

PDACH-708

**REQUIREMENTS CONTRACT  
No. CCN-0002-Q-00-3152-00  
INSTITUTIONAL BASED SERVICES**

**DELIVERY ORDER NO. 3  
ARMENIA REGULATORY REFORM AND RESTRUCTURING  
FINAL REPORT**

Prepared for:

U.S. Agency for International Development  
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*Prepared by:*

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March 26, 1998



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1300 Pennsylvania Avenue, NW  
Washington, DC 20523-5100

Attention: Mr. Robert A. Archer, Deputy Chief

Subject: Final Report for Contract No. CCN-0002-Q-00-3152-00; Delivery Order No. 3  
Armenia Regulatory Reform and Restructuring

Dear Mr. Archer:

In accordance with the referenced contract and its modifications, enclosed please find the draft final report for this project.

The summary of expenditures by task will be submitted as soon as it becomes available. We hope you will find this report acceptable and would appreciate any comments you might have. If we do not hear from you, we will finalize this report on April 30, 1998.

This report is the culmination of over three years of dedicated support and assistance which USAID has extended to Armenia. We are also sending a copy simultaneously to the AID Caucasus Mission. It has been our pleasure to work with you and all the USAID staff members involved in this project.

If there are any questions regarding this final report, please let me know.

Sincerely,

Dean White  
Vice President

Enclosure

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**NIS ENERGY INSTITUTIONAL-BASED SERVICES  
DELIVERY ORDER NO. 3  
ARMENIA:  
FINAL REPORT**

**BACKGROUND**

With the dissolution of the Soviet Union in 1991, and conflict with Azerbaijan over the contested Nagorno-Karabakh enclave, Armenia entered into independence in a fragile and economically strained condition. The energy sector showed the clearest signs of these strains. Closure of the borders due to the Nagorno-Karabakh conflict, combined with an economic collapse, plunged the country into a protracted energy crisis from 1991 through mid-1996. Electricity supply to most consumers was limited to two hours per day or less and both the natural gas and district heating systems collapsed. The natural gas that was imported via the only open pipeline through Georgia was subject to frequent acts of sabotage. Most citizens were forced to survive cold winters by burning wood, kerosene and other combustible materials. The first winter was particularly severe; estimates indicate that 25,000 people died of lack of heat.

During the height of the energy crisis, collections for electricity plummeted to less than 15 percent of delivered supply. The low level of collections, combined with retail tariffs that did not cover even the cost of input fuel and inadequate investment planning, all contributed to the energy sector's financial crisis.

USAID's earlier work in the Armenian energy sector was primarily focused on provision of critically-needed equipment, commodities and technical engineering advice in response to the dire energy situation facing the nation. By 1994, however, it became clear that the time had come for institutional reform in order to improve the situation in the energy sector. Thus, this delivery order was targeted to advance the state of reform in both the power and natural gas sectors.

This delivery order was comprised of five tasks: (1) promotion of independent private power; (2) management information systems; (3) regulatory body support; (4) utility corporatization and privatization; and, (5) energy legislation. A description of each of the tasks is provided below, along with the results seen, list of deliverables and a description of other workproducts produced as part of the delivery order. An exhibit is provided at the end of this report summarizing the key events, deliverables, timing and accomplishments associated with each task.

## **INDEPENDENT PRIVATE POWER PROMOTION TASK**

The primary objective of this task was to assist with the institutional and regulatory reforms necessary to attract the private sector to the energy sector and to identify financing options for private power development. Task activities undertaken included: reviewing and assessing the current legal, policy, institutional, and financial framework for private power; specifying and helping to implement the legal, policy and institutional conditions that are conducive to the attraction of private capital for power generation investments; identifying the various financing arrangements that could be used for private power projects; and advising and providing training to the Government of Armenia on the policies and procedures required to establish an independent power project, including planning, soliciting, negotiating and contracting for independent power projects.

This task also supported the Government of Armenia by providing legal and technical assistance with regard to various development proposals. Additionally, the task supported local license holders for small power projects by providing project structuring and legal advice.

### **Major Results**

Overall, major results of this task included supporting the privatization of ten existing small hydropower facilities and development of one new private power microhydro project. Although these projects are small and represent only 25 MW in total, they represent the first private sector involvement in the power sector. Importantly, two of the facilities (representing about 12MW in total) were sold to a foreign investor. The small hydropower privatization process also provided a means for the Ministries of Energy and Privatization and the Energy Commission to work through some of the procedural and substantive issues that need to be addressed to increase the likelihood of successful privatization of the larger power sector enterprises.

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<sup>1</sup> In the original delivery order, the task referred to as "Regulatory Body Support" was initially entitled "Restructuring and Privatization." A subsequent modification of the delivery order changed the title to "Regulatory Body Support." Similarly, "Corporatization and Privatization" was originally referred to as "Utility Corporatization."

Additionally, this task helped to achieve a consensus on the need for privatization and the necessity of strategic investor privatization. In particular, the U.S. study tour (described under "Other Task Activities," below) provided decision-makers (including the present Minister of Privatization and Chairman of the Energy Commission) with a better understanding of investor requirements and the need for regulatory reform to support the privatization process. Further, during this mission, several potential investors were identified.

Recently, following the end of this delivery order, the Government issued Decree 551, ordering that strategic investor privatization of at least 51 percent of the shares of each enterprise be used as the method of privatization for the power sector. This task has clearly helped to lay a foundation for the privatization of the power sector. It is reasonable to expect several of the workproducts produced, such as the model contracts, to be of considerable assistance to the Government of Armenia during the privatization process.

### **Deliverables Required by the Delivery Order**

The contractually-required deliverables for this task include:

- (1) A report outlining the findings, recommendations, and a detailed action plan to develop the framework for private power, including specific reference to government and funding agencies and representatives who have been involved in reviews and their level of interest and support.

This deliverable was accomplished through the issuance of two reports by K&M Engineering and Consulting Corporation (K&M) entitled *Implementing Private Power in Armenia: Institutional Barriers and Strategies* dated November 1995 and *Evaluation of Power Projects in Armenia for Development and Financing by the Power Sector* dated September 1997. The first report describes the major barriers to independent private power in Armenia, and identifies the ways in which power sector reform efforts can address these barriers. The second report examines the institutional framework in Armenia, noting the various risk factors inherent in development of private power. Additionally, the report reviews the financial feasibility of a number of projects and proposes a mechanism for financing some of the more feasible projects.

- (2) A summary report of the workshop on private power

The workshop entitled "Roundtable on Private Power" took place on October 5 and 6, 1995. The workshop included a number of presentations on subjects including: a review of the Armenian investment and institutional environment; problems with the licensing process and recommendations for improvement; critical components for legal and regulatory reform; ways of structuring private power projects (including international

examples); restructuring; and, finance. A report for the workshop was developed that included the list of participants, results and copies of the materials presented.

- (3) A workshop for local license holders on concepts related to private power.

This workshop took place on July 17, 1995. The purpose of the workshop was to determine the state of progress for the twenty-two private power license holders and to identify barriers to project completion. Additionally, there were presentations on the financing and legal structuring of private power projects.

### **Other Task Activities**

Additional activities undertaken during this task are the following.

- ▶ A report was prepared describing a proposal for reform of the licensing process used for private power projects. *Joint Proposal for Restructuring the Licensing Process for Private Power Hydropower Projects* (December 1996) was prepared by K&M to respond to a significant barrier to private power (namely, various inadequacies of Armenia's licensing regime) identified by the consultants.
- ▶ In order to encourage privatization and private power development, a mission to the U.S. for representatives of the Ministries of Economy, Privatization & Foreign Investment and Energy was conducted in March 1997. The participants met with U.S. investors, multilateral organizations (e.g., MIGA, IFC) and bilateral organizations (e.g., EXIM Bank, OPIC). The participants also attended a two-day conference on private power and risk management.
- ▶ Model contracts for power purchase, transmission, development, construction and operation were drafted. Latham & Watkins developed model contracts and term sheets and presented these to counterparts to demonstrate the kinds of provisions that should be included in such agreements.
- ▶ Legal review and consultation were furnished to the Government of Armenia on proposed development and power purchase agreements proposed by foreign developers. During this delivery order, three foreign development proposals were received by the Government of Armenia. Latham & Watkins reviewed each of these agreements and provided written advice to the Government of Armenia. On one occasion, Latham & Watkins, at the request of the Government of Armenia and with USAID approval, met with attorneys of the developer to represent the Government's position.
- ▶ Legal assistance was provided to local private power site license holders. Latham & Watkins provided comprehensive legal assistance, including drafting of contracts for

power purchase and transmission services for two projects including the Yerevan Lake microhydro project (now in operation) and the Jrakhor project (not yet constructed).

- ▶ Technical assistance was provided by Hagler Bailly and K&M to assist with the privatization of small hydropower. K&M completed an evaluation of the results of the first phase of the privatization process and suggested changes designed to improve bids and increase the likelihood of foreign participation. A report was issued jointly by K&M and Hagler Bailly in May 1997 entitled *Evaluation of the Pilot Privatization of Small Hydropower Projects*. K&M also provided a recommended small hydropower license for the Energy Commission's consideration.

## **MINISTRY OF ENERGY MANAGEMENT INFORMATION SYSTEM**

The primary objective of this task was to assess the Ministry of Energy's information system needs and provide technical assistance, hardware, software, and a training program to implement a management information system (MIS). Task activities undertaken included: evaluating the existing computer network and systems throughout the Ministry of Energy; defining the data and information needs of the Ministry of Energy for planning, analysis, and management; developing a statement of system requirements and the conceptual design of such a system to meet the Ministry's needs; estimating the potential costs and benefits of the system; carrying out training of key personnel in Armenia on energy MIS practices and methods; and procurement and installation of appropriate equipment based upon the assessment. Additionally, this task evaluated the energy rationing system used by the Ministry during the energy crisis to determine ways to improve the efficiency and usefulness of the system.

### **Major Results**

An early activity completed under this task was to urgently review the Ministry's emergency fuel rationing program. This program tracked supplies and inventories to determine the preferred use for the limited imports of fuel. Project team members from Merklein & Associates reviewed the logic of the software program presently in use and determined that the logic and approach were sensible; the major need was to modernize the type of programming software being used. In response, the program was converted into Microsoft Access to improve its functionality.

The primary result of this task was the establishment within the Ministry of Energy of a state-of-the-art MIS. The system consists of two parts; the first is a local area network installed in July 1996 to handle the collection, storage and dissemination of energy data. Evaluations of its performance continue to be positive. The second part of the system is an energy information database. The energy data system design is based on a simplified version of the U.S. Energy Information Administration's data collection system. The simplifications reflect the fact that the Armenian energy sector is far less complicated given, for instance, the lack of oil and gas

production and no refinery sector. The data system design provides the Ministry with the ability to better organize its information collection.

An information center was set up within the Ministry to perform data collection and analysis, as well as system maintenance and user training. In order to ensure that system operation and maintenance needs could be met, two Armenian specialists were sent to Moscow for a two week Novell-certification course, which they successfully completed.

Significant user-training was provided from the time of system installation through September, 1997. The training involved workshops to instruct on the use of software, one-on-one training with individual users, and a "help desk" to respond to urgent questions.

### **Deliverables Required by the Delivery Order**

The contractually-required deliverables for this task include:

- (1) A report assessing the current status of energy data collection and analysis, and the needs for a management information system at the Ministry of Energy.

This deliverable requirement was met by the completion of the report entitled *Energy Data Collection and Analysis, Ministry of Energy and Fuel* dated January 1995. This report concluded that an energy data collection system, including both hardware and software, was needed to permit the Ministry of Energy to carry out its functions.

- (2) A memorandum on how USAID's activities in the general area of energy data collection align with activities of other organizations.

Merklein & Associates provided this memorandum to USAID in January 1995. The memorandum documented activities of other donor agencies and indicated the complementary nature of the proposed MIS.

- (3) A report on the preliminary system description, including needed hardware, software, design, development and expected implementation and training costs and schedules.

A report entitled *Recommended MIS System for the Armenian Ministry of Energy* was issued by Merklein & Associates in May 1996 and was used to support the approval request for procurement of the equipment and software required to implement the MIS.

- (4) Training for Ministry of Energy staff in the use of the management information system including: 1) a training plan; 2) one-on-one user training; and, 3) a one day seminar to discuss issues, problem solving and general information on the management information system.

This deliverable was added as part of a modification to the delivery order and required that additional user training be given between April 1 and September 30, 1997. The majority of users were provided with one-on-one training during that time period.

A one day seminar on the management information system was completed in November 1997. The seminar reviewed the reasons for the implementation of the management information system including the need for energy data collection, the present system status, and recommendations for enhancing the use of the system. Attendees included representatives from the Ministry of Energy, state energy enterprises, private firms and local journalists.

### **Other Task Activities**

Several additional activities were undertaken as part of this project.

- ▶ A report entitled *Energy Sector Management Information System* (September 1996) by Merklein & Associates describes the importance of an organized approach towards collection and use of energy data. It provides a number of survey instruments to demonstrate the way in which data collection should be structured. The report also provides an overview of the Ministry's MIS.
- ▶ An evaluation of the operation and use of the MIS was completed by Merklein & Associates. A report on findings was issued entitled *Annual Review and Assessment of MIS Center - Armenian Ministry of Energy* (November 1997). This report concludes that in some areas, the MIS is exceeding the project team's expectations. In other areas, primarily related to the extent of data collection, the MIS is not yet achieving its expectations.
- ▶ Two Armenian specialists received certification in the maintenance and operation of Novell, the LAN language selected for this system. The majority of the MIS users received software training and instruction in the use of the system.
- ▶ Approximately \$250,000 of equipment was procured in the U.S., tested, shipped to Armenia and installed within the Ministry of Energy and some selected state enterprises. Letters of Authorization were signed to transfer the property to the Ministry of Energy. Two audits were conducted by Hagler Bailly to ensure that the equipment was in place and being used properly.

### **REGULATORY BODY SUPPORT**

The primary objective of this task was to provide technical assistance to the Government of Armenia on an overall strategy governing the restructuring, regulation and privatization of the Armenian electric power sector to enable it to function more effectively. Activities included the preparation of a comprehensive proposal for reorganizing, regulating and privatizing Armenia's power sector; the development of an implementation plan for transferring Armenia's current power sector organization to its final, long-term form; and promoting the adoption of the plan.

This task was of extreme importance given the very poor technical and financial performance of the power sector at the time of the project's initiation. Restructuring of the power sector was clearly needed.

### **Major Results**

This project has significantly contributed to the achievement of several major results. First, the power sector was restructured in two phases, in general accordance with the project team's recommendations. The first restructuring took place in December 1995 with the separation and horizontal disaggregation of the distribution sector from Armenergo. At the same time, three generation enterprises were separated from Armenergo and reorganized as state enterprises. The second phase of restructuring occurred in mid-1997. This included the separation of remaining generation from Armenergo, thereby leaving Armenergo with only the transmission and dispatch functions, and the partial consolidation of distribution. A third phase is expected to occur within two years with the separation of transmission and dispatch functions. When this occurs, the sector structure will closely resemble that recommended by the project team.

The restructuring of the power sector has had several impacts. First, it has decentralized decision-making and in this regard has significantly improved the commercialization of the distribution sector. Overall collection rates have increased to levels approaching 65 percent, the highest seen in the NIS. The residential and small commercial rates of collection are approaching 100 percent, state-owned industrial enterprises and water sewerage irrigation enterprises comprise the bulk of the on-going non-payment problem. Second, the transparency of the costs and finances in the sector has increased. The horizontal and vertical disaggregation of the sector helped to indicate those areas where costs appeared excessive and out of line with the rest of the sector. Third, the restructuring has provided an improved environment for the privatization process by separating the sector into entities that should have more appeal for specific types of investors (e.g., such as those only interested in distribution). Fourth, and perhaps most importantly, the restructuring has been credited with playing a major role in the restoration of power system reliability. Since the restructuring, there has been a marked improvement in the management of the sector. Although the Armenian energy sector is still producing the same amount of electricity now as in 1993, the reliability of the power system has been fully restored and "round-the-clock" power is now available throughout the country.

Another important impact of this project was the establishment of the Armenian Energy Commission, the first administrative rule-making body in Armenia. The five-member Energy Commission was created by Presidential Decree in April 1997. The Energy Law, passed two months later, codified the Commission's legal standing. The Energy Commission has authority in the areas of licensing, tariff-setting, quality of service and contractual approval for electricity, natural gas and district heating. Following its establishment, the Energy Commission has moved forward aggressively and a number of decisions, including tariff increases for all three sectors it regulates, have been issued.

The project team consisting of Hagler Bailly and Latham & Watkins provided technical assistance to the Energy Commission across a broad range of areas including organization and staffing; licensing of energy sector entities; and procedures of Energy Commission operation. Importantly, the project also advocated and achieved a salary structure for the Commissioners and staff that was not tied to the Government pay scale. This is an achievement that should provide a model for further civil service reform.

### **Deliverables Required by the Delivery Order**

The contractually-required deliverables for this task include:

- (1) A report on the alternative options to develop a competitive energy market in Armenia, including evaluation of ownership forms.

This requirement was met with the issuance of the report entitled *Separating Electricity Distribution: International Experience* (November 1995). This report reviews the structure, ownership and regulation of the power sector in 11 countries. Additionally, the report describes the method of restructuring used in these other nations and recommends the functional unbundling of the power sector, starting with the separation of distribution from Armenergo. Partial privatization of the power sector is also recommended.

- (2) A report on alternative options of price regulation of wholesale energy markets in Armenia.

Three reports including the *Restructuring Proposal Overview* (August 1995), the *Armenian Power System Financial Analysis and Forecasting* (September 1996), and the *Electric Power Tariff Strategy for Armenia* (April 1997) focus on the method of pricing wholesale energy. Each of the reports recommends that the single energy-only rate for wholesale power be converted to a two-part tariff with the possibility for introducing performance incentives.

- (3) A report on retail pricing.

The report entitled *Electric Power Tariff Strategy for Armenia* was first issued in April 1997. This report presents the results of a tariff study that examined the marginal costs of supply for the Armenian power sector. The report also provides recommendations for changes in the structure of tariffs. An update of this report was completed to reflect the tariff decisions of the Armenian Energy Commission.

- (4) A comprehensive description of the long-term reorganization, regulation and privatization of the Armenia's power sector.

Hagler Bailly issued a report entitled *Armenian Power Sector: Recommendations for Reform* in April 1996. This report provides recommendations for further restructuring of the power sector, establishment of a regulatory body and its responsibilities, and ownership options.

- (5) A seminar to present the proposal on the long-term reorganization, regulation and privatization of Armenia's power sector.

A seminar was held in October 1996 providing recommendations for further reform of the power sector and the international experience with privatization. The seminar focused on the requirements of investors and the steps necessary to promote privatization in Armenia.

- (6) Implementation plan for transferring Armenia's current power sector organization to its final, long-term form.

The April 1996 report entitled *Armenian Power Sector: Recommendations for Reform* includes an implementation plan and timetable for further restructuring, corporatization and regulatory reform of the power sector.

- (7) An institutional assessment of the natural gas and electric power sector to support USAID efforts to target ("program") local currencies generated from humanitarian aid.

A report entitled *Financial Control Assessment - Natural Gas Programming* was prepared by Price Waterhouse in July 1996. The report reviews several areas including contracting and procurement processes, budgeting accounting systems and related internal control environments. The report concludes that the control environment does not support local management of the proceeds resulting from humanitarian assistance.

- (8) Assistance to U.S.AID with provision of humanitarian aid.

This deliverable was met through Hagler Bailly's assistance to USAID with the 1996 Memorandum of Agreement and 1997 Memorandum of Understanding, both related to

USAID procurement of natural gas for Armenia. Hagler Bailly provided suggested reform conditions and covenants, assisted USAID in negotiations with counterparts, provided translation assistance for the agreements and reported to USAID regarding Government of Armenia compliance with the agreed-to reform covenants. Additionally, Hagler Bailly assisted USAID by undertaking an institutional assessment of Ministry procurement practices to determine whether the Ministry and its associated state enterprises could adequately implement a competitive international procurement process.

### **Other Task Activities**

Four additional activities were undertaken during this task.

- ▶ In mid-1995, Hagler Bailly prepared a proposal for a restructuring working group consisting of representatives from relevant Ministries and Armenergo. Armenergo opposed the idea and the working group was not formed.
- ▶ A report entitled *Natural Gas Sector Restructuring* was prepared by Merklein & Associates and Hagler Bailly in December 1996. This report reviews the structure of the natural gas sector and provides a number of recommendations to achieve the functional unbundling of the natural gas sector and the divestiture of specific non-core enterprises.
- ▶ Hagler Bailly in association with ARCO Ltd., an Armenian consultancy, prepared a strategy for the consolidation of the distribution subsector including an analysis of the impact of distribution consolidation on end-user tariffs.
- ▶ At the request of the Ministry of Energy, in late 1996 Hagler Bailly prepared a short paper to brief the country's new Prime Minister on the benefits of power sector restructuring.

### **UTILITY CORPORATIZATION AND PRIVATIZATION**

The objective of this task was to advance the state of corporatization and commercialization of both electric power and natural gas sector enterprises by assisting them develop the institutional capability to operate more closely in accordance with modern commercial and management practices.

Activities under this task were varied and included: reviewing current accounting standards in Armenia; recommending new accounting standards for the electric power and natural gas sectors; reviewing current financial management practices; and recommending appropriate financial management organization and procedures. Additionally, assistance was provided on corporate governance.

## **Major Results**

The major impact of this project was to advance the state of knowledge regarding financial reporting and the introduction of International Accounting Standards (IAS). Price Waterhouse completed a comprehensive review of Armenian accounting practices and developed a chart of account and accounting manual for each of the major types of enterprises found in the power sector (i.e., generation, transmission and distribution) and one chart of account and accounting manual for the natural gas sector. These charts of account, when implemented, will permit the enterprises to provide financial reports in accordance with IAS while simultaneously meeting local tax reporting requirements.

At the end of the project, the sector was poised to adopt some stream-lined version of IAS. Importantly, Price Waterhouse developed an implementation strategy for achieving IAS within the energy sector that met with the World Bank's and Ministry of Energy's approval. Commitments to implement IAS in accordance with the agreed-to timetable were received. As a result, Price Waterhouse began to work closely with Yerevan Distribution Company on implementing an accounting software package to permit the enterprise to report in accordance with IAS.<sup>2</sup>

## **Deliverables Required by the Delivery Order**

The contractually-specified deliverables for this task include:

- (1) Armenergo's and Armgazprom's 1993 accounting report in accordance with Western standards.

An EBRD-funded project prepared a restatement of Armenergo's 1993 financial statements. Price Waterhouse reviewed the consultant's report and indicated a number of areas in which the restatement was not in accordance with IAS.

Based on the quality of available data and the lack of a memorial method of accounting, and following discussion with USAID, it was determined that there was a need for a new chart of accounts to permit restatement in accordance with IAS. Accordingly, Price Waterhouse prepared separate accounting manuals and charts of accounts for each type of power sector enterprise resulting from the 1995 restructuring (i.e., generation, transmission dispatch, and distribution). Additionally, Price Waterhouse prepared a single accounting manual and chart of accounts for the natural gas sector.

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<sup>2</sup> Implementation activities are now being undertaken as part of delivery order 15

- (2) Review of differences between Armenian and international standards of accounting in the power sector including suggestions of new forms of accounting for Armenia's power sector.

The Price Waterhouse report *Armenergo State Enterprise Accounting and Financial Management Practices* (March 1996) describes the differences between Armenian accounting and international accounting standards. The four accounting manuals and charts of accounts prepared by Price Waterhouse describe the recommendations for bringing the power sector enterprises into compliance with IAS.

Price Waterhouse also prepared a summary of each of the international accounting standards along with an analysis of the changes that would be required in present accounting practices to adopt each of the thirty-three specific standards.

- (3) A report providing recommendations on solving the problems of debts, suggestions of exchange for long-dated bills, and recommended cash management strategies.

In its report entitled *Armenergo State Enterprise Accounting and Financial Management Practices*, Price Waterhouse provides a number of recommendations, along with a suggested timetable, for improving the financial status of the utility.

- (4) A report on the recommended financial management organization and procedures for Armenergo and Armgazprom.

Price Waterhouse prepared a report entitled *Armenergo State Enterprise Accounting and Financial Management Practices* that provides recommendations for the management of the financial and accounting areas at Armenergo. The *Haygazard (Armgazprom) State Concern Accounting Manual* for the natural gas sector includes recommendations for the natural gas sector in terms of establishment of responsibility centers and development of transfer pricing principles.

- (5) Seminars on accounting and financial disclosure, Western debt and equity markets, and shareholder relations corporate governance.

Seminars on accounting, financial management and commercialization, including corporate governance, occurred over a two week period in February, 1996. Two types of accounting financial management seminars were given. The first were multi-day courses for practitioners, such as the accountants at the energy enterprises. The second were single day courses for upper level management and Ministry officials to familiarize them with accounting and financial management concepts.

#### **Other Task Activities**

Several additional activities were undertaken as part of this task.

- ▶ To investigate the opportunities and difficulties for commercialization of distribution. Price Waterhouse prepared a pilot project plan in mid-1995 for a small commercialization pilot. Support was received from both Armenergo and the Ministry of Energy for implementation of the pilot at the Masis district network. The pilot project focused on reorganization of the network, including changing staff responsibilities and reporting relationships, and improved managerial cost accounting. A simplified cost accounting package was developed and implemented. Additionally, certain other functions, such as payroll, were automated to improve the efficiency of the network's administrative functions.
- ▶ A resident advisor was provided to assist with the commercialization and financial reform aspects of the World Bank's OECF's proposed transmission and distribution rehabilitation loan. The project manager assisted the Ministry of Energy with the completion of financial forecasts for the power sector, project definition and cost-benefit analyses and the drafting of a business plan for the Yerevan Distribution Company.
- ▶ Both Hagler Bailly and Price Waterhouse participated in the review of various corporate charters and bylaws proposed for state energy enterprises. A report entitled *Comments on Draft State Enterprise Bylaws* (October 1995) recommended a number of changes to proposed bylaws from the Ministry of Energy to increase the likelihood of the enterprises operating on commercial principles, without day-to-day Ministry oversight.
- ▶ An implementation strategy and timetable for the introduction of IAS within the power sector was prepared by Price Waterhouse in September 1997. World Bank and Ministry of Energy support for the plan was received and the first implementation steps were taken with the Yerevan Distribution Company.
- ▶ Price Waterhouse summarized the thirty-three international accounting standards and indicated how adoption of each specific standard would affect present accounting practices. Price Waterhouse also advocated adoption of eighteen of the thirty-three standards.

## **ENERGY LEGISLATION**

The primary objective of this task was to assist in the development of a national energy law and legislation to enhance the environment for private investment in the energy sector, establish a regulatory body, and encourage competition.

Activities undertaken during this task included drafting the basic legislation needed to establish a new industry structure, including the establishment of an independent energy commission to oversee pricing and licensing. In addition, this task involved participation in meetings and negotiations with Armenian counterparts regarding power sector restructuring and regulation.

### **Major Results**

The most important impact resulting from this task was the drafting, advocacy and passage of the Energy Law of the Republic of Armenia. Work on this law began in late 1994 with the project team's development of a draft law for Ministry of Energy consideration. From 1994 to 1997, numerous discussions and debates ensued regarding, primarily, the role of an energy regulatory commission and the structure of the sector. With the World Bank's assistance, a major push to redraft the law was undertaken by the project team in early 1997 and passage of the law by the National Assembly occurred on June 9, 1997. The President of the Republic signed the law into effect shortly thereafter.

The Energy Law includes a number of critically-important provisions for the promotion of reform in the energy sector. First and foremost, it codifies the Energy Commission, established by Presidential Decree in April 1997. The law gives the five-member Commission responsibilities for tariff review and approval, licensing, contract approval and quality of service consumer protection in the electricity, natural gas and thermal energy sectors. The Commission is relatively independent of the government, with the exception that at present, National Assembly approval of the Commission budget is required. Commissioners are nominated by the Prime Minister and approved by the President for staggered, five-year terms. The law limits the conditions under which a Commissioner can be removed from office.

The Energy Law also addresses tariff principles. The law requires that tariffs be based on full cost recovery principles including reasonable returns on investment comprising both interest on debt and a return on equity "sufficient to provide safe and efficient operation of the entities in the energy sector." A two-year transition is permitted during which time tariffs are to gradually increase to full cost recovery levels. Cross-subsidies between consumer classes are prohibited, as is discrimination in tariff-setting; all consumers with similar costs of service are to be offered similar rates.

The Energy Law also mandates that operating licenses be issued by the Energy Commission for enterprises involved in generation, transmission and distribution of electricity and thermal energy, and transmission and distribution of natural gas. Importantly, the license provisions essentially enforce an unbundled energy industry. A generation, transmission or distribution license holder cannot have an ownership stake in any other licensed enterprise without the approval of the Energy Commission. In addition, the law permits private power development and open access to the electricity and natural gas transmission and distribution systems. Bilateral contracting is permitted, subject to Energy Commission approval.

Arguably, the Energy Law may be the most progressive energy law in the NIS. Although some laws from other nations may have certain principles that are desirable but not included in the Armenian Energy Law (e.g., the Georgian Electricity Law's mechanism to fund the Electricity Commission using license fees), the Energy Law is a major step forward in advancing the legal and regulatory framework for the energy sector in Armenia.

### **Deliverables Required by the Delivery Order**

The contractually-specified deliverables for this task include:

- (1) A report on structure and forms of ownership and shortcomings of the laws.

A legal memorandum was prepared that described the options for ownership and corporatization of the power sector. The memorandum also described the steps required to achieve corporatization of the power sector along the lines of joint stock companies.

- (2) An analytical review of existing and planned laws bearing on the power sector.

Several legal reviews took place during the period of this delivery order. Draft laws reviewed included: the Anti-Monopoly Law; the Law on Protection of Competition; the Law on Energy Efficiency; the Accounting Law; the Petroleum Law and the Energy Law. The latter two laws were initially developed by the project team; the legal reviews focused on the changes to the drafts proposed by the Armenian Ministries and National Assembly. Additional assistance was provided to the Ministry of Economy suggesting the components to be included in a general licensing law.

Major existing laws reviewed included: the Law on Joint Stock Companies; the Law on Privatization and Denationalization of State Owned Enterprises and Unfinished Construction Units; the Law on Bankruptcy of Enterprises and Individual Entrepreneurs; and the State Budget Law.

Additionally, a report was prepared analyzing two major decisions of the Government that affected the power sector. The report *Critique of Government of Armenia Decree 114 and Implementing Mandate 39 of the Minister of Energy* (September 1995) proposed a series of recommendations for advancing reform in the power sector.

- (3) A report on legislation and regulation in the power sector including laws of foreign investment problems and prospects.

Two reports addressed this deliverable requirement. First, K&M's *Implementing Private Power in Armenia: Institutional Barriers and Strategies* described the specific problems related to foreign investment in the power sector including the lack of tested commercial

laws and judicial systems and the questionable enforceability of contracts. Second, the Hagler Bailly report *Armenian Power Sector: Recommendations for Reform* included a review of the status of regulation in the power sector, the shortcomings in the existing regulatory process and the need to establish an independent regulatory commission to oversee tariff setting and licensing.

- (4) Draft laws and decrees on: regulating legal relationships under new forms of ownership and structure in the power sector; developing wholesale energy markets; and developing and controlling retail markets.

The project team including Latham & Watkins, Merklein & Associates and Hagler Bailly drafted two major laws including the Energy Law and the Petroleum Law. The Energy Law established an independent regulatory body with responsibility for tariff-setting and licensing for electricity, natural gas and district heating. The Energy Law also codified a functionally unbundled power sector through licensing ownership restrictions. Further, the Law addressed the wholesale energy market by permitting both open access and bilateral contracts.

A Presidential decree on establishment of an independent regulatory body was also drafted by Latham & Watkins and Hagler Bailly in March 1997.

### **Other Task Activities**

One additional workproduct was prepared as part of this task. A model production sharing agreement for petroleum exploration and development was crafted by Merklein & Associates. This agreement served as the basis for negotiations between the Government of Armenia and a U.S. developer.

### **SUMMARY**

This delivery order achieved major results in each of the five task areas. The regulatory reform and restructuring components, in particular, have resulted in significant changes in the organization and regulation of the energy sector. These changes appear to be sustainable. The Energy Commission is functioning admirably and is serving as a model in the NIS. The restructuring of the power sector has "taken hold" and efforts are now focusing on the logical next steps, including the development of the wholesale energy market and improved financial settlement procedures.

The independent private power development task helped to bring about the first instance of private sector involvement, albeit small, in the generation sector. Importantly, activities related to this task facilitated the creation of a consensus to move forward with strategic investor

privatization as articulated in Government Order 551. The task also provided the Government of Armenia and its Ministries with access to legal and private power advisors at a time when such assistance was needed to help review several foreign development proposals.

The corporatization and privatization task focused primarily on accounting reform. Although there was not a major breakthrough with adoption of IAS, the fact that consensus was achieved on the strategy for implementation is notable. The chart of accounts developed by Price Waterhouse, combined with their advocacy efforts, should lead to progress in 1998 on the actual adoption of IAS for financial reporting in the energy sector.

Finally, the legal reform task oversaw the adoption of the Energy Law. This law indicates the direction for policy-making and further reform of the energy sector. Efforts are now underway to fully implement all of the Energy Law's provisions, including licensing of enterprises and tariff reform.

Overall, this delivery order contributed significantly to the state of reform in the energy sector. It helped lay the groundwork for the implementation activities now being successfully undertaken as part of delivery orders 12 and 15. The attached exhibit on summarizes the progress made during this delivery order by showing the quarterly project team outputs and events associated with each of the five project tasks.

**Exhibit 1  
Summary of Quarterly Deliverables and Events  
Associated with Project Tasks**

Task	Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<b>Task 1 Independent Private Power</b>	1Q/95 - Interministerial private power working group formed to serve as the focal point for review of several foreign development proposals	1Q/95 - Workshop with license holders completed	4Q/94 through 3Q/96 - Completed numerous legal reviews of the power purchase, development and lease agreements for three proposed private power facilities
	1Q/95 - Completed workshop with private power license holders	4Q/95 - Conference on "Private Power" completed	2Q/95 - Completed draft model contracts for power purchase, engineering, procurement and construction, transmission services, O&M and implementation. Prepared model pro formas and letters of intent
	4Q/95 - Conducted "Private Power Roundtable" conference	4Q/95 - Released "Implementing Private Power in Armenia: Institutional Barriers and Strategies" report	4Q/95 - Published "Joint Proposal for Restructuring the Licensing Process for Private Sector Hydro Power Projects"
	3Q/96 - Conducted an "Energy Sector Privatization" seminar on privatization methods and related topics	4Q/96 - Released draft report entitled "Evaluation of Power Projects for Development and Financing by the Private Sector"	4Q/95 - Developed materials for "Private Power Roundtable"
	3Q/96 - Hagler Bailly interviewed on Armenian television to discuss the importance of the small hydropower privatization process	1Q/97 - Released final report entitled "Evaluation of Power Projects in Armenia for Development and Financing by the Power Sector"	2Q/96 - Reviewed the tender proposed for the small hydropower privatization process
	3Q/96 - Ministry of Energy announces tender for small hydropower privatization process. Hagler Bailly recommends deadline be extended to permit more opportunity for foreign involvement. Ministry of Energy agrees		2Q/96 - Assisted Energeta Ltd with loan documents for financing of small hydropower facility at Yerevan Lake. Also assisted with transmission service agreement for wheeling of power
	2Q/97 - Completed a study tour to the US to investigate private power and privatization. The tour included representatives from the Ministries of Energy, Economy and Privatization and Foreign Investment		1Q/97 - Criteria for review of bids for small hydropower privatization process provided to the Ministry of Energy. Financial model developed to assist with bid evaluation

Task	Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
	<p>2Q/97 - Energia's Yerevan Lake microhydro project came on line representing the first private power facility in Armenia</p> <p>3Q/97 - Seven small hydroelectric facilities representing about 12 MW in total capacity were privatized</p> <p>4Q/97 - An additional three small hydroelectric facilities are privatized representing another 13MW in total capacity. Two of the units (1.2MW in total) were sold to a foreign investor</p>		<p>2Q/97 - Completed report describing results of Privatization and Private power study tour to the US</p> <p>2Q/97 - Completed an evaluation of the first round of the small hydropower privatization. Produced report entitled "Evaluation of the Pilot Privatization of Small Hydropower Projects"</p> <p>2Q/97 - Reviewed the draft model power purchase agreement proposed for the privatized small hydropower projects</p> <p>2Q/97 - Presented workshop on the problems with the first round of the small hydropower privatization process</p> <p>3Q/97 - Prepared recommendations summarizing the components to be included in the small hydropower licenses</p>
<p><b>Task 2</b> <b>Management Information System</b></p>	<p>2Q/95 - Completed final MIS system design, including a full description of hardware, software and allocation of computers within the Ministry of Energy</p> <p>3Q/95 - Request for bids submitted to suppliers</p> <p>4Q/95 - Bids for equipment from four suppliers received and evaluated</p> <p>1Q/96 - Request for procurement approval submitted to USAID</p> <p>1Q/96 - Equipment procurement approval received</p> <p>3Q/96 - Ceremony conducted to officially open the MIS center</p> <p>4Q/97 - Workshop on the MIS conducted. Attendees include Ministry of Energy staff, journalists and energy enterprise management</p>	<p>1Q/95 - Completed memorandum describing how the MIS would relate to other technical assistance efforts underway</p> <p>1Q/95 - Prepared report assessing the status of energy data collection and analysis, the need for an MIS and possible implementation difficulties</p> <p>2Q/95 - Completed a report on the proposed system design</p> <p>3Q/96 - Final task report completed</p> <p>3Q/96 - Seminar conducted on the use of the MIS and importance of energy data collection</p> <p>1Q/97 - Completed evaluation of the MIS based on one full year of operation. Presented workshop on the results of the evaluation</p>	<p>3Q/95 - Two individuals sent for certification program in network software use and maintenance</p> <p>3Q/95 - Ministry of Energy fuel rationing program converted to a new software language to increase its flexibility</p> <p>3Q/96 - Installed MIS within the Ministry of Energy in June, 1996 and conducted MIS training. The formal "hand-over" of the system to the Ministry of Energy took place</p> <p>3Q/96 through 3Q/97 - Training and system support provided</p> <p>3Q/96 - Ministry of Energy signs letters of acceptance for all equipment provided as part of the MIS</p> <p>1Q/97 - Hagler Bailly completes an audit to ensure equipment is in use and operating as intended</p>

Task	Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p><b>Task 3</b> <b>Regulatory Body Support</b></p>	<p>4Q/95 - Completed a regulatory study tour to several U.S. regulatory commissions in the U.S. for the First Deputy Minister of Economy and a Deputy Minister of Energy</p> <p>4Q/95 - The Minister of Energy announces a plan to restructure the power sector, involving the establishment of: 1) three generation companies, 2) 51 distribution enterprises, and, 3) one transmission/dispatch entity retaining in the short-term some load following generation</p> <p>4Q/95 - The restructuring proposal is implemented. Over fifty distribution utilities created. Three separate generation enterprises established</p> <p>2Q/96 - Power availability increases and system restored to 24 hour a day operation. Reorganization of the sector is credited with achieving these results</p> <p>1Q/97 - Distribution consolidation takes place. Eleven distribution entities formed</p> <p>2Q/97 - Remaining generation separated from Armenergo. Six major generation enterprises exist</p> <p>2Q/97 - Presidential decree issued establishing an independent energy regulatory commission</p> <p>2Q/97 - Energy Commission issues electricity tariff increase decision</p> <p>2Q/97 - Energy Law of the Republic of Armenia passes codifying the establishment of an independent regulatory commission and reinforcing the functional unbundling of the energy sector. The Energy Law requires the separation of transmission and dispatch within three years</p>	<p>3Q/95 - Completed the "International Experience with Distribution Subsector Restructuring" report. This report provided an analysis of possible models that could be used for reform of the power sector</p> <p>4Q/95 - Restructuring and regulatory reform recommendations presented to various Ministries and also during the Private Power Roundtable</p> <p>4Q/95 to 2Q/96 - Assistance provided to USAID on development of reform conditions for the 1996 natural gas agreement</p> <p>2Q/96 - Completed a report entitled "Electric Power Sector Restructuring and Implementation" report</p> <p>1Q/97 - Completed the draft electricity tariff study and conducted a workshop to present the results</p> <p>3Q/97 - Prepared a summary of Government of Armenia compliance with the 1997 natural gas Memorandum of Understanding</p> <p>4Q/97 - Finalized the electricity tariff strategy study</p>	<p>2Q/95 - Proposal developed for formation of restructuring working group</p> <p>3Q/95 - Completed a restructuring proposal for the Minister of Energy recommending the functional separation of the power sector</p> <p>4Q/95 - Completed a report on the regulatory study tour</p> <p>2Q/96 - Completed a preliminary review of the natural gas sector and submitted a series of recommendations for gas sector restructuring to the Ministry of Energy</p> <p>2Q/96 - Project team undertakes an analysis to determine the impact on end-user tariffs from consolidation</p> <p>3Q/96 - In conjunction with the World Bank, determined that the preferred consolidation strategy for the distribution sector was to establish four regional utilities</p> <p>1Q/97 - Prepared a short summary of the benefits of power sector restructuring for the new Prime Minister</p> <p>3Q/97 - Updated electricity tariff study to take into account the Energy Commission's tariff decisions</p>

Task	Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p><b>Task 4 Utility Corporatization &amp; Privatization</b></p>	<p>3Q/95 - Armenergo and Masis network enterprise management agree to the proposed pilot commercialization project</p> <p>4Q/95 - Restructuring of the power sector takes place. Although the delivery order called for a single chart of accounts for Armenergo, the restructuring necessitated that multiple charts of accounts for each type of distribution enterprise be developed</p> <p>1Q/96 - Seminars presented on commercialization and financial accounting</p> <p>2Q/96 - Ministry of Energy begins implementation of more aggressive measures to raise collections. Collections begin to climb quickly from the 20% level to over 50%</p> <p>3Q/96 - Agreement is reached to implement an aggressive commercialization program at the Ararat distribution network including implementing a metering and billing system and accounting system. The accounting work focuses on further validation of the proposed chart of accounts</p> <p>2Q/97 - Agreement is reached on the corporatization of energy enterprises. Corporatization into closed joint stock companies is called for by January 1, 1998</p> <p>2Q/97 - World Bank project team completes restatement of power sector financial statements</p> <p>2Q/97 - Decision is made to begin implementation of financial reporting system at Yerevan Distribution Company and Armenergo</p> <p>3Q/97 - World Bank and Ministry of Energy approve the timetable and implementation strategy for accounting prepared by the project team</p> <p>4Q/97 - Working group formed at Yerevan Distribution Company to pursue implementation of IAS</p>	<p>1Q/96 - Completed the "Financial Management Practices" report describing existing financial management practices in the power sector and suggesting modifications for improvement</p> <p>1Q/96 - Seminars on commercialization and financial accounting presented</p> <p>2Q/96 - Completed the accounting manuals and chart of accounts for distribution, transmission/dispatch and generation enterprises</p> <p>2Q/96 - Completed the "Commercialization of Distribution" report</p> <p>4Q/97 - Completed the natural gas sector accounting manual and chart of accounts</p>	<p>2Q/95 - Completed a review of the EBRD funded restatement of Armenergo accounts</p> <p>3Q/95 - Completed a proposed commercialization pilot project plan for the Masis district network enterprise. Presented the plan to both Armenergo central management and Masis district management. Implementation of the plan took place</p> <p>4Q/95 - Simplified cost accounting program introduced at the Masis network</p> <p>1Q/96 - Materials prepared for the commercialization and financial accounting seminars</p> <p>2Q/96 - Completed accounting manuals and chart of accounts for distribution</p> <p>2Q/96 - Mobilized a resident commercialization advisor to assist with the project definition for the proposed World Bank transmission and distribution loan</p> <p>3Q/96 - Financial control assessments are completed at the request of USAID to support the planned procurement of natural gas and wheat</p> <p>3Q/97 - Implementation strategy for international accounting standards prepared</p> <p>3Q/97 - Completed a presentation of corporatization and delivered to the Ministry of Energy</p> <p>3Q/97 - Reviewed draft corporate charter developed by the Ministry of Energy for the Yerevan Distribution Company</p> <p>4Q/97 - Assessment of accounting software that could be used in Armenian power sector is completed</p> <p>4Q/97 - Summaries of each of the thirty-three international accounting standards prepared. Recommendations developed for specific standards to be introduced into Armenia</p>

Task	Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p><b>Task 5 Energy Legislation</b></p>	<p>1Q/95 - Working group established to develop energy law</p> <p>4Q/96 - Production sharing agreement for petroleum exploration and development signed between Government of Armenia and American firm</p> <p>2Q/97 - Presidential decree issued forming independent energy regulatory Commission</p> <p>2Q/97 - The Energy Law was passed by the National Assembly and signed by the President in June 1997. Passage of the Energy Law represents the culmination of a two-year effort. The law codifies the establishment of an independent regulatory body with responsibility for tariff setting, licensing, contract approval, and quality of service. Additionally, the law requires a functionally unbundled energy sector through ownership restrictions on licensees. The project team's support activities included providing information and guidance to the Minister of Energy to help defend key provisions of the law before the National Assembly and meetings with key deputies to discuss the benefits of the energy law and some of the weaknesses in the draft law that should be considered for modification. Additional assistance was provided to redraft specific articles in light of comments received from deputies during the first reading.</p>	<p>4Q/94 - First project team version of Energy Law drafted</p> <p>2Q/95 - Completed the report critiquing Government of Armenia, Decision No. 114 and Minister of Energy, Mandate No. 39, two primary legal documents governing the operation of the power sector</p> <p>1Q/95 - Legal memorandum completed regarding possible ownership forms and corporatization processes for the power sector enterprises</p> <p>2Q/96 - Draft petroleum law developed along with a model production sharing agreement</p> <p>1Q/97 - Final project team version of Energy Law drafted</p> <p>1Q/97 - Crafted draft Presidential decree to establish an energy commission</p> <p>2Q/97 - Completed legal reviews of draft petroleum and accounting law</p> <p>3Q/97 - Completed legal review of the draft Energy Efficiency Law</p>	<p>4Q/94 to 3Q/97 - Ongoing activities regarding the draft Energy Law. Project team prepares numerous drafts and works closely with counterparts in the Ministries of Energy and Economy to achieve passage of the law</p> <p>3Q/96 - Project team evaluates proposed production sharing agreement and assists Government of Armenia during negotiations</p> <p>2Q/97 - Completed review of the Law on Duties and State Budget Law to determine whether there is any conflict with the establishment of a licensee-fee based funding approach for the Energy Commission</p> <p>2Q/97 - Worked with the Energy Commission on a draft law to permit the Commission to issue license fees for funding purposes</p>