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**CRITIQUE OF
GOVERNMENT OF ARMENIA
DECREE 114 AND
IMPLEMENTING MANDATE 39
OF MINISTER OF ENERGY**

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Prepared for:

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1. INTRODUCTION¹

On 2 March 1995, the Government of the Republic of Armenia issued a decree reorganizing the power sector. The decree is a relatively aggressive attempt to address the serious financial issues in the power sector, most significantly that of bill collection. The concept of decentralization was endorsed; although Armenergo remained intact, "daughter enterprises" were established for all major functional areas except transmission and wholesale marketing. Contractual and pricing arrangements were to be developed to govern the arrangements under which Armenergo's generation daughter enterprises would sell power to Armenergo and under which Armenergo would in turn resell the power to its distribution daughter enterprises.

The decision was also notable in that it created daughter enterprise status for subcomponents of the Yerevan City Grid Company (YCG).

The Minister of Energy was instructed to prepare regulations within one month implementing the Government's decision.

On 28 March 1995, the Minister of Energy issued a mandate in response to the Government's decision. However, in addition to describing in further detail how some of the Government's actions were to be implemented, the mandate endorsed greater centralization in the power sector. Management of the YCG was turned over to Armenergo. Financial and security functions were also centralized in Armenergo rather than being housed in the newly-created daughter enterprises.

This report reviews and critiques these two recent power sector reorganization initiatives and points out differences between the apparent intent of the decree and mandate and the present structure and organization of Armenia's power sector.

In addition to a critique of the decree and mandate, this paper includes recommendations for further reform of Armenia's power sector.

¹Preparation of this report is funded under the auspices of the USAID institutional services support project for the Republic of Armenia's energy sector.

2. MAJOR FINDINGS

The overall results of the critique indicate that the two documents are an important *first* step forward in restructuring Armenia's electricity sector and represent a foundation that can be built upon to promote efficiency in the sector; however, there are significant further restructuring steps that must be taken to provide additional and more complete benefits for the Armenian economy and society.

The most obvious positives and negatives of the two documents when considered together are as follows:

Positives

- ▶ Supports the functional unbundling of generation and distribution from transmission and the wholesale market;
- ▶ Attempts to clarify and make more transparent the relationships within the sector through the adoption of new contractual provisions;
- ▶ Endorses all forms of separate marketing/consumer collection sub-divisions of distribution daughter enterprises to help improve collections;
- ▶ Requires Armenergo to submit to the Ministry of Energy "a reorganization plan ... for separating production, transmission, distribution, and sales;"
- ▶ Declares Armenergo to be a State Enterprise and not a State Concern;
- ▶ Demonstrates a recognition within the Government and the Ministry of Energy of the need for significant power sector reform. The timetables within the documents are very ambitious. Nonetheless, the present situation requires immediate attention and the Government and Ministry are rightly attempting to rapidly introduce reforms.

Negatives

- ▶ The underlying thrusts of the decree and mandate are in conflict. The decision promotes decentralization in the power sector while the mandate further centralizes some of the functions in the power sector. Most notable in this regard are the transference of management responsibility for the Yerevan City Grid to Armenergo and the centralization of finance (including investments for the daughter enterprises, security, construction, etc.) at Armenergo;

- ▶ There are no apparent checks on how the decree and mandate are to be implemented; further, there does not appear to be adequate accountability;
- ▶ The documents do not indicate the ultimate direction or desired end-point of power sector reform. It is not clear that the Government is endorsing separation of some or all of the daughter enterprises from Armenergo or whether the Government intends to allow Armenergo to act as a holding company for the entire power sector for the foreseeable future. A clear commitment from the Government and Ministry to complete the unbundling process and encourage private participation and investment in the power sector is still not evident;
- ▶ The decree specifies that with Armenergo set up as a parent company, the transmission and wholesale market functions are retained within the Armenergo management structure rather than being separate daughter enterprises. On the contrary, at the present time the transmission function is being undertaken by “not entirely self-supporting” daughter enterprises of Armenergo. Although the establishment of daughter enterprises for transmission is positive, it does call into question why and how this step occurred when the decree specifically states otherwise. It appears that the decree and mandate are not guiding the actual steps being undertaken. Further, it now appears that there is “back tracking” from the movement to create self-financing daughter enterprises. For instance, the Armenergo by-laws now specify that the generating units are considered to be “not entirely self-supporting” daughter enterprises;
- ▶ The positive functioning of the wholesale market (generator to Armenergo and Armenergo to distribution daughter enterprises) is jeopardized by a lack of “arms-length” independent commercial relationships. This lack of independent relationships allows for possible manipulation between the daughter enterprises and between the parent (Armenergo) and daughter enterprises;
- ▶ There is still a need for improvement of the tariff-setting process to make better use of actual cost information and to provide incentives for efficient operation. The tariff method used to develop wholesale power tariffs for distribution daughter enterprises provides a disincentive for improved efficiency (i.e., the more efficient the daughter enterprise, the higher the tariff it is charged for power);
- ▶ Although Armenergo is required to submit a reorganization plan, the extent to which such a plan will be positive remains to be seen. It will depend, of course, on the actual details of the reorganization plan and the follow-through; there is

no clear indication that such a plan will improve actual performance of Armenergo.

Finally, it should be noted that the positive results cited above will be short-lived, or will not be realized at all, unless there is additional follow-up to the decree and mandate.

3. SPECIFIC COMMENTS AND ANALYSIS

In this section, the results of the detailed examination of the decree and mandate are discussed.

3.1 March 2 Decree of the Government of Armenia

Overview

The decree of the Government moves the electric sector partway, but not completely, toward unbundling and improved commercialization. Unbundling is the functional separation of the power sector's generation, wholesale marketing, transmission, distribution, and supply activities. The major aims of the decree are to address electricity supply priorities, bill under-collection, non-payment, and electricity theft.

The primary stated goal of the decree is the improvement of the system's economic efficiency. Unfortunately, however, the decree misses opportunities to meet this objective. Furthermore, the Mandate of March 28 and subsequent by-laws for the Armenian power sector do not fully abide by the intent of the decree.

The decree moves the power sector partially towards functional unbundling. Complete unbundling would mean the formation of the following enterprises:

- ▶ several generation companies (gencos);
- ▶ a wholesale market operation and central dispatch company (marketco);
- ▶ one or more transmission companies (transcos) to operate the high voltage network; and,
- ▶ several distribution companies (distcos) performing both low-voltage distribution and commercial supply functions. It is possible to disaggregate the distcos even further into autonomous divisions or stand-alone companies consisting of:
 - low voltage distribution (a "wires" or network operation company) and,
 - distribution supply, a customer service function collecting bills and communicating with customers regarding new service, complaints, etc.

Complete power sector unbundling has been implemented in several countries to address problems in the power sector that include those faced by Armenia.² The recommendations section provides information as to the benefits to be achieved from unbundling in Armenia.

²For details see Hagler Bailly Consulting's recent draft report "Separating Electricity Distribution: International Experience."

This decree moves the Armenian power sector partway to complete unbundling. It calls for Armenergo to centrally perform both marketco and transco functions, as well as other support functions for the daughter enterprises. Contrastingly, the first step of a *complete* unbundling would be the reorganization of Armenergo into a marketco or transco (or perhaps a combination of both to begin). The marketco or transco would have no interests in generation or distribution. Within such a scheme the Government would be the ultimate holder of power sector assets prior to privatization.

The endpoint of appropriate power sector restructuring would be an industry structure where a number of truly autonomous enterprises perform the separate functions of generation, wholesale market coordination and dispatch, transmission, and distribution. These enterprises would operate as independent “profit centers” with financial and management accountability to the asset holder (initially the Government).

Item By Item Examination

This section identifies and comments on articles from the decree. Not all articles are addressed; only those of significant relevance to an appropriate long term power sector structure and regulation are described and analyzed.

Article 1: This article reorganizes Armenergo from a State Concern into a State Enterprise. Furthermore, it calls for the creation of “independent” taxpaying subordinate generation enterprises (three thermal power plants, two hydroelectric power plant enterprises), and distribution supply enterprises. These distribution supply entities are referred to as DENEs (District Electric Network Enterprises) and CENEs (City Electric Network Enterprises).³ This article appears aimed at creating bill collection entities for purposes of reducing the incidence of non-payment. To the extent this requires the daughter enterprises to be relatively autonomous (for example, with separate accounting) this is a positive step. However, in practice the daughter enterprises do not have stand-alone accounting under Generally Accepted Accounting Principles, with the necessary transparency and accountability required. The extent of the daughter enterprise’s actual independence from the parent appears to be quite weak. Daughter enterprise independence should be strengthened.

Article 1.b: This article liquidates the six Regional Electrical Network State Enterprises (RENSEs). The RENSEs operated and managed the nation’s high voltage transmission networks and also supervised the distcos. This article appears to bring operation of the high-voltage transmission network back into the centralized management structure at Armenergo. In reality, however, this intent of the Government has not been implemented. The RENSEs appear as not completely self-supporting daughter enterprises in Armenergo’s recently published by-laws, and thus continue to exist almost as before. It does make sense to end the

³The DENEs and CENEs will hereinafter be referred to as distcos.

reporting relationship of the DENEs and CENEs to the RENSEs as this is a move towards complete unbundling; however, the additional step of creating a completely separate transco and marketco would be the preferred outcome.

Article 1.c: This article preserves the status of the Yerevan City Grid as a State Enterprise separate from Armenergo. Although this is a positive step, it was later complicated by the implementing mandate of March 28.

Article 1.d: This article calls for the establishment of special subdivisions. These are self-supporting sections in urban areas and energy sales groups in rural areas that are affiliated to the distcos. They are designed to assist in bill collection from consumers. These subdivisions could be semi-autonomous and function as consumer cooperatives, collection agencies, resellers or commercial supply divisions of the distcos. This is a positive step and permits the adoption of creative solutions that attempt to address the nonpayment problem. At the same time, however, the ten dram uniform end-user tariff cap discourages the formation of these new subdivisions. This is because little margin exists within the tariff structure to permit such organizations to earn a profit or even recover their costs. Further, although the establishment of special subdivisions may be positive, it is essential that distcos be given appropriate incentives for the exercise of their responsibilities including the collection of bills from consumers.

Article 2: This article nominally calls for the creation of a contract wholesale market, prioritizes electric allocation, and seeks to improve payments. However, this has not yet occurred. There are no contractual or pricing provisions in place between the generation daughter enterprises and Armenergo and the labeling of these enterprises as “not entirely self-supporting” in the Armenergo by-laws suggests that there is little intention at this stage of moving towards such a market.

Article 2.a: This article states that Armenergo is to act as the wholesale marketer of electricity. It is to buy energy from gencos and sell it to the distcos under contracts based on the present tariffs. Each quarter the Ministry of Energy is expected to revise the Tariff Distribution Normative Factors governing the price under which such power is sold. The decree calls for Armenergo and the Ministry of Energy to determine a tariff-setting method for power sales to the distribution subsector. The method that has since been adopted determines a separate wholesale tariff for each distco based on the distco’s own costs and not on the cost to provide power to the distco. Using this method an inefficient distco with higher costs will pay a lower tariff for power than an efficient distco with lower costs. Further, due to the normative profit determination an inefficient distco will earn more profit than an efficient distco. Clearly, this tariff-setting method does not promote efficient operation of the distcos. However, its revision is constrained by the Government’s commitment to have uniform end-user tariffs throughout Armenia.

Article 2.b: This article determines the responsibility for the determination of supply priorities to essential facilities and to the population. This responsibility is delegated to the Republican Operations Management Headquarters (ROMHQ) with participation or advice from the Ministry of Economy and the Ministry of Energy. Although critical life-support facilities receive priority usage, other consumer groups can also receive additional quantities of electricity by way of pre-payment. This is a good step except that the quantity and quality of electricity supply priorities are set by the ROMHQ without consideration of payments made for electricity. Of course, the ROMHQ could and should include the amount of electricity payment, and even pre-payment, as criteria in its determination of the priority list.

Article 2.c: This article specifies that the distcos shall enter into contractual relations with the various consumer and local government organizations that it serves. Thus, to a great extent the distcos will function as resellers; subsequently, a contract has been developed for resellers. This is a positive step.

Article 3: This article requires that four ministries (Energy, Finance, Economy, and Justice) develop model contracts to govern relationships between producers, suppliers, and consumers. Two of these have been drafted; they cover the contractual relations between Armenergo/distcos and suppliers/customers. Although the contracts are an important step forward, they could be improved with revisions. Suggestions for revisions to the specific contracts go beyond the scope of this critique, but will be developed in a subsequent analysis.

Article 4.a: This article specifies that contracts shall be signed by April 10. Apparently, some contracts have been executed, though after this April 10 deadline. Although some revisions are recommended, the contracts generally clarify the rights and responsibilities of consumers and suppliers and hence are a positive step.

Article 4.b: Termination of electricity to citizens shall be “individual” rather than to entire distribution areas or neighborhoods; this appears not to have occurred. It may not be technically feasible with present equipment. Further, this is in general conflict with the movement towards collection entities in which metering occurs at the collection entity bulk power supply point. It is not clear that the distco will have end-user specific information in the presence of a consumer cooperative or other collection organization.

Article 5: This article states that local government officials and the Ministry of Energy shall improve metering. This is to include the placement of meters outside buildings. Although improvements in metering may be beneficial, such “master metering” of buildings may conflict with the termination provisions in article 4.b.

Article 7: This article authorizes Armenergo to centrally finance the gencos and distcos from a centralized repair fund and profits “left at their disposal.” Overall, this article reinforces the existing practice of financing. However, a preferred approach would be to make the daughter

enterprises responsible for maintaining their own depreciation funds and profits, and determining how these funds should be spent (subject to audit).

Article 8: Four ministries (Economy, Finance, Energy, and Labor/Social Security) shall analyze the needs of the poor for subsidies and “clear up” or “verify” the privileged list. Furthermore, proposed revisions are to be submitted to the Government. If this list is to remain, then it is a positive step to revise the list to make it current. However, it is not clear that such a step has actually been taken. Further, it must be kept in mind that it is more economically efficient to make direct subsidies to those consumers in need rather than requiring a distco to provide subsidized electricity.

Article 9: The Ministry of Energy, after coordination with other ministries and agencies (under the established rules) shall propose fully revised regulations to the Government concerning generation, supply, and consumption (by March 31). To the extent that these regulations clarify the rights and responsibilities of each party in the energy sector, this is a positive step. However, if these regulations are merely usage norms, then this will only a perpetuate an approach to energy management that should be phased out.

3.2 March 28 Mandate No. 39 from the Minister of Energy

Overview

To a great extent, this mandate seeks to implement the March 2 decree. However, in some places it goes beyond the decree, and in other places it appears to contradict the basic *decentralizing* theme found throughout the 2 March decree.

In attempting to clarify the implementation of the March 2 decree, the mandate sends mixed signals. A unified commitment from the Government, the appropriate ministries (for example Economy and Energy), and Armenergo to create unbundled, stand-alone daughter enterprises for generation, wholesale marketing, high-voltage transmission, and low-voltage distribution/commercial supply is appropriate and necessary. In addition, there should be an explicit commitment on the part of power sector entities for accountability to the Government and citizenry. This would include transparency in the operations of Armenergo and its daughter enterprises and the implementation of incentives that ensure continued operational and commercial improvement.

Item by Item Examination

As with the examination of the decree, only those articles of significant relevance to an appropriate power sector structure, regulation, and market orientation are addressed in this section.

Article 1: This article reorganizes Armenergo from a State Concern to a State Enterprise. The apparent difference is that a State Enterprise is accountable to a Ministry whereas a State Concern has a greater degree of independence and is not directly accountable to any Ministry. If this is indeed the difference, then it is appropriate that Armenergo be defined as a State Enterprise. With the present monopoly structure and undeveloped regulatory framework in the Armenian power sector, Armenergo should not have the degree of operational independence implied by a State Concern. However, there should be an effort to develop an adequate regulatory framework for the power sector that permits power sector entities to operate with greater commercial independence.

Article 3: This article specifies that the six RENSEs shall be reorganized into regional departments of Armenergo. While this step implements article 1.b of the March 2 decree, it is a centralizing step and in this regard, is not positive. However, what has actually taken place appears to conflict with the mandate. The recently developed by-laws of Armenergo have created “not fully self-supporting” daughter enterprises out of the former RENSEs. Although this is a positive change from the mandate, it is still reason for concern in that implementation does not follow the direction laid out in the mandate.

Article 4: Article 4 states that the DENEs and the CENEs of the RENSEs are reorganized as “completely self-supported” daughter enterprises of Armenergo. This article has not been fully implemented. The centralization of the repair fund, for instance, along with the method used to set tariffs for power sales to the distcos limits the extent to which the distcos can truly be self-supporting.

Article 4.a: Armenergo shall adopt by April 5 by-laws for the distcos networks. These by-laws are an important step in determining the extent to which the distcos will be able to operate independently from other daughter enterprises or Armenergo itself.⁴

Article 4.b: By 28 May, this article requires that the Ministry of Energy submit a reorganization plan with management assignments for separating production, transmission, distribution, and sales. Apparently, this has yet to be completed. This is an important part of the mandate; if followed literally it would separate distribution (a “wires” company) from supply/sales.

Articles 6&7: Under these articles, several strong centralizing steps are taken. These include reorganizing network construction, management of the Yerevan City Grid, construction refurbishment, worker’s supply, and “Marmarik” (fuel purchases) under Armenergo. This is a step backward, centralizing some functions which under unbundling and the establishment of “completely self-supporting” daughter enterprises would be independent for each enterprise.

⁴A copy of the by-laws is presently being reviewed.

Article 8: Armenergo shall submit by-laws of the “enterprise[s]” by 5 April. These are available for Armenergo and for the daughter enterprises; there are some substantial problems with these by-laws that will be addressed in a subsequent document.

Article 12: This article requires that a “working commission for the regulation of mutual settlements standards” be set up among Armenergo, the DENEs and the Yerevan City Grid as well as between the Yerevan City Grid and its daughter sales/supply enterprises. This working commission was expected to prepare:

- a) Mutual settlement standards for all types of energy sales
- b) Model contracts
- c) Standards of centralized financing of all daughter enterprises and an order for “centralized fund creation” for Armenergo.

This last step is very contrary to the decentralizing and unbundling concept of restructuring found in the March 2 decree. A truly self-sufficient daughter enterprise will finance capital investments from: 1) differences between revenues and expenses; 2) depreciation funds; and, 3) raising capital in the marketplace.

Article 13: This article requires that there be limits on energy consumption based on the life-support allocation from the Republican Headquarters and payment from industry and populations; a schedule is established whereby standard supply to the population is two hours daily, but in an emergency this may be cut to one hour; further cuts shall be done on an individual basis, with the additional supply varying from four to twelve hours depending upon payments (from sub-divisions) of 50 to 100 percent of bills. This is a good step forward; it also rightly begins the process of providing power (other than for life-support requirements) to those persons and organizations that are willing and able to pay for the power.

Article 14: In an attempt to address the nonpayment problem, all types of arrangements can be used for sales and collections. Local responsibility is given to the DENEs (and presumably CENEs even though they are not specifically mentioned), while system-wide responsibility is given to Armenergo. This apparently is aimed at encouraging innovation in collections including, for example, the formation of collection entities. This step is positive in that it does not preclude any type of arrangement that may be used to increase total bill payment. At the same time, as noted earlier, the requirement that the end-user tariff be uniform limits the extent to which new organizations can profitably enter this market.

Article 15: This article specifies that Armenergo shall install meters at substations by July 10. Apparently, some installations have occurred. This is a necessary step for supporting the contractual relationships between Armenergo and its daughter enterprises, as well as to support the relationship between the discos and the “self payment” groups.

Article 18: The State Energy Supervision Department shall make monthly reports on electricity theft. If these reports have not been made publicly available, they should be.

However, the March 2 decree calls for more effort than what is specified in this article. In the March 2 decree, the Ministry of Energy, the Ministry of Internal Affairs, and the Republican Prosecutor are all expected to strengthen or enforce the struggle against illegal use. In addition, all three organizations are to report on progress each month. Of course, the implementation from Internal Affairs and the Prosecutor are beyond the jurisdiction of the Minister of Energy to implement by Mandate. Nonetheless, it is not clear that significant enforcement actions have yet been taken.

4. RECOMMENDATIONS FOR FURTHER REFORMS

Based on this critique, two major recommendations are provided. One is designed to strengthen and clarify the Government's commitment to power sector reform; the second is an actual proposal for further reorganization of the power sector. Additionally, the expected benefits from such a reorganization are described.

4.1 Recommendations

1. *The Government should develop and commit to a policy statement that clearly identifies the ultimate direction for the power sector.*

There does not appear to be a consensus at present on reform. The Government should make its position clearly known to Armenergo and other power sector participants. The decree and mandate send some signals, but there is still a need for a clear Government pronouncement and follow-up. It is recommended that policy statements in support of the following be clearly stated:

- ▶ Private participation in the power sector;
 - ▶ Increased competition that would permit market forces, instead of state controls, to determine power sector functioning wherever possible;
 - ▶ Decentralization including functional unbundling of the power sector;
 - ▶ The development of an adequate commercial and regulatory framework for the power sector in which participants could operate independently from the Ministry or Government within the regulatory framework established. This would include the establishment of an independent regulatory body.
2. *The Government should aggressively restructure the power sector. This should include the unbundling of major power sector functions, the corporatization of power sector entities, the governance of such entities by a system of contracts (at least in the absence of effective competition), the introduction of a new regulatory framework, and the facilitation of opportunities for private sector participation.*

The Government, appropriate Ministries, and Armenergo should adopt a complete unbundling that includes the important step of separating Armenergo management control from the "self-supported" daughter enterprises. There should be endorsement of the concept of unbundling. A complete restructuring would have a number of truly autonomous enterprises or operating companies, performing the functions of generation, the wholesale market, transmission and distribution. Each entity would operate as a "profit center" with accountability initially to the

Government as the holding company and ultimately to private investors and a regulatory body. To this end, a feasible restructuring proposal could include:

- ▶ For generation, each of the existing generators should be set-up as separate entities outside of the present Armenergo. These generators should be corporatized (including the establishment of a Board of Directors). The price for their output as well as their rights and responsibilities would be initially laid out in a contract plan between the Government (or appropriate Ministry) and each of the generating companies. The contract plan would provide incentives for efficient production. At a later time regulation replaces the contracts; the need for regulation of generation pricing may subsequently be removed if and when effective competition in generation was possible, bidding (at least for the thermal units) would replace the pricing component of the contract plans.
- ▶ Armenergo's role should be confined to serving as a transco and in the short-term, a marketco. Armenergo would handle transmission planning, transmission maintenance and also be responsible, at least in the short term, for power dispatching. Armenergo would be required to provide non-discriminatory access to the transmission grid for both generators, distcos, and consumers.
- ▶ For distribution, a number of independent distribution companies should be set-up outside of the present Armenergo structure. The appropriate number of distcos is not clear at present, but should be based on both economic considerations (for example, economies of scale), management and staffing expertise, as well as existing organizational structures and policy considerations (for example, enough distcos to ensure some degree of benchmark competition). Initially, establishing distco service territories coterminous with the RENSEs appears to be a reasonable step.
- ▶ Open access for consumers should also be implemented (to some degree, it is already present). Private power providers should be able to sell to any consumer of their choice and be able to transmit that power over the transco and distco network.
- ▶ Prior to privatization, the Government should function as the holder of the power sector assets operated and managed by Armenergo. However, a clear commitment to privatization should be given and immediate opportunities be made to increase private sector involvement. This could include outsourcing (the subcontracting of specific utility functions to outside entities).
- ▶ Overall regulation of the power sector should be handled by a semi-autonomous regulatory body; the regulatory role should be to regulate the

sector in conformance with the policies established by the Government, ministries and National Assembly. Specific areas of regulatory purview should include licensing and monitoring compliance with licensing provisions, tariff-setting for transmission network use and other noncompetitive functions (generation and distribution at least in the short term), as well as consumer and producer protection.

4.2 Benefits of Power Sector Unbundling

The positive contributions to the national economy resulting from an unbundling of the power sector into generation, wholesale marketing, transmission, and distribution are considerable. For this reason unbundling has been implemented in power sectors all over the world (see Hagler Bailly Consulting's draft report "Separating Electricity Distribution: International Experience"). These benefits include:

- ▶ Avoiding conflicts of interest;
- ▶ Greater transparency;
- ▶ Clarification of responsibility;
- ▶ Encouragement of competition and the efficiency benefits that stem therefrom;
- ▶ Reduction of cross-subsidies.

When combined with the supplementary steps of commercialization, corporatization and relatively independent regulation, the benefits can be multiplied. Each of these concepts will be explained further below.

Avoiding Conflicts of Interest

The potential or actual conflict of interest between bundled functions is considerable and will be a negative in attracting private power projects on reasonable financing terms as well as jeopardizing any future privatization of assets. The possible conflict of interest is as follows: If Armenergo both owns generation assets - even as daughter enterprises - and controls transmission and wholesale marketing/dispatch, it can favor its generation subsidiaries in dispatch or in access to transmission assets. This form of favoritism or discrimination can be reduced, but probably not eliminated, by adopting open access transmission rules. The conflict is greater between an integrated generation and dispatch function. A parent owning generation subsidiaries - daughter enterprises - has an inherent incentive to favor those daughters over the interests of "outsiders." While such discrimination can be reduced by the implementation of a comparability rule that would ensure access to the wholesale market and equal dispatch, it can not be eliminated entirely in such a way. Such rules are always subject to change or lenient interpretation and enforcement; the administration of such a system is less economically efficient than what can be achieved by the use of "arms-length" commercial arrangements. Unbundling helps to ensure that independent commercial operations take place, and reduces

the potential for conflicts of interest.

Greater Transparency

The more vertically integrated an operation (for example, the present Armenergo) the more difficult it is to observe and understand its component parts. While a sophisticated accounting system can partially duplicate the advantages of separation insofar as transparency, it can not achieve all of the advantages.

“Transparency” refers to openness and understanding of the processes and operations of an entity. A transparent operation is one that is readily understood by those seeking to know what is going on (both for those inside and outside an operation). In this context it refers to the ability of the people of Armenia, for example the media, potential investors, the Government, or any other group, to comprehend the commercial relationships between parties in the power sector. In addition, transparency allows the managers of organizations to better understand costs and operational efficiency that in turn can facilitate improved commercial efficiency and profitability.

Clarification of Responsibility

Related to transparency is the concept of responsibility. Responsibility relates to whom is recognized as accountable for the actions and results of an organization. The more complex, integrated, and sprawling an organization, the more difficult it is to attribute responsibility. Unbundling breaks the electric industry into more manageable pieces, and clarification is achieved on responsibilities for performance, operation, and management of power sector entities.

Encouragement of Competition

There is strong support from economic theory and actual restructuring experience that effective competition is the best way to achieve economically efficient resource allocation. When firms or individuals are in competition with others, the level of effort, innovation, and productivity tends to be higher than when effective competition is lacking.⁵

Unbundling creates the opportunity for two types of competition:

Market Competition: For example, with a sufficient number of generators (which at present does not appear to be the case in Armenia), it is quite possible to have generators compete against each other in bidding to supply energy and capacity in an

⁵A lack of effective competition can be caused by monopoly, oligopoly, or another form of imperfect market conditions.

auction market (sometimes referred to as a “pool”). The consequences of this have been found to be strong incentives for more efficient:

- Production efficiency (for example, heat rates);
- Fuel procurement;
- Investment decisions for additional plant; and,
- Maintenance.

Benchmark Competition: Where there are a number of entities performing the same functions, but in different geographical areas and without direct competition (for example, distribution companies), the results of each can be readily compared. Operational areas where distribution companies can be compared include:

- Bill collection percentages;
- Reduction of technical losses;
- Cost of providing new service connections;
- Number of citizen complaints and citizen satisfaction;
- Cost of acquiring energy from the franchise market.

In several countries such benchmark or comparative competition is used to compare:

- Public vs. public - comparisons among a number of publicly owned utilities;
- Private vs. public - comparisons of privately-owned utilities with public utilities;
- Private vs. private - comparisons among private utilities.

Reduction of Opportunities for Hidden, Unapproved, or Unproductive Cross-Subsidies

When an organization or a sector is integrated - vertically and/or horizontally - cross-subsidization can more easily take place. A cross-subsidy exists when one consumer (or service) pays costs that properly are attributed to another. A prime example is when industry pays more than its cost of service so that residential customers can pay less. Another example is when wealthier residential customers pay more per unit of energy so that poorer individuals can pay less. While these results may be socially desirable, in a competitive world they are not easily sustainable; there are also more economically efficient means of achieving the same goals, without cross-subsidies in the electrical sector.

A bundled utility can cross-subsidize inefficient generation with the profits of more efficient distribution, or cross-subsidize inefficient distribution with the profits of efficient generation. Unfortunately, the tendency is that such cross-subsidies perpetuate inefficiencies, allowing those inefficiencies to grow and eradicating incentives for improved performance.

Commercialization, Corporatization, and Regulation

Unbundling creates “stand-alone” entities and this in turn facilitates greater resource-use efficiency in the sector. Thus unbundling, particularly complete unbundling, has great promise of providing direct benefits to the Republic. Total benefits can be increased by implementing the supplementary steps of improved commercialization, corporatization and “relatively independent” regulation.

Commercialization

Emphasizing commercialization for a power sector entity means prioritizing, over other goals, and improving its commercial or business operation. This contrasts with the goals of entities with explicitly non-commercial objectives such as government departments or agencies. A commercialization emphasis will involve an emphasis on increasing profitability accompanied by improved accountability.

Corporatization

Corporatization is the development of a corporate form of business organization. The primary forms of business organizations around the world are proprietorships, partnerships, and corporations. Corporations, the most complex of the three primary business organizations, are generally characterized by:

- Some separation of management from ownership but with managerial responsibility to shareholders through a clearly defined reporting relationship;
- Fiduciary responsibility;
- Public accountability and enforcement of protections;
- Limited liability.

A key element of the corporate form of business organization is a Board of Directors, elected by, and responsible to, the owners or shareholders. This Board can generally be replaced by shareholders. Each owner has a percentage share of equity in the firm, expressed by their shares of stock. The shareholders can set overall policy, although this is often delegated to the Board.

The Board in turn hires (and can dismiss) the management. The management then hires, supervises, and can dismiss, employees, and is responsible for the day-to-day operation of the business. The fiduciary responsibility of the Board and management is to guard the assets and equity value of the shareholders, seeking to maximize shareholder value. They are required not to use the assets or revenues for their own private gain. Thus, the Board and management act as trustees for the shareholders.

In almost every country with the corporate form of business, business laws have been enacted to protect shareholders from unethical practices by the management and/or the Board. These laws require public disclosures of information and provide for certain protections for the shareholder. These include quarterly and/or annual financial reports with information on net income, profit, and net worth, as well as disclosing certain information before stock can be sold. As a result of such measures, the risk of investing in the company as perceived by potential investors is reduced, and as a consequence there is a greater willingness to invest money in the corporation.

Relatively Independent Regulation

When the desired level of competition is not present in a market, it is common practice around the world to regulate such a market. This is accomplished by setting limits on prices and requiring a particular quality and quantity of service. This is done to achieve economic efficiency and other goals that cannot be accomplished by competition alone due to the characteristics of the market in question. Economic regulation of the electric industry is common around the world because of its tendency towards natural monopoly market conditions.

Market regulation can be performed by a government ministry; however for over a hundred years in the United States, and more recently in many countries around the world, it has been found to be best performed by a relatively independent regulatory Commission. "Relatively independent" indicates that the Commission is not totally independent. Instead, it is interdependent with other public institutions in the following ways:

- ▶ Its relatively limited mandate and jurisdiction is set by higher authority - usually a law passed by the legislature after initiation by the Government. The responsibility of the Commission often includes regulation of tariffs, issuing of licenses, and rules for quality and quantity of service. Overall policy for energy continues to be set by the Ministry of Energy.
- ▶ The Commission interrelates with the executive, legislature, and/or judiciary with respect to:
 - Selection of the Commissioners
 - Under exceptional circumstances, removal of a Commissioner
 - Budget approval
 - Audit of expenditures - to assure spending is for approved purposes in the public interest
 - Appeal of a Commission decision (only to the judiciary), but only on the narrow grounds of violating the law or being arbitrary; this does not include "second guessing" the Commission's judgement.

The key point is that within the regulatory body's limited jurisdiction, the Commission is independent of political and governmental interference. The independence is encouraged and underlined by:

- ▶ Fixed, overlapping terms for the multiple Commissioners
- ▶ A budgetary source of funds not in competition with other public programs - often a levy on the regulated businesses
- ▶ Respect for the regulatory independence of the Commission either in tradition or spelled out in the law.

The Commission reaches a decision on a matter based on its expert, professional opinion on the facts of the case, while considering the public interest and balancing the interests of consumers and the various regulated entities. This independence is much more acceptable to private investors than direct regulation by a Ministry.

5. CLOSING

The reform recommendations of this critique are in line with the primary conclusions of the meeting entitled "New Realities in the Black Sea Region" held in May, 1994, under the auspices of the European Commission and attended by Ministers and senior officials from eleven Black Sea region countries, including Armenia.

At this meeting delegates concluded that energy policy should, whenever possible, make use of market forces and competition, with regulation implemented where appropriate. Furthermore, it was agreed that public authorities should mainly concentrate on the formulation of strategic long term guidelines, and the development and maintenance of a general legal and administrative framework for the sector. This last point should include the following aspects: 1) the establishment of transparent energy prices and tariffs based on costs of supply and/or world market prices; 2) the elimination, where possible, of subsidies; and, 3) the corporatization and restructuring of country power sectors (with privatization where appropriate) with a resulting greater autonomy for commercial energy entities.

The combination of power sector functional unbundling with the additional reform steps outlined above holds great promise for attracting foreign and domestic private, bi-, and multi-lateral investment as well as markedly improving the operation and efficiency of Armenia's power sector. It is reasonable to expect that such unbundling would lead to an increase in bill collections and improve the financial performance of the sector. In addition, even without selling the assets of the power sector, restructuring will increase the likelihood of foreign investment in private power. Such potential entrants will be far more comfortable in dealing with power purchases from a truly independent transco/marketco, rather than an entity that also has outright ownership of gencos. If combined with the creation of a semi-autonomous regulatory body, the level of comfort among investors (and thus the level of outside investment under reasonable and acceptable terms to Armenia) should increase even more. Finally, these steps should increase the value of assets in the power sector and the Government will be better positioned to privatize such portions of the power sector as it wishes, potentially receiving infusions of hard currency and/or avoiding additional public sector investments in the power sector.