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**NIS ENERGY INSTITUTIONAL
BASED SERVICES
DELIVERY ORDER NO. 15
ARMENIA**

**Contract No CCN-Q-00-93-00152-00
Delivery Order No 15
Institutional Reform for the
Armenian Energy Sector**

Prepared for

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

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NIS ENERGY INSTITUTIONAL BASED SERVICES DELIVERY ORDER NO. 15 - ARMENIA

BACKGROUND

By late 1996 the Armenian energy sector had undergone some major reform initiatives, most notably in the restructuring and tariff reform areas, nonetheless, more progress was needed. Although some functional unbundling of the power sector had taken place, there were still a number of restructuring steps that needed to be taken. The draft Energy Law had not yet been presented to the National Assembly and an independent regulatory organization was not in place. Although collections for electricity had improved significantly, commercial principles still needed much more advancement in the power sector enterprises.

In order to continue to promote various reform initiatives, USAID issued Delivery Order 15. Several subtasks were included in this Delivery Order. These subtasks focused on

- ▶ restructuring of the power sector,
- ▶ legal and regulatory reform,
- ▶ commercialization and corporatization,
- ▶ privatization and the promotion of independent private power, and,
- ▶ fuel sector reform ¹

This report describes the major results accomplished through this Delivery Order, identifies how each deliverable requirement was met and provides suggestions for follow-on activities should USAID, or other donors, desire to continue work in this area. An Exhibit provided at the end of the document summarizes the key events, deliverables, timing and accomplishments associated with this Delivery Order.

MAJOR RESULTS

Overall, this Delivery Order contributed to several important accomplishments

¹ A sixth subtask on environmental assessment was included in the early Delivery Order but was removed from the statement of work in a subsequent Delivery Order modification.

- ▶ The second and third phases of the restructuring of the power sector were completed. In accordance with the project team's recommendations, the power sector now comprises six independent generation enterprises, four regional distribution enterprises, a separate high voltage transmission enterprise and a dispatch enterprise. The next step will be for the divestment of the wholesale contractor from the dispatch enterprise and the establishment of a funds administrator. As part of this Delivery Order, the project team worked closely with the Energy Regulatory Commission to devise a new proposal for the continued reform of the power sector.
- ▶ The Energy Law of the Republic of Armenia passed the National Assembly in July 1997. This law established the quasi-independent Armenian Energy Regulatory Commission.² This Delivery Order provided the technical assistance to support the development of the Energy Regulatory Commission. This support included comprehensive "around-the-clock" assistance to the Energy Regulatory Commission in areas such as electricity and natural gas tariff-setting, licensing, public participation procedures, financial reporting, contracting and wholesale market restructuring.³ As of the end of this Delivery Order, the Energy Regulatory Commission had issued 44 resolutions covering numerous areas such as electricity, natural gas and district heating tariff reform, financial reporting requirements for licensees, and various rules and procedures governing Commission operation. The Commission also passed a Code of Ethics, the first such Code introduced in the Republic.
- ▶ New laws were adopted including an omnibus privatization law that both streamlined the privatization process and abolished the use of vouchers in privatization transactions. An accounting law was also passed that although perhaps overly prescriptive, still represents a positive step forward in the legal framework for accounting reform. Equally important, particularly troublesome draft laws and proposed modifications to existing laws did not pass the National Assembly. Proposed bills to municipalize power and gas sector assets and remove tariff-setting authority from the Energy Regulatory Commission's purview were defeated. A poorly crafted and heavy-handed Energy Efficiency Law also did not pass the National Assembly.
- ▶ Through day-to-day assistance provided by the project team to the Interministerial Accounting Reform Commission, consensus was achieved to implement the entire body of International Accounting Standards (IAS) economy-wide with the first 19 standards being implemented by January 1, 1999 and the remainder to follow by January 1, 2000. Extensive implementation work is underway including the translation of the entire body

² Most of the technical assistance activities to support passage of the Energy Law were undertaken as part of Delivery Order 3. See Hagler Bailly's *NIS Energy Institutional Based Services Delivery Order No. 3- Armenia - Final Report*.

³ Additionally, this Delivery Order included an equipment procurement component. Approximately, \$120,000 of equipment and supplies were procured to assist the Energy Regulatory Commission during its start-up.

of standards and the reconciliation of tax policies with the expected changes in accounting practices ⁴

- ▶ In late 1997, the Government issued Order 551 which in part endorsed a comprehensive privatization approach to the power sector including strategic investor privatization. The Order requires that at least 51 percent ownership be offered to strategic investors for the distribution and generation joint stock companies ⁵
- ▶ All major power sector enterprises were corporatized as closed joint stock companies in January 1998. Recently, the Government has decided that the governance of each of the power sector closed joint stock companies should have equal representation from the Ministries of Energy, Privatization and Finance & Economy. This is a positive step that should provide for more balance in the corporate governance of the energy enterprises.
- ▶ Although not yet implemented, there is a growing consensus of the need to establish a funds administration type of organization to oversee financial flows in the power sector. Progress in this area is expected within the next six months.
- ▶ Two pilot projects were implemented. One pilot was designed to remeter a large transmission substation with more advanced, higher accuracy, and more tamperproof three-phase programmable meters. Although considered a pilot, it should be noted that this pilot covers 20% of the nation's entire electricity flow. An additional pilot was undertaken as follow-on to Delivery Order 12. In the Komitas network, handheld meter reading technologies were introduced to improve meter reading productivity and enhance internal controls. The metering, billing and collection system designed as part of the Delivery Order 12 pilot project activity was modified to support the automatic uploading and downloading of information directly from the handheld equipment.

Overall, the support provided as part of Delivery Order 15 played a key role in bringing about the important reforms noted above. However, it must also be acknowledged that there were reform "slippages" that occurred during Delivery Order 15. Of greatest significance, the Government of Armenia refused to increase tariffs in accordance with a previous agreement between the Government and the World Bank ⁶. As a result, the World Bank suspended

⁴ The schedule for implementation to change somewhat. It is possible that 13 of the standards will become effective January 1, 1999 with the remainder to follow in the year 2000.

⁵ Recent changes in the administration have disrupted progress on privatization but Hagler Bailly is still optimistic that the privatization process will again receive increasing attention this Autumn.

⁶ Some have questioned whether this decision indicates the lack of independence of the Energy Regulatory Commission given that it is the Energy Regulatory Commission and not the Government that has the authority to change tariffs. Practically speaking, even if the Energy Regulatory Commission had followed through and increased tariffs, there is a provision in the Energy Law that would have muted the Commission's decision. According to the Energy Law, the Commission only establishes maximum tariffs, enterprises can lower tariffs if they so choose. In other words, even if the Energy Regulatory Commission had increased tariffs in

assistance under the Structural Adjustment Credit (SAC-3) and put on hold the transmission and distribution rehabilitation loan. Similarly, there was resistance to a recent strategic investor privatization. The National Assembly came close to repudiating the sales agreement for the Yerevan Brandy Factory due to concerns regarding the purchase price and the lack of transparency in the bidding process. Both of these developments have the potential to adversely affect investor interest and should continue to be a primary area of technical assistance and policy dialogue.

DELIVERABLES REQUIRED BY THE DELIVERY ORDER

The contractually-required deliverables for this Delivery Order, and a description of how the deliverable requirement has been met are shown below. The deliverables as described in Article V of the Delivery Order are not specified by task. Nonetheless, for ease of review, each deliverable has been restated in each subtask where it applies.

A couple of the deliverables listed pertain to the overall Delivery Order and are not task specific. Those deliverables include:

1. A draft and final Task Completion Report describing the activities completed and results obtained.

This final report is intended to meet the task completion reporting requirement.

2. Work plans for each subtask.

Work plans for each subtask were prepared and submitted to USAID during the first two weeks of the Delivery Order's commencement.

The additional contractually-specified deliverables are listed below according to the appropriate subtask category.

Subtask A Restructuring

Deliverables in this subtask include the following:

1. Brief reform status assessment for power sector restructuring.

This deliverable was met through the completion of the *Armenia Power Sector Status Assessment Report* prepared by Hagler Bailly. This report reviews the earlier recommendations made in the project team's April 1996 restructuring and implementation plan to show the

accordance with the agreement, the Ministry of Energy (as custodian of the Government's share ownership in the power sector) could simply have ordered its enterprises not to comply. This further points out the problems with the state-ownership of the power sector.

implementation status of the project team's recommendations. The report also suggests the next steps that should be taken to encourage further reform.

2 A restructuring implementation plan

This deliverable requirement was satisfied through the report *Proposal for the Continued Reform of the Armenian Power Sector* prepared by Hagler Bailly. This report provides a number of recommendations focusing primarily on tariff reform (introduction of multi-part tariffs at the wholesale level), divesting the wholesale contracting function from the dispatch organization, and the establishment of a funds administrator to improve the transparency of financial flows in the power sector. This report was prepared in close cooperation with the Energy Regulatory Commission.

3 A sample grid code

Hagler Bailly worked with the Ministry of Energy, Energy Institute and Energy Regulatory Commission on the preparation of a grid code for the power sector. A sample grid code based on work undertaken in Russia was modified and submitted to counterparts for review and discussion. This sample grid code will need to be updated once agreement is reached regarding the reform principles outlined in the restructuring implementation plan described above.

4 Electricity pricing methodology

This requirement was satisfied through the *Wholesale Tariff Methodology Paper* prepared by Hagler Bailly. This document summarizes the results of the work with the Energy Regulatory Commission to date and provides the formulas for calculation of the two-part generation tariffs and the Bulk Supply Tariff (through which distribution utilities may purchase power from the proposed wholesale contractor). Example two-part tariffs are derived. Also, the report includes Power Purchase and Power Sales Agreements, updated to reflect the project team's tariff recommendations.

5 Recommended policy reform conditions in support of the USAID-GOA MOU's for procurement of natural gas

On several occasions, Hagler Bailly provided memorandums to USAID describing the recommended reform conditions for the 1997 and proposed 1998 Memorandum of Understanding. Hagler Bailly also drafted a suggested MoU for the 1998 metering, billing and collections program.

6 Summaries of the status of GOA compliance with reform conditions

During the period of performance, Hagler Bailly furnished to USAID several written summaries regarding GOA compliance with meeting the reform conditions laid out in both the 1996 and 1997 Memorandums.

Subtask B Legal/Regulatory Reform

Deliverables in this subtask include the following

1 Brief reform status assessments for legal and regulatory reform

Although the Delivery Order requires preparation of one status report, Hagler Bailly felt that the topics are distinct enough to require two separate reports – one focusing on legal reform and one focusing on regulatory reform. The legal status assessment report entitled *Armenian Legislative Survey*, prepared by Latham & Watkins, and focuses on a number of laws, specifically those that adversely affect private investment in the power sector. The laws reviewed include the draft Civil Code, the draft Clean Water Act, the Law on Foreign Investments, the draft Environmental Protection Law and several others. The report indicates a number of weaknesses in the present legal framework and is useful for targeting additional legal reform technical assistance.

The second report, entitled *Status Assessment of Regulatory Reform in the Republic of Armenia*, describes the Energy Regulatory Commission. The report reviews the Commission's organization and staffing, training activities completed, and major Commission work products including a brief summary of each Commission-adopted resolution. Importantly, the report provides a number of recommendations designed to further advance the status of regulatory reform.

2 A procurement list presenting limited critical commodities (e.g., equipment) to improve the performance of power sector entities

The Delivery Order specified that approximately \$130,000 of equipment, supplies and furnishings be procured to support the Energy Regulatory Commission. A list of recommended equipment was provided to USAID and overall, about \$120,000 of equipment was procured and delivered. Hagler Bailly audited the procurement on two occasions to ensure that equipment is still in place and being used as intended.

3 Up to three (3) regulatory policy papers (not to exceed 10 pages each) on issues such as guidelines for regulatory review of proposed merger of licensees, concepts of administrative law in utility regulation and franchise competition

Hagler Bailly prepared three policy papers including

- ▶ *The Franchise as an Instrument for Regulation and the Advancement of Competition in the NIS,*
- ▶ *Regulatory Guidelines for the Review of Energy Sector Mergers and Acquisitions in the Newly Independent States,*
- ▶ *Applicability of U.S. Administrative Law Concepts to Regulatory Systems in the Newly Independent States*

Response from Armenian officials to the papers has generally been positive. Each of these papers is applicable to regulatory institutions throughout the NIS as well as Central and Eastern Europe.

7 Model licenses for generation, transmission and distribution

Hagler Bailly prepared a report entitled *Licensing in the Armenian Energy Sector*. This report provides a brief overview of the Commission's mandate in the licensing area (as articulated in the Energy Law) and the technical assistance furnished by the project team. The report includes the distribution and generation licenses adopted by the Commission as well as a copy of the draft transmission license.

8 Regulatory rules and procedures promulgated by the Commission

This deliverable requirement was met through the Hagler Bailly report *Procedural Rules Adopted by the Armenian Energy Regulatory Commission*. This report furnishes four examples of rules adopted by the Commission. These include the Code of Ethics, Rules and Procedures of Interaction with the Mass Media and the Public, the Rules and Procedures for Conducting the ERC Internal Meetings, and the Procedures for Filing Inquiries and Complaints from Customers and Their Processing and Decisionmaking.

9 Sponsorship of English language training courses for the Energy Regulatory Commission staff

Hagler Bailly hired Dr. Grant Khachikyan, a Professor of English to train the Commission. Dr. Khachikyan provided English language training courses twice each week for all Commission staff over a nine month period.

10 Sponsorship of a Regulatory Study Tour to Kiev/Budapest

Hagler Bailly organized and arranged for the study tour to Kiev and Budapest. The one week tour took place in October 1997 and included Mr. Grigoryan (Deputy Chairman), Commissioners Adjemyan and Avagyan, Mr. Baroyan, (assistant to the Chairman), and Mr. Petrossyan (Deputy Chief of the Legal and Methodology Department).

11 Sponsorship of Armenian delegation to attend the USAID/USEA Regional Regulatory Conference

Hagler Bailly organized and arranged for an Armenian delegation to attend the Regional Regulatory Conference held in November 1997. The Armenian delegation included Mr. Movsessian (Chairman), Mr. Grigoryan (Deputy Chairman), Commissioners Hovsepyan, Adjemyan and Avagyan.

Additionally, at the request of USAID, Hagler Bailly arranged for Mr. Petrossyan (Deputy Chief of the Legal and Methodology Department), Mr. Grigoryan (Deputy Chairman) and

Mr Arabajyan (Chief of the Legal and Methodology Department) to attend USEA/USAID workshops in Budapest on various regulatory topics including among others licensing and organization of a regional regulatory cooperative association

Subtask C Commercialization

Deliverables in this subtask include the following

1 Environmental assessment per USAID Environmental Procedures (22 CFR 216)

As part of this subtask, Hagler Bailly procured equipment including 1) handheld meter reading devices (a simple type of computing device), 2) software and hardware to support accounting reform, and, 3) a number of three phase meters for remetering of the Shaumian-2 transmission substation. In each pilot project plan, the possible environmental consequences were noted. Only the Shaumian-2 transmission substation metering notes the need to require steps from the counterpart organization to ensure that safety measures are taken during the installation process.

2 Brief reform status assessment for commercialization

This deliverable requirement was met through CMP International's report *Armenian Power Sector Commercialization Status Review*. This report reviews the status of commercialization in a number of areas including organizational structure, compliance with the Energy Law, accounting, budgeting, collections, metering, information technologies and human resource development. Additionally the report describes the technical assistance efforts being undertaken by other parties including the World Bank, TACIS and the EBRD. Finally, the report provides a series of recommendations designed to increase the likelihood of successful commercialization in the power sector.

3 An implementation plan for the commercialization subtask

This requirement was met through the report entitled *Commercialization Plan and Implementation Activities for the Armenian Energy Sector*. The report identifies the elements of commercialization for the typical energy enterprise in Armenia. A generic implementation schedule and list of activities for the implementation of a basic level of commercial principles and practices is included. This report notes that one of the problems with commercialization is that a clear vision is lacking among counterparts as to what the term commercialization actually means. In response, the report provides an example by functional area of the kind of activities and processes one should see in a commercialized utility.

4 A procurement list presenting limited critical commodities (e.g., equipment) to improve the performance of power sector entities

A list of procurement items including handheld meter reading equipment, accounting software and hardware, and three-phase programmable metering equipment was presented to USAID.

The Delivery Order specified that up to \$100 000 of equipment and software should be used to support the implementation of the accounting and financial reporting project at Yerevan Distribution Company and Armenergo. In fact, only about \$25 000 was required for the accounting related software and equipment.

5 Assessment of commercialization of power sector entities

This deliverable was met in several ways. First, Hagler Bailly completed a series of analyses regarding the level of collections in the power sector to assess collections performance between utilities and to track performance over time. Certainly of greatest significance was the completion of the internal financial control review of both Armenergo and the Yerevan Distribution Company. The report entitled *Armenia Power Sector Internal Control Review* provides considerable insight into the extent and nature of internal financial control weaknesses found in the power sector.⁷

6 Pilot metering/billing plan for electricity distribution

Hagler Bailly prepared a report entitled *Pilot Project Plan to Introduce Handheld Meter Reading Technologies at the Komitas Electricity Distribution Network in Armenia*. This report describes the project to implement semi-automated metering equipment to address a number of problems seen in the metering, billing and collections area including the use of error-prone paper based systems, data transcription errors, poor internal controls and inadequate meter reader productivity. The project was implemented in the Kievyan district of Komitas.

Additionally, Hagler Bailly prepared a second report on the transmission remetering pilot project entitled *Pilot Project Plan to Upgrade the Metering of the Shaumian-2 Transmission Substation in Armenia*. This report provides the plan and justification for remetering a transmission substation to improve metering accuracy at the bulk power level and assess the performance of US-made three-phase programmable meters.

Finally, Hagler Bailly also served as the main USAID representative to the USAID/Government of Armenia/World Bank Experts Working Group on Metering, Billing and Collections. This working group provided a final report with recommended program components for USAID's FY-1998 assistance program.

7 Training workshops in IAS

During the second and third quarters of 1998, Price Waterhouse provided several days of workshops on International Accounting Standards to the Interministerial Accounting Reform Commission. These training workshops focused on each of the 30 standards that comprise the

⁷ This report also meets the financial audit reform condition included in the 1997 Memorandum of Understanding.

IAS Each workshop focused on detailed explanation of one or two of the standards with a comparison to show how implementation of a specific standard would affect Armenian accounting practice. These workshops were very successful and directly influenced the Commission's decision to support adoption of the entire body of standards.

Subtask D Privatization/Independent Private Power Promotion

Deliverables in this subtask include the following:

- 1 Brief status assessment of privatization and independent private power promotion

This deliverable requirement was met through the Hagler Bailly report entitled *Status Assessment of Privatization and the Armenian Power Sector*. This report was issued twice, a second version of the report provides an update on the results of the second round of the small hydropower privatization process. This report reviews the changes in the legal framework supporting privatization (such as the passage of a new omnibus privatization law), compares the status of the implementation of the project team's recommendations, and provides suggestions for furthering reform efforts in this area.

- 2 Implementation plan for the privatization and independent private power promotion subtask

This requirement was met through the privatization plan and implementation strategy report crafted by Hagler Bailly. The report entitled *Development of a Privatization Strategy for the Armenian Power Sector* provides information on privatization and investment attraction in the energy sector to help inform policymakers in the Republic regarding the unique challenges to privatization, the types of approaches that have been successfully implemented elsewhere, and the kind of factors that should be considered in the development of the Republic's privatization strategy. A recommended strategy and implementation plan for the strategy is included.

- 3 Privatization plan for the electricity sector including a recommended strategy

The report just referenced (the *Development of a Privatization Strategy for the Armenian Power Sector*) provides the recommended strategy for power sector privatization. The main components of the recommended strategy include strategic investor privatization of distribution, followed closely by generation. Further, the report recommends serious consideration be given to options to increase the role of the private sector in the transmission and dispatch areas.

Subtask E Improved Fuel Supply Enterprises

The deliverables required by this subtask include:

- 1 Brief assessment of the status of fuel sector reform

A report prepared by Merklein and Associates entitled *Fuel Sector Status Assessment – Armenia* provides an update on recent developments in the natural gas, oil and geothermal sectors. Of

perhaps most interest, the report reviews the status of the formation of ArmRosGasprom an Armenian/Russian joint venture, and notes that many of the details of the organization remain undecided. The report recommends close monitoring of the joint venture and suggests that the status report be updated again at year-end 1998 when some of the details related to ArmRosGasprom will be further clarified. Only then can the entity's impact on the fuel and power sectors be fully assessed.

2 Completion of a fuel sector reform plan

The Hagler Bailly report entitled *The Armenian Fuel Sector Recommendations for Reform* meets this deliverable requirement. The report describes and assesses the conditions within the Armenian fossil fuel markets, as well as the Government's fossil fuel policies from the perspective of the power sector. The report notes a number of problems including 1) insufficient cash flow from Armenergo to the thermal stations, 2) dangerously low levels of fuel reserves at each of the thermal stations, 3) barriers to competitive procurement of fuels and 4) the need for restructuring of the state-owned transportation railroad network. A number of specific recommendations are made such as requiring ArmOilProduct to lease mazut storage facilities to private parties and corporatization of the railroad network.

3 Completion of a natural gas tariff study

This deliverable requirement was met through the Merklein and Associates report *Natural Gas Tariffs Design and Implementation*. This report presents a methodology for development of natural gas transmission and distribution tariffs and describes a transition plan for moving from the current tariff levels (and structure) to the recommended tariff levels.

In addition to the deliverables shown above a number of other activities also took place. Exhibit 1 shows for each subtask some of the other project-related highlights and activities.

SUGGESTIONS FOR FURTHER TECHNICAL ASSISTANCE

Given that further technical assistance in this area is likely, a number of recommendations are offered based on the lessons learned through Delivery Order 15. It is recommended that each of these areas be the targets to be achieved during the next technical assistance project. Each of these stands a reasonable chance of success based on the progress made to date.

- ▶ *Ensure that the Energy Regulatory Commission develops a self-financing mechanism so that it can function more effectively and gain further independence.* The next project should focus on working with the Energy Regulatory Commission to promote a law on Commission finance. Specifically, a license fee based approach should be promoted.
- ▶ *Institute major changes to the electricity and natural gas tariff structure including introduction of multi-part tariffs.* The changes should be in accordance with the Delivery

Order 15 reports *Proposal for the Continued Reform of the Armenian Power Sector and Natural Gas Tariffs Design and Implementation*

- ▶ *Establish a funds administrator to improve the transparency and predictability of power sector revenue flows* This step is critical to improve the financial flows in the power sector. There is growing consensus within some parts of the Government regarding the need to establish this entity. Technical assistance to establish the funds administrator including developing its rules of operation and governance will be very useful.
- ▶ *Achieve regulatory adoption of licenses for all regulated enterprises in the power sector* By July 1999, the Energy Law requires the Energy Regulatory Commission to have issued licenses for all enterprises in the power sector. At present, the Commission has adopted model distribution and generation licenses. Assistance is needed with several other licenses including the transmission license (a draft now exists), dispatch license, wholesale contractor, and funds administrator.
- ▶ *Accelerate the privatization process such that privatization of the distribution enterprises is underway by the end of the contract period* Continued and persistent advocacy work is needed to ensure progress on strategic investor privatization.
- ▶ *Continue to focus on the need to improve cash collections including providing continued support and follow-up on Delivery Order 15's pilot project activities* The pilot project to examine the use of handheld meter reading technologies at the Komitas network should continue to be observed, supported and evaluated.

An obvious area for additional effort relates to retail tariff reform. The next project should continue to demonstrate the need for a tariff increase. This will be difficult due to the timing, elections to the National Assembly are expected early next year and an electricity tariff increase will be quite controversial. Nonetheless, this issue is of such critical importance that it needs to continue to be emphasized as part the project team's activities.

CONCLUSION

Important results were achieved in each subtask area of Delivery Order 15. The restructuring task oversaw the successful divestment of remaining generation from Armenergo, the consolidation of distribution to four regional utilities, and the separation of the transmission function from dispatch. All of these changes are consistent with the recommendations developed and promoted during this Delivery Order. Importantly, the Delivery Order clearly provides the next steps for the restructuring process. The reform of the wholesale tariff structure, introduction of a funds administrator and the divestment of the wholesale contracting function from dispatch, will complete the major phases of the power sector restructuring process.

The regulatory support furnished through the Delivery Order has permitted the Armenian Energy Regulatory Commission to evolve from a fledging organization less than one year ago to a

competent regulatory body at present. The Energy Regulatory Commission is now in a position to assume a leadership role in critical reform areas, including wholesale market restructuring.

The commercialization activities were successful in that finally, there was a breakthrough in the accounting reform area. Rather than rely on restatements to promote IAS, through daily work with the Interministerial Accounting Reform Commission the project team was able to achieve a far superior result, that is, a consensus to adopt the entire international accounting body of standards. While working at the policy level on issues such as accounting reform, the project also continued efforts at the field level to promote commercialization. The pilot project activity to introduce handheld metering equipment builds on the results of Delivery Order 12 and represents an interesting test of the appropriateness of the technology to improve financial controls and increase both productivity and cash collections. The second pilot at the Shaumian-2 substation confronts the difficulties of inaccurate metering at the wholesale level resulting from both poor quality equipment and meter tampering.

In the fuel sector reform task, the greatest impact resulted from the work on natural gas tariffs. The Energy Regulatory Commission and natural gas industry were fully involved in this project at each step, as a result, the project offered an ideal opportunity for training Commission staff. Further, the principles as well as approach used are also of broader applicability to the Commission's work in the power sector.

Perhaps the greatest testament to the effectiveness of this Delivery Order is that its impacts were not limited to the energy sector. Through the work of the project team with counterparts in the Ministry of Energy, Ministry of Finance & Economy and Energy Regulatory Commission, economy-wide accounting reform took a major step forward. Through the project team's work with the Energy Regulatory Commission, civil service reform and the administrative law framework were advanced. A first-of-its-kind Code of Ethics was adopted that, although not ideal, advances progress in a very important area. Additionally, the public participation procedures put in place by the Energy Regulatory Commission represent a major step forward in attempting to provide more opportunities for public input into the public policy and governance processes. All of these results represent significant advances in one sector of the economy that will undoubtedly diffuse to others.

EXHIBIT 1
SUMMARY OF QUARTERLY DELIVERABLES AND EVENTS ASSOCIATED
WITH DELIVERY ORDER TASKS

Exhibit 1
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Restructuring

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>2Q/97 - Remaining generation is separated from Armenergo</p> <p>2Q/97 - Distribution consolidation takes place as the sector is consolidated to 11 regional utilities, down from the 65 in place at that time</p> <p>4Q/97 - Meeting between US Ambassador and Prime Minister's Chief of Staff to discuss the lack of progress on reform conditions</p> <p>2Q/98 - Armenergo restructured, the transmission function is separated from the dispatch function</p> <p>2Q/98 - The distribution sector is consolidated from 11 utilities to four</p>	<p>4Q/96 - Task work plan completed</p> <p>4Q/97 - Provided suggested reform conditions for a 1998 Memorandum of Understanding</p> <p>1Q/98 - Completed the status assessment of restructuring</p> <p>1Q/98 - Revised proposed reform conditions for the 1998 Memorandum of Understanding Provided an update to USAID on the status of reform compliance with 1996 and 1997 Memorandums of Understanding</p> <p>3Q/98 - Completed draft grid code</p> <p>3Q/98 - Completed power sector reform proposal and implementation plan</p> <p>3Q/98 - Provided an update on the status of reform compliance with the 1996 and 1997 Memorandums of Understanding</p>	<p>3Q/97 - Completed benchmark of the production simulation model</p> <p>3Q/97 - Participated in USAID's half-day session on wholesale market approaches</p> <p>3Q/97 - Completed an organizational review of Armenergo in preparation for functional separation of transmission and dispatch</p> <p>1Q/98 - Developed the power sector financial model</p> <p>1Q/98 - Worked with the World Bank consultant PHB Ltd on wholesale market structure, pricing and competition</p> <p>2Q/98 - Began working with the Energy Institute and Ministry of Energy on development of a grid code</p> <p>2Q/98 - Provided training sessions to the Energy Regulatory Commission on the production simulation model</p>

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Exhibit 1 (Continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Legal & Regulatory Reform

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
2Q/97 - Presidential decree is issued establishing the Energy Regulatory Commission with responsibilities for licensing and tariff-setting in the electricity, natural gas and district heating sectors	4Q/96 - Task work plan completed 2Q/97 - Prepared list of equipment and supplies for procurement to assist the Energy Regulatory Commission during its start-up phase	2Q/97 - Finalized budget, organization and staffing plan for the Energy Regulatory Commission Also finalized work plan for the Energy Regulatory Commission's activities including the role of technical assistance
2Q/97 - Energy Law of the Republic of Armenia passes the National Assembly by a wide margin	3Q/97 - English language training courses for the Commission staff commence	3Q/97 - First tranche of equipment is installed at the Energy Regulatory Commission
2Q/97 - Newly formed Energy Regulatory Commission issues its first decisions including a rate increase for electricity	4Q/97 - Completed two study tours for the Energy Regulatory Commission One study tour was to Kiev/Budapest the other was to the regional regulatory conference	3Q/97 - Completed draft licenses for the Commission's review
3Q/97 - Energy Regulatory Commission issues its first annual report to the National Assembly	1Q/98 - Completed legal status assessment report	3Q/97 - Provided numerous training sessions to the Energy Regulatory Commission on topics such as nuclear matters financial performance guarantees and licensing
1Q/98 - Energy Regulatory Commission publishes its first annual report in the newspaper	2Q/98 - Completed regulatory status assessment	1Q/98 - Sent the Chairman of the Energy Regulatory Commission and his advisor to the World Bank/University of Florida course on regulation
2Q/98 - Energy Regulatory Commission fails to increase tariffs to the level required by the World Bank The World Bank suspends assistance to the energy sector	3Q/98 - Completion of a report for USAID on licenses including the distribution and generation licenses adopted by the Energy Regulatory Commission and the draft transmission license	1Q/98 - Reviewed the draft energy efficiency and accounting laws Also reviewed proposed revisions to the laws on local self government
2Q/98 - Accounting law and new Civil Code pass the National Assembly	3Q/98 - Completion of a report on the adopted and procedures of the Energy Regulatory Commission	

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Exhibit 1 (continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task Commercialization

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>4Q/97 - Government issues Resolution No 551 providing a financial reform plan for the power sector</p> <p>1Q/98 - Most state energy enterprises are corporatized as closed joint stock companies</p> <p>1Q/98 - Yerevan Distribution Company decides not to support the IAS conversion activities</p> <p>1Q/98 - Interministerial Accounting Reform Commission established Members include the Ministry of Energy, Ministry of Finance & Economy, State Committee on Taxation, Energy Regulatory Commission Yerevan Distribution Company, Armenergo and Hagler Bailly</p>	<p>4Q/96 - Work plan drafted</p> <p>3Q/97 - Completed the status assessment of commercialization</p> <p>4Q/97 - Developed first draft of the commercialization reform plan This report indicates in detail, the steps needed to increase the commercial viability of enterprises in the power sector</p> <p>2Q/98 - Multi-day seminars on IAS provided to the Interministerial Accounting Reform Commission</p> <p>2Q/98 - Pilot project plan finalized to promote the use of handheld meter reading technologies implemented at the Komitas network</p>	<p>1Q/97 - Project team assistance in the preparation of a business plan for Yerevan Distribution Company</p> <p>3Q/97 - Prepared a presentation on corporatization for delivery to the interministerial working group on corporatization of the energy sector enterprises</p> <p>4Q/97 - Initiated the internal financial control review of Armenergo and the Yerevan Distribution Company and completed the first draft report</p> <p>4Q/97 - Project team participates in a working group on asset valuation to support the corporatization process</p> <p>1Q/97 - Report on internal financial control completed</p> <p>2Q/98 - Per the request of USAID and the World Bank, completed a draft paper on the problems associated with the use of <i>veksels</i></p>

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Exhibit 1 (continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Commercialization (Continued)

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>2Q/98 - As part of a pilot exercise, local banks start becoming the collection points for customer bill payment for electricity</p> <p>2Q/98 - Interministerial Accounting Reform Commission decides to adopt the entire body of International Accounting Standards Nineteen of the standards are to be in place by January 1, 1999 with the remainder to follow by January 1, 2000</p> <p>2Q/98 - USAID and Government of Armenia agree to establish an Experts Group on Metering, Billing and Collections to review possible uses of a \$10.5 million assistance package</p>	<p>3Q/98 - Pilot plan to remeter the Shaumian-2 transmission substation completed</p> <p>3Q/98 - Commercialization reform plan finalized</p> <p>3Q/98 - USAID/Government of Armenia Experts Group on Metering, Billing and Collections submits its final report</p>	<p>2Q/98 - Evaluated bids received for handheld meter reading equipment to improve metering practices and internal financial controls within the distribution utility</p> <p>2Q/98 - Completed the software modifications required to implement hand held meter reading equipment in the electricity pilot project areas</p> <p>2Q/98 - Prepared a summary of 1997 collection results for each distribution enterprise</p> <p>2Q/98 - Project team provides analysis regarding the Government of Armenia's request for USAID support of meter procurement</p> <p>3Q/98 - Assistance to the Ministry of Finance & Economy with the interpretation of several international accounting standards</p> <p>3Q/98 - Training in handheld meter reading equipment provided</p>

Exhibit 1 (continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Privatization and Independent Private Power Promotion

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>4Q/96 - Government issues Order No 551, endorsing strategic investor privatization</p> <p>2Q/97 - Government privatizes 10 small hydropower plants</p> <p>2Q/97 - The Prime Minister establishes a privatization working group was set up within the Ministry of Energy to prepare a privatization strategy The group consists of representatives of the Ministries of Energy, Ministry Privatization Finance & Economy and Hagler Bailly</p> <p>3Q/97 - Government privatizes an additional three plants, including two larger units to a foreign investor Overall, about 13 MW out of the 25MW privatized is now in foreignhands</p> <p>4Q/97 - New Privatization Law passes the National Assembly The law generally improves the privatization process and eliminates vouchers</p> <p>2Q/98 - Interministerial working group issues its draft Program of the Privatization of the Enterprises of the Energy Sector</p>	<p>4Q/96 - Work plan drafted</p> <p>3Q/97 - Completed the power sector privatization plan The report recommends strategic investor privatization with the Yerevan Distribution Company recommended as the first entity to be privatized</p> <p>3Q/97 - Completed the privatization status assessment report and submitted to USAID This report provides an update on the privatization process including the results of the small hydropower evaluation</p>	<p>1Q/97 - Hagler Bailly provides assistance to the Ministry of Energy regarding the privatization of small hydropower facilities</p> <p>2Q/97 - Reviewed the EBRD terms of reference for the Hrazdan 5 generating plant privatization proposal Provided comments to USAID</p> <p>2Q/97 - Prepared a privatization concept paper for the Minister of Energy that described 1) the preconditions that must be in place to increase the likelihood of investment attraction, 2) the recommended approach towards privatization to be used, 3) the recommended sequencing and timing for enterprises to be privatized</p> <p>2Q/97 - Completed a review of the results of the first round of the small hydropower privatization project</p> <p>2Q/98 - Reviewed the draft Program of the Privatization of the Enterprises of the Energy Sector</p>

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Exhibit 1 (continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Privatization and Independent Private Power Promotion (continued)

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>4Q/97 - National Assembly approves the Government's privatization program. The program supports strategic investor privatization of the electric power distribution and generation sectors.</p> <p>1Q/98 - Armentel, the National Telephone company, is privatized to a foreign strategic investor.</p> <p>2Q/98 - Debate ensues regarding the strategic investor privatization of the Yerevan Brandy Factory. National Assembly almost overturns agreement.</p> <p>3Q/98 - Government announces its intentions to move forward with an energy sector investment conference to be held in the US.</p>		<p>3Q/97 - Reviewed the World Bank's power sector privatization report. The report is consistent with the project team's recommendations.</p> <p>3Q/98 - Project team provides assistance to the Ministry of Energy on the proposed investment conference.</p> <p>3Q/98 - Memorandum on the results of small hydropower privatization in both Armenia and Georgia prepared.</p>

Exhibit 1 (continued)
Summary of Quarterly Deliverables and Events Associated with Delivery Order Task
Improved Fuel Supply Enterprises

Quarterly Events	Quarterly Deliverables/Outputs	Other Highlights
<p>1Q/98 - Agreement is reached between the Government of Armenia, Gasprom (Russia) and ITERA International to establish a joint venture called ArmRosGasprom. The joint venture is expected to include all gas sector assets including distribution, storage and transmission. Ownership shares are 45% for the Government of Armenia, 45% for Gasprom and 10% for ITERA.</p> <p>1Q/98 - Petroleum law is submitted to the National Assembly. Action on the law is postponed until the Autumn of 1998.</p> <p>2Q/98 - Natural gas sector is further restructured, the Yerervan gas distribution system is divested from ArmGaz and a new entity, YerevanGaz is created.</p>	<p>4Q/96 - Work plan completed</p> <p>1Q/98 - Fuel sector reform plan drafted</p> <p>3Q/98 - Fuel sector assessment report completed</p> <p>3Q/98 - Fuel sector reform plan finalized</p> <p>3Q/98 - Natural gas tariff study presented to the Energy Regulatory Commission, Ministry of Energy and natural gas industry</p>	<p>1Q/98 - Completed both a summary memorandum and cursory legal review of the draft Law on the Peaceful Use of Nuclear Energy.</p> <p>1Q/98 - Reviewed the draft petroleum law and provided comments to the Government and National Assembly.</p> <p>1Q/98 - Working group on natural gas tariffs formed to oversee the development of tariffs for the natural gas distribution and transmission sectors.</p> <p>2Q/98 - Reviewed the Charter of ArmRosGasprom.</p> <p>3Q/98 - Presentations on the natural gas tariff study.</p>