



Mongolia's Energy Sector Commercialization and Privatization Program

Final Report of The Economic Policy Support Project's Technical Assistance Effort

Prepared for The Economic Policy Support Project
United States Agency for International
Development (Contract # 410-C-00-93-00483-00)

D. Bumtsetseg, Coordinator
Ch. Shaaluu, Accounting and Financial Specialist
N. Amgalan, Financial Economist

August 2003

Development *Alternatives*, Inc.

7250 Woodmont Avenue, Suite 200, Bethesda, Maryland 20814
Tel: (301) 718-8699 Fax: (301) 718-7968 Email: info@dai.com

TABLE OF CONTENTS

ACRONYMS	v
INTRODUCTION	1
OBJECTIVES AND PROVISIONS OF THE EPSP ENERGY SECTOR COMMERCIALIZATION AND PRIVATIZATION PROGRAM.....	1
DESCRIPTION OF ESCPP TASKS FOR HEAT AND POWER SECTOR REFORM	2
LEGAL REFORM	3
ACHIEVEMENTS AND PROGRESS OF HEAT AND POWER SECTOR REFORM	5
Regulatory Reform.....	5
Commercialization of Selected Energy Companies	20
PRIVATIZATION PROGRAM.....	25
 ANNEX 1	
LIST OF REPORTS AND PRESENTATIONS	27
 ANNEX 2	
ESCPP CONTRIBUTORS	29
 ANNEX 3	
PROGRESS ON COMPANY-SPECIFIC COMMERCIALIZATION RECOMMENDATIONS	30

LIST OF TABLES AND FIGURES

Table

1	ESCPP Assistance with Energy Sector Regulatory Reform.....	7
2	Company-Specific Commercialization Recommendations	22
3	Sector-Specific Commercialization Recommendations	22
4	Main Indices of the EES	24
5	Main Indices of UBPP-4.....	24
6	Main Indices of the DSEDN	25
7	Main Indices of the UBHN	25

Figure

1	Building Blocks of Tariff Policy.....	14
---	---------------------------------------	----

ACRONYMS

CES	Central Energy System
DSEDN	Darkhan-Selenge Electricity Distribution Network
EA	Energy Authority
EES	Eastern Energy System
EPSP	Economic Policy Support Project
ERA	Energy Regulatory Authority
ESCPP	Energy Sector Commercialization and Privatization Program
FEGA	Fuel and Energy General Authority
MIS	management information system
MOFE	Ministry of Finance and Economy
MOI	Ministry of Infrastructure
NDC	National Dispatching Center
SPC	State Property Committee
UBEDN	Ulaanbaatar Electricity Distribution Network
UBHN	Ulaanbaatar Heat Network
UBPP-4	Ulaanbaatar Power Plant 4
WES	Western Energy System

INTRODUCTION

In the second half of the 20th century, Mongolia's heat and power sector, or energy sector, was operated by a vertically integrated, highly centralized, state-owned monopoly, the Energy Authority (EA). The sector was characterized by government-set energy prices that were fixed below operating costs. Prices reflected state control and had little if any relation to actual costs.

Because of this pricing structure, the sector has experienced cash-flow shortages, has been unable to perform maintenance and refurbishment, and has not invested in augmenting generating capacity. Sector operations have depended on donor funding and soft loans for the past few years. Furthermore, the poorly defined legal status of the EA as the centralized state-owned monopoly enterprise, including its authority to regulate and change prices, has compounded the EA's financial problems. Legal uncertainties have compromised the financial integrity of receivables and payables, for example. Additionally, given the outstanding international debt, a financial straightjacket has prevented the EA from seeking customary industry solutions to its problems.

The Mongolian government has taken steps to rectify these problems. The most basic step has been the passage of the Energy Law with the assistance of a USAID/Economic Policy Support Project (EPSP) subproject, the Energy Sector Commercialization and Privatization Program (ESCPP). ESCPP's first stage occurred from 1998 to 2000; its second and current stage began in 2001, after the Energy Law went into effect on April 15 of that year. The government views this law, which has reduced the cost of governmental oversight, as very important to the government's efforts to commercialize and eventually privatize the power sector. The cornerstone of the law is a licensing regime for each heat and power sector activity. This has given rise to unbundling, the separation of the generation, transmission, dispatch, distribution, and supply of electricity and heat into distinct commercial entities. The other key provision of the law has been the establishment of the Energy Regulatory Authority (ERA) with rate-making responsibility.

OBJECTIVES AND PROVISIONS OF THE EPSP ENERGY SECTOR COMMERCIALIZATION AND PRIVATIZATION PROGRAM

The Government of Mongolia requested USAID assistance for the energy sector's privatization, summarizing the tasks required in a letter from the Minister of Infrastructure dated September 27, 2000. The letter stipulated technical assistance with regulations, energy policies, privatization concepts, valuation of EA assets in the context of the privatization agenda, assistance in commercializing EA activities, and assistance with training the personnel of unbundled companies. At the same time, the State Property Committee (SPC) was tasked to carry out the restructuring and eventual privatization of the EA's successor companies.

The purpose of ESCPP has been to promote development of conditions conducive to introducing market conditions and replacing state ownership with private ownership. To this end, the following objectives were set out:

- Restructuring the vertically integrated utility (the EA) and unbundling it into state corporations;
- Establishing the ERA;
- Setting up a licensing regime to ensure that commercial and regulatory commitments are honored and consumer protection is provided;
- Developing network operations and access rules;
- Developing cost-of-service-based tariffs to allow for recovery of costs and to provide for new investments in the future, including the deregulation of fuel prices and contract prices between eligible consumers and unregulated suppliers;
- Developing system competition in energy generation and perhaps distribution, if economically warranted;
- Commercializing sector entities and preparing for privatization; and
- Privatizing state-owned commercialized companies with level and timing determined by government policy.

DESCRIPTION OF ESCPP TASKS FOR HEAT AND POWER SECTOR REFORM

To implement the objectives of EPSP/ESCPP, the project focused on the tasks of regulating and restructuring the energy sector.

The tasks in the area of regulations were identified as follows:

- Assisting in establishing the ERA and in proper staffing and staff training;
- Developing licensing procedures and specific licenses for generation, transmission, dispatch, distribution, and supply of electricity and heat, as well as construction and import/export licenses;
- Developing business rules for the unbundled companies regarding consumer and intercompany relations;
- Developing appropriate system codes for grid, dispatch, and other operations;
- Developing electricity- and heat-consumption rules and connection and disconnection rules; and
- Developing a methodology for electricity and heat prices and tariffs and setting up price formulas and related accounting systems.

Tasks in restructuring were:

- Assistance in asset valuation and allocation;
- Subsidy reduction;
- Commercialization of the unbundled entities, together with defining their organizational, business, capital, and shareholding structures and operating rules, among many other corollary issues;
- Registration of the new companies and development of their corporate charters; and
- Assistance at the management level for business operations.

EPSP/ESCPP's implementation of the above tasks is discussed below.

LEGAL REFORM

Beginning in 1998, the Government of Mongolia established the task of developing an electricity law and a heat supply law. USAID/ESCPP assistance helped write the draft laws, which were delivered in late 1999. Subsequently, Mongolia's Ministry of Infrastructure (MOI) decided to combine the two legal concepts into an energy law as the highest priority for energy sector reform. Prior to the law's enactment in 2001, ESCPP advisors suggested to Parliament several changes, most of which were accepted.

The Energy Law specifies the authority, functions, and responsibilities of the ERA and local regulatory authorities for small disconnected power systems. The law also defines energy policy and commercialization and privatization concepts. It comprises six principal components:

- General provisions,
- Full powers of the state authorities with regard to energy,
- Operational licenses and issuance of licenses,
- Prices and tariffs for heat and electricity,
- Relations between suppliers and consumers, and
- Control and liability.

In general, the law is specific about the functions and responsibilities of the ERA but is much more general with respect to broader sector-reform issues.

Following enactment of the Energy Law, the Government of Mongolia moved quickly to establish the ERA under Resolution #83, issued on April 15, 2001, delineating the ERA's structure and authorities. Further, Resolution #164, issued on July 9, 2001, unbundled the energy sector into 18 new state-owned companies. The ownership of the shares of energy sector companies was approved, with 41 percent owned by the MOI, 39 percent by the SPC,

and 20 percent by the Ministry of Finance and Economy (MOFE). In addition, the National Dispatching Center (NDC), responsible for monitoring and regulating dispatch, was created. Shares of this company were distributed to the MOI (51 percent) and the SPC (49 percent).

The 18 new unbundled companies comprise the following:

- Eight generating companies:
 - + Ulaanbaatar (UB) Power Plant 2
 - + UB Power Plant 3
 - + UB Power Plant 4
 - + Darkhan Power Plant
 - + Erdenet Power Plant
 - + Nalaikh Power Plant
 - + Baganuur Heating Station
 - + Dalanzadgad Power Plant
- Two heat distribution companies:
 - + UB Heat Network
 - + Darkhan Heat Distribution Network
- Four electricity distribution companies:
 - + UB Electricity Distribution Network
 - + Darkhan-Selenge Electricity Distribution Network
 - + Erdenet-Bulgan Electricity Distribution Network
 - + Baganuur-South Eastern Electricity Distribution Network
- One central electricity transmission network
- One national dispatching center
- One eastern electricity system
- One western electricity system

On November 30, 2001, the Energy Law was amended to rescind the right of the MOI to set guidelines on licensing and issuing import and export licenses. The following year, on July 4, 2002, the law was further amended, this time to clarify consumer liabilities and remove inconsistencies with the Civil Law.

Another amendment to the Energy Law was proposed in April 2003 by the MOI and the Parliamentary Working Group on Energy. The proposed amendment addressed energy conservation, a change in membership of the regulatory board of the ERA (comprising two full-time and three part-time regulators), and the incorporation of the full power of the Fuel and Energy General Authority (FEGA) into the law. ESCPP experts have reviewed the amendment and provided comments to the MOI and the Parliamentary Working Group on Energy. USAID advisors are recommending that the government not make such changes at this time. Neither the ERA nor the companies are willing to risk the possibility of legislators being tempted to introduce language supporting special interests. Such language could, for example, incorporate FEGA into the law, combine FEGA with the telecommunications

regulatory body, or propose experimentation with additional (and even part-time) commissioners. Further, there is a well-founded need by the companies and the ERA for stability in the current system, which must be made comprehensible, functional, and as effective as possible in order to complete setting up the regulatory regime and to become accustomed to it.

ACHIEVEMENTS AND PROGRESS OF HEAT AND POWER SECTOR REFORM

As noted earlier, the second stage of ESCPP was initiated subsequent to the Energy Law's enactment on April 15, 2001. According to the government request, technical assistance was stipulated in regulation-making, energy policies, privatization concepts, valuation of EA assets, commercialization of EA activities, and training of personnel at the unbundled companies. The ERA has been involved in setting up the regulatory system, while the SPC has been its counterpart in restructuring and commercializing the energy sector.

The ERA has benefited from technical assistance in essential tasks: organizational development, staffing, internal rules and procedures, licensing, business rules, market operations, tariffs, tariff methodology, external rules, consumer relations, staff training, and renovation of the ERA office building, which was important for strengthening the authority's independent operation.

Other assistance has involved developing the tariff methodology and structure for the ERA and financially restructuring four selected companies, UB Power Plant 4 (UBPP-4), the Eastern Energy System (EES) at Dornod, the UB Heat Network (UBHN), and the Darkhan-Selenge Electricity Distribution Network (DSEDN). This task has focused on assessing current operations, financial conditions, technical and operational performance, organization, staffing, and infrastructure. Sector- and company-specific recommendations were developed for the commercialization initiatives through presentations at the facility, development of draft and final reports, and on-the-job technical consulting. This intensive process ultimately led to starting implementation of the recommendations.

Regulatory Reform

The main responsibility of the ERA is to regulate energy-generation, transmission, distribution, supply, and dispatching activities in accordance with the law. The ERA undertakes functions such as issuance of licenses, review and approval of energy tariffs, equal protection of the rights of licensees and consumers, and creation of conditions for fair competition among generators and suppliers as identified by the Energy Law.

The following energy entities are subject to energy regulation:

- The Central Energy System (CES), consisting of five power plants with a total installed capacity of 796 megawatts (MW), imported electricity from Russia, and six electricity and heat transmission and distribution networks;

- The Western Energy System (WES), which supplies three western provinces (Bayan-Ulgii, Hovd, andUvs) with imported electricity from Russia;
- The Eastern Energy System (EES), which supplies two eastern provinces from the Dornod Power Plant, with a capacity of 36 MW; and
- The Dalanzadgad Power Plant, with a capacity of 6 MW.

In addition to the above, the ERA approves and regulates the energy tariffs of the diesel stations of Bayanhongor, Gobi-Altai, Dzavkhan, and Huvsgul provinces and approximately 300 soums (counties).

With the technical assistance of USAID/ESCPP, the ERA has started to build the capabilities it needs to discharge its responsibilities as mandated by law. Areas of progress include:

- Establishing an organizational structure;
- Staffing most positions;
- Developing job descriptions;
- Acquiring office space and facilities;
- Initiating training for ERA staff;
- Establishing a framework of self-sustaining financing through regulatory service fees and license fees; and
- Structuring a transparent framework of internal operations through a code of ethics, professional conduct, financial accountability, and protection of confidential information.
- Areas of progress in technical capacity-building include:
 - Licenses: awarding, suspension, and termination;
 - Rules: business rules among licensees and between licensees and consumers, heat- and electricity-consumption rules, grid code, and connection rules;
 - Tariffs: policy and structure (cost of service, adjustment mechanisms, tariff design, and permanent tariff methodology); and
 - Regulatory compliance: reporting, monitoring, and penalties.

Finally, technical assistance was provided in all the areas listed in Table 1:

Table 1: ESCPP Assistance with Energy Sector Regulatory Reform

Item	Description	Status	Tasks
1	<p>Licensing</p> <p>Electricity generation. Heat generation. Transmission. Electricity distribution. Heat distribution. Regulated supply. Import. Export. Dispatching. Construction. Unregulated supply.</p>	<p>Various interim licenses issued. Approximately 30 percent of them have been for supply.</p> <p>Construction and unregulated-supply licenses not yet issued.</p>	<p>Reviewed electricity and heat generation, dispatching, electricity distribution, electricity regulated supply, and construction licenses and recommended modifications so that permanent licenses can be issued.</p> <p>The dispatching license was issued for 10 years as a permanent license for the NDC.</p>
2	<p>Grid Code</p> <p>The ERA has completed the grid code in conjunction with the NDC. The code covers the CES.</p>	Grid code approved.	<p>Finalized the CES grid code.</p> <p>Investigated whether one code should apply to the CES, the EES, and WES or whether separate codes would be advantageous.</p>
3	<p>Electricity-Consumption Rules</p> <p>Rules defining the relationship between supplier and consumer.</p>	Draft rule developed and approved.	Reviewed the rule and recommended finalizing it.
4	<p>Interconnection Heat Supply Rule</p> <p>Rule of heat supply.</p>	Draft rule developed and approved.	Review and finalization of rule is not yet complete.
5	<p>Connection Rule</p> <p>Access rules (supplier to end user).</p>	Some rules have been developed in this area, but many have yet to be.	Review and finalization of existing draft rules is not yet complete.
6	<p>Business Rules</p> <p>Rule among licensees. Rule between licensees and consumers.</p>	Draft rule between the Ulaanbaatar Electricity Distribution Network (UBEDN) and consumers has been approved; other rules have yet to be developed.	Reviewed the business rule among the licensees. The business rule between licensees and consumers is still under consideration.

Item	Description	Status	Tasks
7	Tariff Design	Interim tariffs issued.	Developed final tariffs.
8	Tariff Design Methodology	Final tariff design methodology established.	Reviewed and developed final methodology.
9	Single-Buyer Model	The ERA has decided to adopt the single-buyer model.	Assisted the ERA with conceptual design, implementation, and final model design.
10	Legal Improvement of legal environment for unbundled energy companies.	Most energy companies do not understand the legal environment of an unbundled energy sector.	Reviewed the legal status of selected companies, provided comments on their corporate charters, and provided assistance on operating within the unbundled environment.
11	The ERA's Relationship with Consumers Consumer protection. Dispute resolution. Outreach programs.	The ERA has conceptualized these functions and started implementation.	Provided technical assistance to establish these programs within the ERA.
12	The ERA's Internal Procedures	Initial internal operating procedures are in place and functioning.	Reviewed and recommended changes where required.
13	Information Systems Unified internal information system (management information system, or MIS). Integration with other government agencies.	Initial systems have been conceptualized, and work on a Web site has been ongoing. A LAN will be in place.	Performing a needs assessment and devising recommendations for information (MIS) systems. The work has just begun.
14	Monitoring and Enforcement Systems Establishing a monitoring system. Establishing enforcement guidelines.	Conceptual work has begun.	Started to review conceptual work and draft internal monitoring and enforcement procedures. Quality requirements of electric power supply and data supply were reviewed and comments provided. Recommendations for final monitoring and enforcement procedures are not yet in place.

Licensing and Rules

The first stage of ESCPP (1998 to 2000) had already provided the EA regulatory unit with samples of the development licensing procedures, as well as the terms and conditions for construction licenses and for the generation, transmission, dispatch, distribution, and supply of electricity and heat. The license conditions were useful to the ERA License Department in developing interim licenses.

The second stage of the technical assistance, which began in 2001, focused on assisting the newly established ERA with developing the interim and permanent licenses. ESCPP experts have reviewed the electricity and heat generation, dispatching, electricity distribution, electricity regulated supply, and construction licenses and recommended modifications so that permanent licenses can be issued.

The following tasks related to the issuance of licenses have been performed:

1. Since September 5, 2001, 99 licenses have been granted to 38 entities for electricity and heat generation, distribution, electricity import, electricity and heat regulated supply, and dispatching.
2. A permanent license for 10 years has been granted to the NDC.
3. Terms and conditions of a license for construction of energy facilities have been developed and approved by the ERA board.
4. Connection rules for 26 commercial entities have been approved with the companies' prior assessment and control. The companies include the Central Region Transmission Company; the UBEDN; the Baganuur-South Eastern Electricity Distribution Network; the DSEDN; the Uvs, Hovd, and Bayan-Ulgii provincial electricity distribution companies; the Dalandzadgad, Darkhan, Erdenet, and UB-2, -3, and -4 power plants; Nolgo; and MCS International.
5. The business rules regarding licensees have been developed together with relevant departments. Additionally, levels of energy supply quality and service from suppliers to consumers have been approved, and the Rule for Registration of Electricity and Heat Supply Agreements has been developed jointly with the NDC. Further, documents have been developed covering the following areas:
 - Methodological instruction on the control, analysis, and assessment of license term implementation;
 - Terms and conditions for obtaining licenses for electricity and heat distribution and for regulated electricity and heat supply;
 - Research on electricity load and demand in the city and aimag centers; and
 - Research on power loss in the Central Region's electricity transmission and distribution networks during 1984–2002.

6. Standards on licensees' overall performance and fulfillment of their license terms and conditions have been developed and implemented. Moreover, licensees' performance has been monitored on a quarterly basis and will be assessed semi-annually.
7. The heat- and electricity-consumption rules were reviewed jointly with the ERA License Department.
8. A grid code for the Central Region has been developed jointly with the NDC and ESCPP experts and approved by the ERA Regulatory Board.
9. The Aimag and City regulatory boards have received professional and methodological assistance for monitoring licensees. Since 2001, the annual meeting of the boards has been organized by the ERA and held in Ulaanbaatar.

Consumer Protection, Dispute Resolution, and the Public Hearing Process

Regarding the consumer protection and complaint handling process, the ERA has developed procedures with the assistance of the ESCPP experts. A presentation by regulatory expert Tibor Tersztyanszky, "Consumer Protection and Complaint Handling in Hungary," was a good framework and source of draft rule language for customer complaint procedures. The ERA has a complaint process in place and is working on improving its usefulness and effectiveness.

The authority also has worked to follow the principles of fair competition, customer support, and provision of quality and reliable energy service. Following the principle of balancing the interests of licensees with those of customers, the ERA has set up a part-time advisory board composed of equal numbers of representatives of consumers and licensees. The board provides advice on the energy and cash-flow regulation model and on issues related to price and tariff increases. The following individuals currently serve on the board. The first four represent licensees, the latter four consumers:

Ts. Bayarbaatar, manager of UBPP-4;
 D. Bassaikhan, manager of the UBEDN;
 Sh. Baasanjav, manager of the UBHN;
 G. Munkhbayar, manager of a housing company;
 N. Nyamdavaa, board co-chairperson and manager of an electrical transportation company;
 B. Batdolgors, department manager of the company Temuujin Mench;
 G. Jamian, a consumer representative; and
 G. Oyuntuya, a legal advisor for the Consumer Protection Union of Mongolia.

Also on the board is co-chairperson E. Dolgormaa, board secretary and ERA specialist.

The purpose of the advisory board is to advise the ERA Regulatory Board on solving problems related to the interests of consumers and licensees and to express opinions on behalf of licensees and consumers.

Since its establishment, the ERA has resolved within the legal framework 32 disputes between licensees and consumers and 46 consumer complaints. Supplying information to consumers is another important means of protecting consumer rights.

The ERA recognizes that public education is an important activity and has started an initiative in this area with regular informational releases to the media. The ERA has published in Mongolian daily newspapers and other media several articles and advertisements concerning energy conservation, loss reduction, prices, and tariffs. The authority recognizes that it needs to do more and anticipates additional assistance from the energy project in this area. "The Public Education Strategy for Energy Sector Reform" was drafted by USAID/EPSP public education expert John Swartzbaugh in August 2002 to assist these efforts.

The goals of the Public Education Strategy are to (1) increase public awareness and knowledge about energy reforms; and (2) reach out to key decision-makers, industry associations, journalists, and the public to increase their understanding and enhance their acceptance of the reformed energy sector.

Management Information System

In 2001, information technology (IT) systems were set up for the ERA by NDC staff, who were housed in the same building. The ERA has since moved but has kept the IT systems. Nonetheless, provisions will need to be made for a local area network (LAN) server and LAN wiring. The present structure of the ERA's IT systems is not secure, as data are not regularly backed up or kept in a separate location. The IT/MIS systems could be better used to enable licensees to send data electronically to the ERA, and thereby speed up the process of data collection as well as enable the ERA to analyze the data more quickly using electronic methods.

MIS restructuring expert Bruce Wickes assisted the ERA in 2002 by giving a presentation on information technology to its staff. He also formed a team within the authority to work with him on MIS. According to his analysis, the operational functions of the ERA could be broken into two distinct activities that could benefit from IT/MIS support.

The first activity would entail gathering data to support the application and issuance of a license for some part of the energy value chain. The data would need to be collated and stored in a manner that would allow the information to be accessed in the future. Licensees would need to report the data to the ERA regularly, to enable the authority to assess whether the licensees were meeting their license obligations. The second activity would entail reviewing applications for tariff adjustments to ensure that they were supported by fact and were fair to all parties.

The technical assistance team has not yet completed its recommendations on IT/MIS to the ERA.

Tariff Design and Methodology

One of ESCPP's tasks is to provide the ERA with technical assistance on tariff issues by supplying the authority with a tariff methodology it can use to regulate Mongolia's power sector effectively.

Since the inception of ESCPP in 1998 and the establishment of the ERA in April 2001, ESCPP has worked with the Government of Mongolia and the ERA to switch tariffs gradually from a government-controlled system with direct, hidden, and cross subsidies incapable of supporting needed services to a cost-based, market-oriented tariff structure. Switching to such a structure almost always leads to tariff-level adjustments that, in countries with transitioning economies, result in real increases in living costs, causing affordability problems and necessitating a gradual approach.

Technical Assistance before Approval of the Energy Law

The report "A Survey with Options for the Restructuring and Privatization of the Power Sector (Energy Authority) of the Republic of Mongolia," prepared for ESCPP/USAID in September 1998 by energy policy advisor Paul Teleki, examined the Mongolian power sector by reviewing existing economic and financial conditions. Teleki offered models for restructuring, an outline for a governmental energy policy, suggestions for the revision of the legal framework, and draft legislation for functions of a regulatory body. He also recommended establishing tariff-setting mechanisms, noting that "the tariff system must be revised to comply with the cost of service and the new commercial environment."

Assistance with tariffs was delivered through a series of workshops held between October 1998 and July 1999. The workshops focused on three areas: the principles and theoretical basis of tariff development and pricing, the basis for cost-of-service studies, and establishment of the necessary information base for tariff design. The paper "Basic Tariff Principles and Policies for Restructuring the Electricity Sector of Mongolia," prepared for DAI/USAID in 1999 by tariff and restructuring expert Thomas Smith, was based on the materials from the tariff workshops and was intended to convey the same information to a wider audience that currently plays or would in the future play a role in reforming the sector and subsequently managing or regulating it. The report also contained specific recommendations for tariff methodology. The main recommendations were:

- Review the methodology for allocating fuel costs to heat and electricity;
- Adopt a uniform system of accounts for production, transmission, and distribution operations;
- Identify more customer classes;
- Increase the residential tariff to the level of the industrial tariff;

- Begin collecting load research data;
- Establish an experimental lifeline tariff;
- Conduct training in cost accounting, tariff design, tariff performance monitoring, market and load research, and energy-saving methodologies; and
- Continue technical assistance in tariff issues.

Because the Draft Electricity Law (1999) was not passed by Parliament, implementation of most of these recommendations was delayed. Several, however, were eventually implemented. For example, in 2000, residential tariffs were increased drastically: 28.6 percent in electricity, 146 percent in heating, and 267 percent in hot water. These hikes represented the first significant changes in energy tariffs since 1996. Additionally, training of the Mongolian Tariff Working Group was continued.

Technical Assistance after Approval of the Energy Law

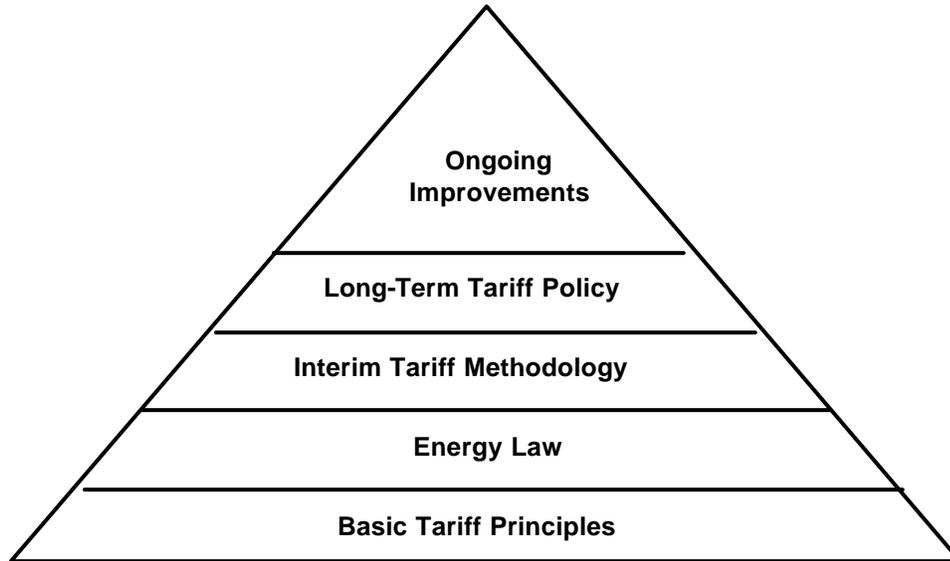
The Energy Law

Mongolia's Energy Law forms the basis of the structure and operation of the entire energy sector. The ERA is given significant authority in tariff issues, having full power to develop methodology to determine tariffs; define the structure of tariffs; and review, approve, inspect, and publish tariffs of licensees, allowing an adequate rate of return to licensees.

The Energy Law does not codify precise formulas that must be used to determine tariffs. This is beneficial, because economic and market conditions can be expected to change over time. The law determines the basic principles of tariff-setting, such as the concept of requiring separate tariffs for each licensed activity, cost of service, allocation of cost among different consumer classes, and least cost.

The Interim Tariff Methodology

In accordance with the Energy Law, the ERA in December 2001 developed the Interim Tariff Methodology based on knowledge and skills the ERA staff obtained through technical assistance. (Most of the staff in the Price and Tariff Department used to be members of the Mongolian Tariff Working Group.) The presentation "Developing Tariff Policy for the Energy Sector of Mongolia," given in October 2001 by Thomas Smith, evaluated the ERA's draft Interim Tariff Methodology. Smith judged the draft methodology satisfactory for start-up and stressed that improvement of tariff methodology is an evolutionary process to be continued based on solid foundations (see Figure 1).

Figure 1: Building Blocks of Tariff Policy

The Interim Tariff Methodology, still in effect, recognizes the restructured environment and determines, based on cost structure, the electricity and/or heat production tariff for each generator, the fee for the dispatch licensee, the fee for the transmission licensee, tariffs for the wholesale purchase of power and heat by electricity distribution offices (EDOs) and heat distribution offices (HDOs), tariffs for each EDO and HDO, and customer tariffs. It generally follows traditional rate-of-return methodology using current cost and output levels. It is structured to allow licensees to recover their operating and maintenance costs (including depreciation), interest on short-term debt and international and other long-term loans, and return on equity (currently set at 0 percent).

Paul Teleki, in his paper “The Energy Sector of Mongolia: A Status Report,” prepared in April 2003 for ESCPP/USAID, said, “The tariff [interim] methodology developed with technical assistance is working, and there have not been any complaints made about it, unlike the tariff levels.” The “bottom-up” approach is being used in determining licensees’ tariffs, starting with retail tariffs on up to licensee tariffs. Many licensees are concerned about the approach because in order to maintain retail prices, licensees’ costs should be cut. However, the present methodology mainly transfers directly to customers the benefits of electricity-loss reductions, station-use reductions, and improved efficiency and does not necessarily create incentives for licensees to make further improvements. The uniform retail tariffs still require cross subsidies between the electricity and heat functions, various regions, and consumer classes.

Despite some issues, Mongolia currently has a tariff situation that puts it far ahead of most developing countries. For most of the energy sector, CES, licensee, and retail tariffs cover approximately all licensee financial costs for providing electricity and heat.

Regular Tariff Methodology

ESCPP's latest effort with regard to tariff rationalization in Mongolia's energy sector is the report "Tariff Methodology for the Energy Sector of Mongolia," prepared for EPSP/USAID in June 2003 by Thomas Smith.

The tariff methodology being proposed includes the following:

- The "top-down" approach for determining retail prices, starting with the cost of generators on down to end-user prices.
- A revenue requirement encompassing all the financial costs of a licensee, including return on equity.
- Uniform wholesale prices fixed for six months. (Any imbalance in the wholesale market account caused by the use of a fixed price will be reconciled and billed to customers over the subsequent six-month period.)
- Two-part tariffs (energy and availability) for generators in their power purchase agreements with single buyers. These should incorporate a cost-recovery mechanism and incentive for the generation licensee. (The dispatcher will have the information needed to implement economic dispatching more effectively.)
- A fuel-cost adjustment mechanism.
- A fixed, uniform transmission service fee determined by using a "postage stamp" method.
- Distribution tariffs determined for three voltage categories (35 kV, 10 and 6 kV, and 400 volts and below).
- Cost-of-service tariffs for customers at four voltage levels (110 kV, 35 kV, 10 and 6 kV, and 400 volts and below).
- Tariffs for unique customer classes (time-of-use, street lighting, and so on) within the aforementioned voltage categories.
- A lifeline tariff¹ to address the needs of low-income households and create an economic incentive for higher-use customers to conserve energy.

The tariff methodology also recommends discontinuing the practice of customers owning meters. Rather, meters should be owned by distribution licensees, as required by the Energy Law. A five-year phase-in period is provided to accomplish this gradually. The tariff

¹ The report "Review of ERA Consumer Protection Procedures: Concepts, Status, Recommendations," prepared for ESCPP/USAID in June 2003 by regulatory expert Bil Tucker, is also important for designing tariffs, particularly regarding protection for low-income residential consumers.

methodology also intends to move each customer class, over a period of years, closer to covering the cost of serving itself. This would reduce the subsidy gradually by bringing the cost of central heat closer to the cost of supply and more in line with the cost of heat incurred by households not connected to a central system. This would relieve some of the pressure on electricity tariffs. Also, the methodology provides for effective management of the tariff process, including periodic reporting by licensees to the ERA. In addition, tariff-related sectorwide recommendations, including the recommendation on the tariff and subsidy approval process, are repeated in the commercialization reports.

At this time, the only recommendation being implemented is approval of the reporting forms and procedure by the ERA. Other recommendations are long-term. Before the end of 2003, the implementation plan should be developed based on tariff policy, and the ERA should develop the Regular Tariff Methodology.

ESCPP has reviewed the first draft of the Regular Tariff Methodology, issued by the ERA on July 17, 2003, for discussion by the ERA Regulatory Board. The draft generally follows the tariff report, although target dates and implementation mechanisms are not specified. ESCPP says that some factors, such as a lack of meters, insufficient statistics on consumers by voltage levels at the distribution companies, and difficulties in identifying the available capacity of generators, do not allow immediate implementation of the proposed Regular Tariff Methodology. Therefore, as preconditions for implementation, it is recommended that the ERA (1) develop an implementation plan with proper sequencing and prioritizing to address the transition from the Interim Tariff Methodology to the Regular Tariff Methodology; (2) develop and attach draft policies that address uncollectible accounts receivables (specifying percentages or amounts to be allowed and written off), determine fuel rates, and identify appropriate tariff designs; and (3) amend relevant rules and procedures to allow for various tariffs, including availability generation tariffs.

Single-Buyer Market Structure

Many developing countries have chosen the Single Buyer Model (SBM) during their transition to a market system. The SBM had been discussed among Mongolia's power industry and government officials during 1998–1999 as a suitable model to adopt at the start and modify over time to promote increased competition.² The government wanted to move straight into a competition model at the end of 1999, thereby skipping the first steps of transition and the SBM. Unfortunately, Mongolia's power industry is still far from being competitive. Its generators are too diverse in age, technology, capacity, and cost structure to be able to compete with one another. Only if new generators on par with the fourth power plant were established could some notion of competition be entertained.³

² See The Draft Electricity Law (1999) and “A Survey with Options for the Restructuring and Privatization of the Power Sector (Energy Authority) of the Republic of Mongolia,” prepared for ESCPP/USAID in September 1998 by Paul Teleki.

³ See “The Energy Sector of Mongolia: A Status Report,” prepared for ESCPP/USAID in April 2003 by Paul Teleki.

The government's position has now changed. The ERA, in accordance with the Sustainable Energy Sector Strategy the government developed in 2002, decided to move to the SBM for the CES starting in September of that year, thereby abolishing the Bilateral Contract Market (BCM).

The BCM's most significant problem was the high level of electricity billed to customers that went unpaid. Distribution companies did not have adequate cash to pay generators for the energy they purchased. The generators would rather have sold power to those distribution entities with the highest cash collections; the BCM system, however, did not allow for that. Similarly, the distribution companies would have preferred to have purchased their power from the lower-cost generators, but generation did not follow such an economical dispatch. The BCM could create a conflict of interest, as energy companies could negotiate contracts with one another under the auspices of the same owner, the Government of Mongolia.

The main advantages of the SBM are:

- Minimum transaction costs because of uniform wholesale prices;
- Easier balancing of supply and demand of electricity;
- A strengthened and better-coordinated transmission system;
- Facilitated planning of capacity augmentation; and
- Open and transparent transactions.

The SBM's chief disadvantages are:

- Nonexistent or limited competition;
- No choice on the part of distribution companies to seek the most economical source of supply; and
- Possible intervention in the payment chain from consumers to generators.

The World Bank's advice regarding the SBM is cautious: "A temporary single buyer arrangement can be considered—but with strong reservations—in situations where bilateral trading or spot markets need substantial time for development of power purchasers and sellers."⁴

The Single-Buyer Market Mechanism Proposed to the ERA

In June 2002, Thomas Smith presented to the ERA his report "Deciding on a Wholesale Market Structure for the Mongolian Power Sector," which outlined a proposal for an SBM structure. The proposal involved devising for each power station power purchase agreements containing availability and energy components. The generators would then be dispatched on an economic basis, considering heat loads, technical minimums, and other constraints, and sell all their output to the single buyer (SB). Distribution entities in turn would purchase all their power from the SB at the bulk supply tariff, to include all the costs incurred by the SB.

⁴ See the discussion paper "Evolution of the Market Structure in Mongolia," prepared for the ERA in September 2001 by Thomas Smith.

The transmission fee from the transmission licensee would also be charged to the distribution entities. Later reflecting the current structure (including the Interim Tariff Methodology), the Interim Market Mechanism was proposed to overcome problems and migrate to the SBM by replacing the availability and energy components with a single price per kilowatt-hour.⁵

A cash settlement mechanism (CSM) was needed to address some of the problems being encountered with customer collections and the fact that distribution companies were not forwarding enough of the cash they were collecting to the power stations. The recommendations in the SBM included a cash settlement procedure, to be managed by the market banker, outlining the responsibilities of the market banker and strongly emphasizing transparency in all transactions and timely reporting to all market participants.

The Interim Market Mechanism Adopted by the ERA

The ERA adopted the SBM and a CSM in September 2002. The SBM instituted, however, is not yet in the recommended form.

The SBM

Under the SBM, Mongolia's distribution entities estimate their power requirements six months ahead. This determines the amount of energy they will contract to buy from the SB at the tariff determined by the ERA. The NDC performs a simulated dispatch considering heat load and other criteria not primarily based on economical dispatch. The dispatch is partially based on the premise that each generator shall be given the opportunity to generate sufficient quantities of energy to remain financially viable. The result of this simulated dispatch determines the amount of energy for which the SB will contract each generator for the six-month period.

In real time, the NDC dispatches the load considering the contracted quantities (primary) and economical dispatch (secondary). Dispatch entities buy from the SB at a price unique to each entity based on the uniform retail tariff and other costs for distribution and supply.

Penalties are levied on generators that are unable to meet their commitments and on distributors requiring 2 percent more or less than the contracted amounts anticipated. At the end of the six-month period, the SB reconciles the amounts due to generators and the amounts due from distributors and adjusts retail tariffs to bring the amounts into balance.

The CSM

The transmission company acts as the SB and has commissioned the bank to perform the market banker function that enhances the transparency and integrity of transactions. All customer payments made to the distribution companies are deposited in the market account within 24 hours.

⁵ See "Progress Report on Energy Market Mechanism," by Thomas Smith, June 2002.

Because the customer payments will not match the amounts due for the individual tariff components in a given month, the money deposited with the market banker is allocated based on the relative weights of the tariff components for each distribution network as approved by the ERA. Each generator is compensated from the wholesale account based on the value of the energy it delivers to the market.

The CSM is designed to overcome the problem of distribution companies retaining a disproportionate share of collections in relation to generators. The current mechanism is being criticized, however, as an obstacle to moving toward a market mechanism. The World Bank, the most critical donor, has stated that the collection procedure is not in line with commercial practice. The Bank, however, recommended no alternative solutions that satisfied the sector companies.

The meeting of shareholders of energy entities issued a resolution in November 2002 supporting in principle the SBM and CSM and authorizing the ERA to set temporarily the cash allocation percentages. The ERA intends to phase out the CSM by the end of 2003. The phasing out depends, however, on the effective transition to the new recommended mechanism.

Transition to the Recommended Mechanism

The transition from the Interim Market Mechanism to the SBM recommended by ESCPP requires the following:

- Approval of two-part tariffs for generators to facilitate economical dispatch;
- Reconciliation procedures (by developing the Regular Tariff Methodology) to deal with inevitable imbalances between the amounts the SB pays to generators and the amounts it charges to distribution entities;
- More-formalized proceedings, with power purchase and sale agreements with the single buyer;
- Development of the market rule and modification of the business rules and connection rules and other relevant rules to recognize the model;
- More-vigorous collection and disconnection actions by the distribution entities, as well as implementation of the commercialization recommendations developed for the sector as a whole; and
- Separation of the wholesaler function, which may require some amendments to the Energy Law.⁶

⁶ The Energy Law of Mongolia does not specify a specific market structure providing more flexibility; however, it conflicts with the concept of the SBM, obliging distribution licensees “to purchase electricity

Assistance under the Memorandum of Understanding between USAID and the ERA

In addition to the above assistance, USAID/EPSP is providing US\$225,000 in technical assistance to the ERA through the memorandum of understanding (MOU) between the two entities dated November 9, 2001. The assistance is focused mainly on procurement and ERA staff training.

To support an independent, autonomous regulatory operation, the ERA requested that USAID fund the renovation of a separate office building. Through Resolution #56 of the SPC, dated February 7, 2002, the Government of Mongolia made such a building available. In fact, the largest amount of the budget under the MOU has been spent on renovation. The opening ceremony for the new ERA building was held on June 25, 2003.

Additionally, ESCPP manager Michael Ellis initiated the U.S. Energy Association Regulatory Partnership Program between the ERA and the Minnesota Public Utilities Commission (MPUC). Representatives of the MPUC visited Ulaanbaatar in September 2002.

In other technical assistance, the following ERA staff training has been provided:

- Energy Sector Reform Conference, California, February 25–27, 2002;
- “ERRA [Energy Regulatory Regional Association] First Energy Regulatory Training,” Hungary, February 2003;
- ERRA 7th Annual Energy Regulatory Conference, Hungary, May 6–7, 2003;
- ERRA 2nd Energy Regulation and Investment Conference, Hungary, May 8–9, 2003;
- “Managing Regulatory Commissions” training course, Washington, D.C., June 2–20, 2003; and
- “Energy Utility Regulation and Strategy” training course, Florida, June 9–20, 2003.

Commercialization of Selected Energy Companies

ESCPP’s goal is to assist with implementation of Mongolia’s new Energy Law, aimed at restructuring the country’s energy sector into a more commercially based environment that would shed unnecessary fuel, equipment, and labor cost burdens, creating efficient energy facilities and operations that yield a consistent and profitable contractual, regulatory, and industrial framework. This framework should attract investment to support new supply

upon payment in advance in accordance with contracts made with holders of licenses for generation and transmission” (clause 16.3.8 of the Energy Law).

facilities to meet energy demand at least cost while improving supply, reliability, and efficiency.

The framework for restructuring is guided by the Energy Law and subsequent government resolutions. During the second half of 2001, the sector was unbundled into 18 new companies covering the following areas:

- Generation (electricity and heat),
- Transmission,
- Dispatching,
- Distribution (electricity and heat), and
- Regulated energy supply.

The selection of representative or targeted companies as the focus for commercialization was coordinated with the SPC, the Ministry of Infrastructure, and USAID. Representative companies were chosen in each of the above areas. These companies included UBPP-4, the DSEDN, the EES, and the UBHN. It is anticipated that recommendations for commercializing these companies can also be applied to the other, similar types of companies formed during the restructuring.

A major objective of the Commercialization Program is to work with the management team to facilitate the transition from being a segment of the state-controlled, vertically integrated energy system to managing an independent business. Although privatization of the energy sector is the Mongolian government's ultimate goal, its timetable is uncertain. It may be several years or more before the companies are privatized, so it is very important for them to operate as efficiently as possible on a commercial basis in the meantime.

Description of the Technical Assistance

The November 2001 presentation "Commercialization of the Electric Power Sector," by Levi Hanson, was the kickoff presentation for commercialization. A series of workshops was held subsequently with presentations focusing on financial analysis; information management systems; bill frequency analysis; business plan development; billing, collection, and technical and commercial losses; tariff issues, including lifeline tariffs; and commercialization initiatives.

The commercialization effort reviewed the targeted companies' operating components, including finance, planning, human resources, compensation systems, technical performance, and procurement.

The efforts also focused on critical aspects that strategic investors look for, such as a strong management team focused on results, a reasonable regulatory environment, and progress on critical success factors, including revenue collection, efficient operations, and expense reduction.

Based on these efforts, ESCPP issued four reports: “Commercialization Initiatives at Ulaanbaatar Power Station No. 4” (November 2002) and “Commercialization Initiatives at Eastern Energy System” (December 2002), by Thomas Smith, and “Commercialization Initiatives at Darkhan-Selenge Electricity Distribution Network” (October 2002) and “Commercialization Initiatives at Ulaanbaatar Heat Network” (December 2002), by Levi Hanson.

Each report reviewed the relevant company’s operations, provided a detailed analysis of its financial situation, discussed fundamental requirements that would need to be met in order for the company to be considered a “commercial” enterprise, reviewed the company’s primary business processes, and noted the status of the company’s MIS and its future direction. The reports also reviewed company administrative processes (including planning, human resources, finance and accounting, and procurement) and provided and prioritized detailed recommendations (with background information, preconditions, summary action plans, and expected results) at the company and sector levels. The tables below delineate the recommendations.

Table 2: Company-Specific Commercialization Recommendations

Licensee	Number of Recommendations	Importance		Urgency		
		High	Medium, Low	0–6 months	6–12 months	1–2 years
UBPP-4	17	5	12	4	7	6
EES	13	5	8	4	7	2
UBHN	9	2	7	5	3	1
DSEDN	14	10	4	9	4	1
TOTAL	53	22	31	22	21	10

Table 3: Sector-Specific Commercialization Recommendations

Licensee	Number of Recommendations	Importance		Urgency		
		High	Medium, Low	0–6 months	6–12 months	1–2 years
UBPP-4	10	4	6	4	6	—
EES	10	5	5	5	4	1
UBHN	7	2	5	—	4	3
DSEDN	3	—	3	—	—	3
TOTAL	30	11	19	9	14	7

Current Progress

The four companies above were asked to select several of the company-specific commercialization recommendations with the highest priority and urgency. ESCPP would then assist the companies in implementing those recommendations. Progress on the recommendations, by company, is detailed in Annex 3.

As for sectorwide recommendations, these were separated into two types: those pertaining to the ERA and those pertaining to the Government of Mongolia. The recommendations pertaining to the ERA were aimed mainly at creating the incentive mechanism and an appropriate cost-of-service tariff structure for licensees, including an allowance for bad debt in tariffs and introduction of the lifeline tariffs, to be implemented along with the development of the Regular Tariff Methodology. Other recommendations, such as integrating the tariff and subsidy approval process, would be best implemented through cooperation with the energy-entity shareholders: the MOFE, the SPC, and the MOI. The shareholders held a meeting on April 11, 2003, to discuss the measures for implementing sector-specific recommendations, such as transferring to the government the exchange risk associated with international loans, solving major debt issues, discontinuing the practice of using the energy sector to provide nontransparent subsidies, and restructuring the boards of directors. However, no action plan for implementation was approved.

The progress of the commercialization efforts was evaluated by Paul Teleki: “The most effective assistance has been in developing the tariff methodology and structure for the ERA and in financial restructuring at four selected companies.” Nevertheless, “the companies are at best incorporated but far from commercialized. Although each has separate executive management and boards of directors, not much progress has been made in moving away from prior practices that depend much on their relationship with the government. Members of the boards are appointed by the MOI, MOFE and SPC. The boards of directors are generally not supportive of the companies’ aims to instill commercial practices ... (and) carry only messages from the ministries to the companies and none back.”⁷

Teleki recommended extending technical assistance in commercialization to other licensees and expanding such assistance to include corporate management techniques.

During the commercialization efforts, the selected companies improved their operational and financial results. The following tables summarize the main indices of the four companies over the past year. At both UBPP-4 and the EES, commercialization efforts resulted in more efficient operations by reducing station use, unit cost, and fuel rates. Both companies also substantially reduced their losses (if one excludes the effect of the 2003 coal price increase in the EES). The DSEDN, meanwhile, has gradually reduced its technical and commercial losses and improved its billing. The company’s collection rate, however, has worsened, because of the inability of large SOEs to pay and the reversal of some large offset transactions with SOEs that were incurred previously, resulting in higher accounts receivable and payable.

⁷ See “The Energy Sector of Mongolia: A Status Report,” prepared for ESCPP/USAID in April 2003 by Paul Teleki.

Table 4: Main Indices of the EES

Index	Measuring Unit	Jan-Jun 2002	Jan-Dec 2002	Jan-Jun 2003	Change	
					Jan-Jun to Jan-Dec 2002	Jan-Jun 2002 to Jan-Jun 2003
Station use	%	29.7	29.6	29.3	-0.3%	-1.3%
Net output of electricity	mill.kWh	18.6	33.8	18.5	81.7%	-0.5%
Net output of heat	th-s.Gcal	79.5	142.1	78.3	78.7%	-1.5%
Losses	%	24.5	23.7	22.6	-3.3%	-7.8%
Sales revenue	mill.tog	1,098.9	2,074.9	1,190.6	88.8%	8.3%
Profit/Loss	mill.tog	(255.9)	(119.2)	(170.2)	53.4%	33.5%
Unit cost: -electricity	tog/kWh	65.8	63.2	62.8	-4.0%	-4.6%
-heat	tog/Gcal	7,047.7	7,045.2	7,033.0	0.0%	-0.2%
Fuel rate: -electricity	gr/kWh	738.8	737.8	736.9	-0.1%	-0.3%
-heat	kg/Gcal	222.6	222.4	222.5	-0.1%	0.0%
Total receivables	mill.tog	790.9	615.1	798.3	-22.2%	0.9%
Total payables	mill.tog	380.8	197.6	192.2	-48.1%	-49.5%

Table 5: Main Indices of UBPP-4

Index	Measuring Unit	Jan-Jun 2002	Jan-Dec 2002	Jan-Jun 2003	Change	
					Jan-Jun to Jan-Dec 2002	Jan-Jun 2002 to Jan-Jun 2003
Station use	%	20.6	19.9	18.3	-3.3%	-11.2%
Net output of electricity	mill.kWh	794.4	1,603.5	841.4	101.9%	5.9%
Net output of heat	th-s.Gcal	1,423.0	2,683.0	1,991.9	88.5%	40.0%
Sales revenue	mill.tog	23,579.4	47,169.5	25,230.6	100.0%	7.0%
Profit/Loss	mill.tog	(1,272.8)	(145.1)	910.5	88.6%	171.5%
Unit cost: -electricity	tog/kWh	18.8	18.2	17.7	-3.2%	-5.9%
-heat	tog/Gcal	6,628.4	6,496.9	6,446.0	-2.0%	-2.8%
Fuel rate: -electricity	gr/kWh	378.4	386.3	362.1	2.1%	-4.3%
-heat	kg/Gcal	184.6	183.8	182.2	-0.4%	-1.3%
Total receivables	mill.tog	22,955.3	24,832.8	28,714.8	8.2%	25.1%
Total payables	mill.tog	27,426.8	26,782.9	28,714.8	-2.3%	4.7%

Table 6: Main Indices of the DSEDN

Index	Measuring Unit	Jan-Jun 2002	Jan-Dec 2002	Jan-Jun 2003	Change	
					Jan-Jun to Jan-Dec 2002	Jan-Jun 2002 to Jan-Jun 2003
Electricity sold	mill.kWh	111.7	233.7	123.3	109.2%	10.4%
Electricity losses	%	22.4	22.5	19.7	0.4%	-12.1%
Sales revenue	mill.tog	4,959.4	11,747.5	4,039.3	136.9%	-18.6%
Collection rate	%	91.7	90.0	75.8	-1.9%	-17.3%
Distribution cost	mill.tog	605.0	1,320.1	918.8	118.2%	51.9%
Distribution unit cost	tog/kWh	5.4	5.6	7.5	3.7%	38.9%
Profit/Loss	mill.tog	25.7	224.1	146.2	772.0%	468.9%
Total receivables	mill.tog	4,007.1	4,381.5	5,871.6	9.3%	46.5%
Total payables	mill.tog	5,353.9	5,883.3	7,138.7	9.9%	33.3%

Table 7: Main Indices of the UBHN

Index	Measuring Unit	Jan-Jun 2002	Jan-Dec 2002	Jan-Jun 2003	Change	
					Jan-Jun to Jan-Dec 2002	Jan-Jun 2002 to Jan-Jun 2003
Purchased heat	Mgcal	2,013.0	3,621.5	2,047.5	79.9%	1.7%
Average sales price	tog/Gcal	4,746.3	4,841.0	4,957.3	2.0%	4.4%
Sales revenue	mill.tog	9,554.3	16,240.6	9,526.7	70.0%	-0.3%
Collection rate	%	94.2	102.3	101.5	8.6%	7.7%
Total expenditure	mill.tog	1,129.8	2,399.0	1,716.4	112.3%	51.9%
Distribution unit cost	tog/Gcal	561.3	662.4	838.3	18.0%	49.3%
Profit/Loss	mill.tog	1,229.0	(55.9)	19.9	-104.5%	-98.4%
Total receivables	mill.tog	2,533.0	1,972.5	2,813.5	-22.1%	11.1%
Total payables	mill.tog	4,542.1	4,832.8	5,402.9	6.4%	19.0%

Note: The UBHN's MNT 1.2 billion in profits in June 30, 2002, excluded international loan servicing. That year, the company paid about 1 billion togros in interest.

PRIVATIZATION PROGRAM

The Parliament of Mongolia approved the Privatization Guidelines for 2001–2004 on January 25, 2001, under Resolution #10. The guidelines indicate that the energy sector's restructuring is to be conducted in two, time-unspecific phases. During the first phase, the sector's existing management and production systems will be commercialized to conform with market principles. Actions to be implemented during the second phase include the following:

- Begin the phased privatization of state-owned power generation and distribution companies established during the restructuring's first phase. Do this via a strategic investor using a competitive tender, provided that the companies' preparation is fully completed.

- Retain the state-owned status of the main network's energy transmission companies, which are responsible for dispatching power from generators to distributors.

On February 20, 2001, the Government of Mongolia approved the privatization program for 2001 under Resolution #35. The resolution included the preparation of UBPP-2 and the UBEDN for privatization. The SPC and the MOI asked ESCPP's experts to assist with the fast-track privatization of these two energy companies. A private-sector developer and owner-operator submitted to the government a proposal to make an immediate investment and assume operations of the companies under a performance-and-investment type of agreement. The ESCPP experts were tasked with reviewing the proposed agreement. Michael Ellis, ESCPP's manager and an unbundling and restructuring expert, reviewed the agreement and provided the SPC and the MOI with a report. In it, he included recommendations regarding decision-making parameters and the agreement's potential effect on the broader issues of energy sector reform and privatization.⁸ Ultimately, the two parties chose not to sign the agreement because the government felt it was not sufficiently beneficial to Mongolia.

⁸ See "Review of Proposed Performance and Investment Agreement," prepared for the SPC by Michael Ellis on October 22, 2001.

ANNEX 1
LIST OF REPORTS AND PRESENTATIONS

	Topics	Responsible Party	Date
1	Project action plan and key activities	Mike Ellis, Leszek Kasprovicz	August 27, 2001
2	Regulatory topics for the ERA staff: Special issues regarding employment at the ERA Operation of the ERA Regulatory fines and penalties	Leszek Kasprovicz	August 9, 2001
3	Development of tariff policy for Mongolia's energy sector	Tom Smith	October 3, 2001, at Nukht
4	The program and privatization options for the UBEDN	Mike Ellis	October 2001
5	Review of proposed performance-and-investment agreement	Mike Ellis	October 22, 2001
6	Development of tariff policy for the energy sector	Tom Smith	October 2001
7	Regulatory topics for the ERA staff: Monitoring of licensees by the ERA Complaints against licensees Compliance with and enforcement of regulatory decisions	Leszek Kasprovicz	November 9, 2001
8	Possible elements and levels of secondary legislation under the Energy Law	Gabor Szorenyi	November 13, 2001
9	Energy sector commercialization	Levi Hanson	November 14, 2001
10	Aimag and city regulatory board	Leszek Kasprovicz	November 20, 2001, at Nukht
11	Tariff design	Tom Smith	November 2001
12	Coal sector debt issues	Tom Smith	December 2001
13	Complaints-handling process	Leszek Kasprovicz	January 2002
14	Tariffs for grid system	Tom Smith	February 2002
15	Commercialization and steps to privatization: framework, milestones, and preparation	Tom Smith and Levi Hanson	March 2002
16	Capacity-building for decision-making on energy investments	Harry Baumann	March 2002
17	Resolving the energy sector's debt	Tom Smith	March 2002
18	Energy Authority: comments for members of Parliament	Mike Ellis	April 2002
19	UBPP-4: moving toward a commercial environment	Tom Smith	April 3, 2002
20	Bill frequency analyses	Levi Hanson	April 2002
21	Financial analyses for the DSEDN	Levi Hanson	April 2002
22	UBPP-4: moving toward commercialization	Tom Smith	April 2002
23	Financial analyses for the ERA	Tom Smith	May 2002
24	Financial analyses for the EES	Tom Smith	June 2002
25	Financial analyses for UBPP-4	Tom Smith	June 2002
26	Deciding on a wholesale market structure	Tom Smith	June 2002
27	Management information system issues	Bruce Wickes	June 2002
28	Business plan development for the DSEDN	Levi Hanson	June 2002
29	United States Energy Association	Mike Ellis	June 2002

	Topics	Responsible Party	Date
30	Recommendation on the Mongolian grid code	Tibor Tersztyanszky	June 2002
31	Operational rules for companies: grid code	Tibor Tersztyanszky	June 2002
32	Preliminary guidelines for institutionalizing the consumer protection and dispute resolution mechanism within the ERA	Tibor Tersztyanszky	June 2002
33	Licensing in Mongolian single-buyer market	Gabor Szorenyi	July 2002
34	Hungarian Single Buyer Model; business rule	Arpad Vajdovich	July 2002
35	Cost of service and tariff design	Tom Smith	August 2002
36	Tariffs for low-income customers	Tom Smith	August 2002
37	Tariff issues for the EES	Tom Smith	October 2002
38	Managing accounts receivables	Tom Smith	October 2002
39	Commercialization of the DSEDN	Levi Hanson	September 2002
40	Commercialization of UBPP-4	Tom Smith	October 2002
41	Commercialization of the UBHN	Levi Hanson	November 2002
42	Commercialization of the Dornod EDN	Tom Smith	December 2002
43	Principles and methodologies involved in developing the Electricity Consumption Rule	Tibor Tersztyanszky	December 2002
44	Final methodology of energy tariff	Tom Smith	February 2003
45	Cash management and forecasting	Tom Smith	February 2003
46	Implementation of company recommendation, the DSEDN	Tom Smith	February and March 2003
47	Implementation of company recommendation, the Dornod EDN	Tom Smith	February 2003
48	Implementation of company recommendation, UBPP-4	Tom Smith	February and April 2003
49	Consumer protection procedures	Bil Tucker	June 24, 2003
50	Review of ERA consumer protection procedures	Bil Tucker	June 2003

ANNEX 2
ESCPP CONTRIBUTORS

NAME	AREA OF EXPERTISE	DATE
Michael Ellis	Unbundling/Restructuring Expert and Program Manager	7/01–10/02
Thomas Smith	Tariff and Restructuring Expert	9/01–6/03
Leszek Kasprovicz	Regulatory Expert	7/01–2/02
Levi Hanson	Restructuring and Commercialization Expert	10/01–11/02
Bruce Wickes	Management Information System Restructuring Expert	4/02–10/02
Bil Tucker	Regulatory Expert	6/9/03–6/27/03
Paul Teleki	Energy Policy Advisor	2/14/03–3/7/03
Gabor Szorenyi	Restructuring Expert	11/01–7/02
Gyula Szaszi	Legal Expert	7/21/02–7/28/02
Arpad Vajdovich	Regulatory Expert	7/21/02–7/28/02
Tibor Tersztyanszky	Regulatory Expert	8/02–12/03
John Swartzbaugh	Public Education Expert	7/02–8/02
D. Bumtsetseg	Coordinator	7/98–9/03
Ch. Shaaluu	Accounting and Financial Specialist	1/99–9/03
N. Bolor	Financial Economist	5/99–8/02
N. Amgalan	Financial Economist	9/02–9/03
S. Amarsanaa	Public Education Specialist	7/02–8/02
E. Chantsalmaa	Translator	8/01–4/03
A. Altannavch	Translator	5/99–12/00
N. Ariunchimeg	Translator	5/99–8/99

Note: The technical assistance has been provided to ESCPP through a PA Consulting subcontract with DAI.

ANNEX 3
PROGRESS ON COMPANY-SPECIFIC COMMERCIALIZATION RECOMMENDATIONS

Darkhan-Selenge Electricity Distribution Network

Recommendation	Progress
1. Restructure the board of directors.	This recommendation requires an amendment to the Company Law of Mongolia; therefore, implementation is beyond the control of the DSEDN.
2. Restructure the organizational charts.	Meetings with the human resources director and others on the management team indicated that the company was somewhat confused about the intent of this recommendation. We concluded that the confusion centered around the depiction of the company's organizational charts. The personnel do have a clear line of reporting to the branch manager, but the charts failed to illustrate this clearly.
3. Reexamine MIS implementation.	We worked with the executive director and human resources director to finalize the job description for the MIS manager. We also advised the HR director on the selection process and later met with the newly appointed MIS manager to discuss information technology issues contained in the commercialization report.
4. Standardize reporting formats to upper management.	The newly appointed MIS manager will have to make this item one of his top priorities.
5. Base investment decisions on financial returns.	We conducted a capacity-building seminar on financial analysis for the company's economic, financial, and technical personnel. We also developed a worksheet template for the company to use for conducting financial analyses and worked with the specialists as they developed financial analyses for four types of secure metering projects.
6. Create a focused business plan at each branch and at the district level.	We discussed business planning with the company economist and compared first-quarter results with the eventual plan.
7. Establish scheduled performance-based employee reviews.	We advised the executive director on the incentive compensation program for bill writers.
8. Lower overall technical losses.	<p>The reduction of technical losses requires significant investment to rebuild lines and resize transformers to fit the load. Significant progress in this area will require funds from soft loans, funds from commercial loans (if possible), or the infusion of capital from an investor.</p> <p>The company has been working to lower technical losses to a limited extent by rebuilding feeder lines in ger areas. Funds are extremely limited, however.</p>
9. Install meters at all 0.4 kv transformers.	Funding limitations preclude significant progress on this recommendation.

Recommendation	Progress
10. Limit commercial losses to an acceptable level.	<p>Losses for the first quarter of 2002 were down by 1.5 percentage points, due primarily to a reduction in commercial losses.</p> <p>Secure metering is now in place for more than 9,000 of the approximately 33,000 household customers.</p>
11. Implement lifeline tariffs.	Management decided to wait for the final tariff methodology recommendations rather than develop their own.
12. Improve the billing system.	<p>MIS resources and funding for a new system are very limited.</p> <p>We advised the executive director on the incentive compensation program for bill writers.</p>
13. Enforce a disconnection policy.	The executive director received a letter from the state secretary of the Ministry of Infrastructure “STRONGLY RECOMMENDING” that electricity supply to Hotol Cement Company not be disconnected for nonpayment. Of course, this is not in accordance with a commercially viable energy sector.
14. Collect accounts receivable from entities.	<p>The DSEDN has been aggressive with its large customers in attempting to collect overdue accounts, including using disconnection. The government, however, is interfering in certain cases (see #13 above).</p> <p>The advisor worked specifically with the DSEDN and its three largest customers (Hotol Cement Company, a steel company, and a meat company) on this recommendation.</p>
15. Collect accounts receivables from budget customers.	We gave a presentation to the management team titled “Managing Accounts Receivable and Improving Collections.”
16. Collect accounts receivables from residential customers.	The DSEDN has a written electricity supply agreement with each household, allowing disconnection for nonpayment after 60 days. To date, the company has not enforced the disconnection policy, but following a public education program this summer, it will begin enforcement in August.
17. Write off bad debt.	<p>The DSEDN was provided with a paper prepared for the State Property Committee explaining the reason for and mechanics of writing off bad debt. The purpose of the paper was to educate the shareholders of the energy companies so they can act on a sector recommendation on this topic.</p> <p>The DSEDN analyzed its accounts receivables recently and determined that approximately MNT 370 million was “hopeless” from the point of view of probability of collection (excluding the Hotol Cement Company’s debt). The DSEDN approached the ERA about including an allowance for this bad debt in tariffs.</p>

Eastern Energy System

Recommendation	Progress
1. Continue to improve accounting and reporting and move toward compliance with International Accounting Standards (IAS) over the next few years.	Disclosure information, including a set of footnotes for the 2002 financial statements, was prepared and reviewed with the chief accountant.
2. Have engineers and finance specialists perform a financial analysis on future projects before they are presented to management for approval.	A Financial Analysis Team was established, with the planning manager as the leader. The executive director issued a decree that a financial analysis be performed on proposed investment projects. A financial analysis workshop was held for the team, and a financial analysis was conducted on an actual project.
3. Revise the cost accounting processes to produce reports of estimated costs by line of business.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
4. Establish improvement targets for key performance measures in the energy generation, distribution, and billing and collection processes, and report on progress monthly.	Key performance measures are compared with the planned results on a monthly basis as part of the financial results review. The next step for the company is to summarize this information on one page and share it with all employees.
5. Management team task: Take advantage of the Kreditanstalt fur Wirtschaftsaufbau (KfW) and World Bank loan proceeds in the most optimal manner, from an operational and financial perspective, to realize improvements in the key performance measures.	The KfW project has been scoped out and the work is in process; therefore, there is no opportunity for the EES to make investment decisions on this project. The EES has just recently been made aware of the scope of the World Bank project and will attempt to influence where money is spent.
6. Once the power station and distribution rehabilitation work is completed, devote sufficient resources to periodic maintenance to prevent a recurrence of the situation in the 1990s.	Maintenance planning and budgeting procedures for the power station and the electrical system were reviewed. Detailed maintenance plans are developed by type of equipment, and the associated costs are budgeted by month.
7. Become more active in the regulatory process. For example, develop and propose incentive mechanisms to the ERA.	Discussions were held with the management team on incentive regulation. Commercial-loss reduction was identified as an appropriate measure for the EES.
8. Devote sufficient time and resources to the tariff process to present its position in a detailed, transparent, and understandable manner.	The executive director made the planning manager responsible for tariff matters. A seminar on the new tariff methodology was presented to the management team. The advisor worked with the planning manager to determine a fuel adjustment charge for electricity and heat based on the anticipated cost increase from the local mine.

Recommendation	Progress
9. Continue to revise and support the IT/MIS strategy.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
10. Expand the LAN network and connect the distribution office to it.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
11. Modernize the payroll and personnel system.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
12. Develop a system for forecasting and monitoring the company's cash position.	<p>A capacity-building seminar, "Cash Management and Forecasting Techniques," was held.</p> <p>A cash-forecasting model was developed and provided to the company.</p> <p>The planning manager was assigned responsibility for cash management.</p>
13. Take every opportunity to manage employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. This may result in reductions in some areas and increases in others.	<p>Information on workforce reduction was provided to EES management.</p> <p>The company has performed time studies on several work groups and tentatively identified 35 positions for the management team to review for possible elimination.</p>

Ulaanbaatar Power Plant-4

Recommendation	Progress
1. Continue to improve accounting and reporting and move toward IAS compliance over the next few years.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
2. Engineers and finance specialist task: Perform financial analyses on future projects prior to presenting them to management for approval.	A Financial Analysis Team was established consisting of economic and technical specialists. The executive director issued a decree that a financial analysis be performed on proposed investment projects exceeding MNT 5 million. A financial analysis seminar was held for the team.
3. Create the position of MIS manager and give that person overall responsibility for planning and managing the organization's IT and MIS systems.	The company appointed Ms. Bayasgalan as MIS manager. Several meetings were held with Ms. Bayasgalan to discuss her new role.
4. Develop a plan and budget to upgrade the computer systems, extend the LAN in the office and the plant, and manage hardware and software maintenance.	An action plan and budget were prepared by the new MIS manager. We reviewed with her progress made on the plan during 2003. At least one computer in every department is now connected to the LAN.
5. Follow the short-term plan developed to enhance and extend some sections of the IT and network infrastructure, including equipment that can be financed from the current UBPP-4 budget. Also develop a four-year plan.	The action plan and budget prepared by the new MIS manager include actions through 2005.
6. Continually monitor and report on the key performance indicators (KPIs).	An executive order was issued; the KPIs available in current systems are now being reported.
7. Train management on the facilities available in the LAN and encourage them to make use of this tool to speed communication within the organization.	One training session on the use of the LAN is conducted each quarter. An information database on key performance measures is now available on the LAN.
8. Review and strengthen IT activities such as security, virus control, and backup.	All computers now have antivirus software. Financial data are now being backed up on a regular basis. Other data must be scheduled for backup in the future.
9. Issue an executive order to produce the recommended MIS reports.	An order from the executive director was so issued.
10. Management team task: Take advantage of the Phase 2 loan proceeds in the most optimal manner, from an operational and financial perspective, to realize improvements in the key performance measures.	The project scope for Phase 2 has already been determined; therefore, there is no opportunity for UBPP-4 management to make investment decisions on this project.

Recommendation	Progress
11. Once the rehabilitation work is completed, devote sufficient resources to periodic maintenance to prevent a recurrence of the situation in the mid-1990s.	Maintenance planning and budgeting have been in place for the past year. In 2002, only two planned maintenance projects were deferred to 2003. We stressed the importance of documenting the maintenance plan and associated costs in tariff applications.
12. Become more active in the regulatory process. For example, develop incentive mechanisms and propose them to the ERA.	We discussed the reasons for and use of incentive regulation. Station use is a prime candidate for use in an incentive program.
13. Perform a detailed analysis of the incremental cost to cycle EES boilers on short notice to follow the load. Present that analysis to the ERA so that an ancillary-services tariff component can be developed and applied.	Several discussions were held with operations specialists to discuss load following. Metal fatigue is a significant issue with boilers that are cycled up and down to follow the load. The estimation engineer will factor excess maintenance into the cost of load following, in addition to coal and mazut costs, and present that information to the ERA and the NDC.
14. Devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, and understandable manner.	The planning manager and a senior specialist reporting to him have been assigned responsibility for all tariff matters. We held meetings with them to discuss tariff issues, stressing the importance of presenting a detailed, well-documented tariff application.
15. Continue to enhance the compensation system to ensure that employees are compensated based on their contributions to the success of the organization. An incentive compensation or bonus plan would be a progressive measure. Phase out the Experience Benefit and the 13 th month payments.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
16. Consider external economic factors, the financial situation of the company, and wage levels in other industries when determining salary increases.	The management team decided this was not a priority item and that its resources would be better spent on other recommendations.
17. Take every opportunity to reduce employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. Use attrition as the primary tool for meeting this goal.	Information on workforce reduction was provided to UBPP-4 management. During the first quarter of this year, 32 people retired and were not replaced. When Phase 2 of the refurbishment project is complete, lower maintenance will be needed, resulting in fewer employees.

Ulaanbaatar Heat Network

Recommendation	Progress
1. Improve accounting and reporting and move toward compliance with IAS.	The company has consistently improved its accounting and was certified by the Ministry of Finance and Economy in July 2003 as an entity in compliance with IAS.
2. Further implement MIS and IT to improve efficiency and reporting within the company.	The executive director issued a decree on improving MIS and IT.
3. Work with the ERA on development of cost-recovery tariffs.	The tariff proposal was discussed with the ERA Advisory Board in July 2003.
4. Monitor and report on the key performance indicators.	The management team identified the key performance indices.
5. Review and update the customer database to ensure the accuracy of tariff calculations, billing, and collections.	The customer database was updated in June 2003. Based on the updates, heat supply contracts are being extended.
6. Increase communication between the ADB-funded project and UBHN management.	Cooperation has been facilitated.
7. Work with the UBHN's director, the Housing and Public Utility Department of the Ulaan Baatar Municipality, and other independent housing owners to clarify ownership and maintenance of new and existing substations.	Clarification of ownership issues has been postponed until the end of the ADB project.
8. Develop an overall company restructuring plan for a smooth transition to status as a wholesale supplier of heat.	No action.
9. UBHN task: Develop a comprehensive infrastructure rehabilitation and capital investment plan (separate from the ADB-funded projects) that identifies needed improvements to existing facilities or required new facilities. Include associated costs required to ensure an acceptable level of system reliability and operational performance.	Despite the major rehabilitation plan being approved for 2003, the company still faces a shortage of funds.