040	\$ 0 055	\$ 0 055	\$ 0 034
4/1/97	\$ 15 92	\$ 0 052	\$ 0 057			\$ 0 049	\$ 0 057	\$ 0 051	\$ 0 046
7/1/97	\$ 15 87	\$ 0 052	\$ 0 060			\$ 0 051	\$ 0 060	\$ 0 051	\$ 0 046
10/1/97	\$ 15 83	\$ 0 051	\$ 0 060			\$ 0 051	\$ 0 060	\$ 0 051	\$ 0 046

**Table 4**  
**Consumption, Quantities by User and Energy**  
**Million KWhrs (1996)**

	North Region						South Region			NW Region	SW Region	TOTAL
	E Kazakhstan	Karaganda	Kostanay (includes Torgai)	Pavlodar	N Kazakhstan Akmola (includes Kokshetau)	Totals	Almaty Taldy Korgan	Shambyl S Kazakhstan Kyzyl Orda	Totals	Aktubinsk W Kazakhstan	Atyrau	
Industrial users with N>=750KVA	4 425	8 017	1 440	4 509	1 235	19 625	1 212	2 764	3 976	974	623	25 198
Industrial users with N<=750KVA	644	410	187	337	370	1 949	638	501	1 139	315	116	3 518
Electrified rail way transport		629	297	139	871	1 936	-	78	78		-	2 014
Electrified city transport	8	27	6	50	19	110	64	28	92	6	-	208
Industrial agricultural users	683	780	2 821	1 913	1 254	7 451	528	578	1 106	350	39	8 945
Non industrial users	730	752	391	793	507	3 172	1 090	818	1 908	344	137	5 562
Individuals (including resellers)	1 164	3 010	874	1 377	2 164	8 590	2 222	2 228	4 450	918	352	14 310
Used by System	78	14	70	139	58	358	29	113	142	-	1	502
<b>Total</b>	<b>7,732</b>	<b>13 639</b>	<b>6 085</b>	<b>9 256</b>	<b>6 480</b>	<b>43 192</b>	<b>5 783</b>	<b>7 107</b>	<b>12 890</b>	<b>2,907</b>	<b>1 268</b>	<b>60,257</b>

Source KEGOC

**Table 5a**  
**Estimate of Sales by User and Region**  
**Million US Dollars (Based on 1996 Consumption and 1996 Tariffs)**

	North Region						South Region			NW Region	SW Region	TOTAL
	E Kazakhstan	Karaganda	Kostanay (includes Torgai)	Pavlodar	N Kazakhstan Akmola (includes Kokshetau)	Totals	Almaty Taldy Korgan	Shambyl S Kazakhstan Kyzyl-Orda	Totals	Aktyubinsk W Kazakhstan	Atyrau	
Industrial users with N>=750KVA	80 704	398 739	61 156	139 327	34 370	714 295	44 261	93 672	137 933	45 581	18 596	916 405
Industrial users with N<=750KVA	16 770	21 363	8 846	9 403	10 178	66 559	27 216	19 977	47 193	14 115	4 624	132 491
Electrified rail way transport	0 000	23 657	14 098	2 914	39 284	79 952	0 000	2 467	2 467	0 000	0 000	82 419
Electrified city transport	0 157	0 831	0 276	1 003	0 441	2 709	2 491	0 816	3 306	0 169	0 000	6 184
Industrial agricultural users	11 853	21 986	133 790	22 124	33 283	223 036	20 225	21 902	42 127	15 177	1 463	281 804
Non Industrial users	24 901	43 517	18 521	16 049	14 477	117 464	49 194	38 434	87 628	19 899	6 447	231 438
Individuals (including resellers)	33 674	87 033	25 283	39 834	62 589	248 414	64 244	64 430	128 674	39 840	10 169	427 096
<b>Total Sales</b>	<b>168 1</b>	<b>597 1</b>	<b>262 0</b>	<b>230 7</b>	<b>194 6</b>	<b>1452 4</b>	<b>207 6</b>	<b>241 7</b>	<b>449 3</b>	<b>134 8</b>	<b>41 3</b>	<b>2077 8</b>
Average End User Tariff \$/Kwhr	\$ 0 0220	\$ 0 0438	\$ 0 0436	\$ 0 0253	\$ 0 0303	\$ 0 0339	\$ 0 0361	\$ 0 0346	\$ 0 0352	\$ 0 0464	\$ 0 0326	\$ 0 0348

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**Table 5b**

**Estimate of Sales by User and Region**  
**Million US Dollars (Based on 1996 Consumption and 1997 Tariffs)**

	North Region						South Region			NW Region	SW Region	TOTAL
	E Kazakhstan	Karaganda	Kostanay (includes Torgai)	Pavlodar	N Kazakhstan Akmola (includes Kokshetau)	Totals	Almaty Taldy Korgan	Shambyl S Kazakhstan Kyzyl-Orda	Totals	Aktyubinsk W Kazakhstan	Atyrau	
Industrial users with N>=750KVA	101 216	366 950	92 247	125 352	62 211	747 977	58 810	120 447	179 257	59 662	25 819	1012 715
Industrial users with N<=750KVA	23 757	20 176	10 140	9 744	18 454	82 271	34 596	27 288	61 884	18 896	6 317	169 368
Electrified rail way transport	0 000	28 207	17 192	2 914	45 524	93 836	0 000	2 467	2 467	0 000	0 000	96 303
Electrified city transport	0 198	1 226	0 337	1 433	0 971	4 165	2 952	1 537	4 490	0 169	0 000	8 823
Industrial agricultural users	19 064	34 952	163 159	55 311	62 484	334 970	26 712	31 516	58 228	20 995	2 106	416 299
Non-industrial users	29 755	33 725	22 586	22 927	25 253	134 245	61 651	44 583	106 234	20 645	7 478	268 603
Individuals (including resellers)	39 062	130 550	37 925	47 801	101 707	357 045	128 488	99 867	228 354	43 823	15 761	644 984
<b>Total Sales</b>	<b>213 1</b>	<b>615 8</b>	<b>343 6</b>	<b>265 5</b>	<b>316 6</b>	<b>1754 5</b>	<b>313 2</b>	<b>327 7</b>	<b>640 9</b>	<b>164 2</b>	<b>57 5</b>	<b>2817 1</b>
<b>Average End User Tariff \$/Kwhr</b>	<b>\$ 0 0278</b>	<b>\$ 0 0452</b>	<b>\$ 0 0571</b>	<b>\$ 0 0291</b>	<b>\$ 0 0493</b>	<b>\$ 0 0410</b>	<b>\$ 0 0544</b>	<b>\$ 0 0469</b>	<b>\$ 0 0503</b>	<b>\$ 0 0565</b>	<b>\$ 0 0454</b>	<b>\$ 0 0438</b>

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**Table 6**  
**Power Generation Tariffs in Kazakhstan**  
 Approved by the Antimonopoly Committee of the Republic of Kazakhstan

Tenge/\$= 75 60

Power Generator	Tariffs effective	Tariffs effective Oct 1		Facility Capacity (note 1)	Estimated Output	Estimated Gross Sales
	July 1 1997	1997				
	Tenge/kWh	Tenge/kWh	\$/kWh	MWe	MWhrs	US \$
Ermakovskaya GRES	1 0000	1 0000	\$0 01323	1859	10,596 300	140,162,698
EuroAsian Energy Corporation* LLC	1 0000	1 0000	\$0 01323		-	-
Bukhtarminskaya GES	0 2025	0 2025	\$0 00268	672	3 830,400	10,260,000
<i>Kapchagaiskaya GES (note 2)</i>	<i>0 1240</i>	<i>0 1240</i>	<i>\$0 00164</i>	<i>180</i>	<i>1 026 000</i>	<i>1,682 857</i>
Zhambyl GRES	1 5200	1 6000	\$0 02116	1104	6 292 800	133 180 952
Karaganda GRES-2	1 6400	1 6400	\$0 02169	608	3 465 600	75 179 683
Ekibastuz GRES 1 (tariff is in US\$)			\$0 02800	1914	10 909 800	305 474 400
Ekibastuz GRES 2	1 4800	1 4800	\$0 01958	771	4 394 700	86 033 810
<i>Almaty Power &amp; Heating Plant 1 (note 2)</i>	<i>0 8880</i>	<i>0 8880</i>	<i>\$0 01175</i>	<i>110</i>	<i>627 000</i>	<i>7 364 762</i>
<i>Almaty Power &amp; Heating Plant 2 (note 2)</i>	<i>0 7310</i>	<i>0 7310</i>	<i>\$0 00967</i>	<i>400</i>	<i>2 280 000</i>	<i>22 046 032</i>
<i>Almaty GRES (note 2)</i>	<i>0 9660</i>	<i>0 9660</i>	<i>\$0 01278</i>	<i>165</i>	<i>940 500</i>	<i>12 017 500</i>
<i>Cascade GES (note 2)</i>	<i>0 4980</i>	<i>0 4980</i>	<i>\$0 00659</i>	<i>17</i>	<i>96 900</i>	<i>638 310</i>
Taldy kurgan power stations regional directorate	0 7765	0 7765	\$0 01027			
Ust Kamenogorsk GES	0 0964	0 1212	\$0 00160	312	1 778 400	2 851 086
Ust Kamenogorsk Power & Heating Plant	2 5065	2 5065	\$0 03315			
Leninogorsk Power & Heating Plant	3 4150	3 4150	\$0 04517	45	256 500	11 586 607
Sogrninskaya Power & Heating Plant	2 5330	2 5330	\$0 03351	50	285 000	9 549 008
Shulbinskaya GES	0 7160	0 8730	\$0 01155	702	4 001 400	46 206 643
<i>Atyrau Power &amp; Heating Plant (note 2)</i>	<i>0 9700</i>	<i>0 9700</i>	<i>\$0 01283</i>	<i>196</i>	<i>1 117 200</i>	<i>14 334 444</i>
Uralsk Power & Heating Plant	0 9500	0 9500	\$0 01257	14	79 800	1 002 778
Karaganda Power & Heating Plant 1	1 3000	1 3000	\$0 01720	32	182 400	3 136 508
Karaganda Power & Heating Plant 3	1 2700	1 3000	\$0 01720	395	2 251 500	38 716 270
Karaganda GRES 1	1 9520	1 9520	\$0 02582	10	57 000	1 471 746
<i>Zhezkazgan Power &amp; Heating Plant (note 2)</i>	<i>1 5800</i>	<i>1 5800</i>	<i>\$0 02090</i>	<i>168</i>	<i>957 600</i>	<i>20 013 333</i>
Rudnenskaya Power & Heating Plant	1 7000	1 7000	\$0 02249	103	587 100	13 201 984
Pavlodar Power & Heating Plant-1	0 5200	0 5200	\$0 00688	307	1 749 900	12 036 349
Pavlodar Power & Heating Plant-2	1 0200	1 0200	\$0 01349	83	473 100	6 383 095
Pavlodar Power & Heating Plant-3	1 3200	1 3200	\$0 01746	385	2 194 500	38 316 667
Akmolinskaya Power & Heating Plant 2	1 4800	1 5000	\$0 01984		-	-
Petropavlovsk Power & Heating Plant 2	1 7110	1 7110	\$0 02263		-	-
Shymkent Power & Heating Plant 3	2 0320	2 3100	\$0 03056	80	456 000	13 933 333
Arkalyk Power & Heating Plant	1 3300	1 3300	\$0 01759	6	34 200	601 667
TOTALS				10688	60 921 600	1 027 382 521

Estimated Average \$/Kwhr

0 0169\$

Source NES KE and Antimonopoly Commission

Note1 Actual capacities are as reported by KEGOC true operating capacities are thought to be lower

Note 2 AMC does not set prices for Almaty and other facilities as they are owned by the regional distribution company

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