Financial Performance of the Armenian Power Sector

January - December of 2003

February 2004

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(January – December 2003)

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1. INTRODUCTION

This report presents a review of the performance of the electric power sector of Armenia for 2003. PA Consulting's (PA's) analysis is based on data presented on the official website of the Public Service Regulatory Commission (PSRC). PA understands that the data provided by the PSRC are based on legal reporting (financial statements) of the energy companies for 2003 and, accordingly, represent the official financial results for the corresponding period. This however, does not necessarily mean that the data cannot be changed retroactively in the future.

Information on thermal energy purchases and sales has not been reported officially to PA. For this reason, analysis of thermal energy operations is not included in this report. This report is focused on the sector's electricity consumption, collection rates and losses. Information on the sector's accrued fuel costs, O&M expenditures, capital costs, loans from the Government and banks, taxes, receivables and payables is not presented in this report.

Due to the specifics of the industry (electricity is almost always purchased and sold on credit), payments received during a specific period are for delivery or supply in previous periods. This makes it difficult to compute the collection rate for the period. However in cumulative reports, the delivery/supply and payments during the total period will balance. Thus, half-year and annual reports are more accurate and may be used as indicators for improvement or deterioration in the cumulative collection rate.

PA has not verified the accuracy, reliability or completeness of the PSRC data. Accordingly, PA makes no representation or warranty as to the accuracy, reliability or completeness of any of the information contained in this memorandum, and PA's respective employees and consultants shall have no liability for any statements, opinions, information or matters (expressed or implied) contained in, arising of, or derived from, or for any omissions from, this report.

2. PURPOSE OF THE ANALYSIS

The objectives of this report are to:

1. Analyze the changes in electric power demand, generation, exports and imports;
2. Identify trends in the Transmission and Distribution Losses;
3. Analyze the flow of funds among retail consumers, the distribution company (ElNetArm), Armenergo and the generators;
4. Identify Financial Losses in the Armenian electric power sector and their major drivers;
5. Revise the evolution of domestic tariffs and export prices.

3. GLOSSARY OF TERMS USED IN THE REPORT AND ASSUMPTIONS

Terms used

The following are the definitions of the terms used in this report[1]:

- Auxiliary Needs – The portion of generated electricity which is consumed by the generators' auxiliary plant and equipment;
- Bulk Supply to Distribution – Electric energy actually received by the distribution company (ElNetArm) from Armenergo, expressed both in GWh and $ terms;
- Commercial Losses – electric energy purchased from Armenergo by ElNetArm less energy sold to the end-users, less Technical Losses in Distribution; expressed both in GWH and $ terms; ElNetArm average sales tariff is used to calculate the Commercial Losses in $ terms;
- Financial Losses – the sum of Non-payment and Commercial Losses, expressed in $ terms;
- Gross Generation – The total amount of electricity generated by the generators, in GWh;
- Input to Armenergo – electric energy purchased by Armenergo from Generators and Importers, expressed both in GWh and $ terms;
- Metered Domestic Consumption – metered electricity sales of ElNetArm to end users (also referred to as Retail Sales of ElNetArm);
- Net Exports – Electricity exports less electricity imports, in GWh;
- Net Generation – Gross Generation less Auxiliary Needs;
- Net Internal Demand (NID) – electricity consumed by end users in Armenia, expressed in GWh;
- Non-payment in Distribution - the difference between the amounts billed by ElNetArm and the amounts actually paid for in the reporting periods, expressed in $ terms;
- Own Consumption by Generating Companies – Electricity purchased by the Generating Companies from ElNetArm for their own needs;
- Potential Distribution Company Revenue – cash receipts of ElNetArm plus Commercial Losses and Non-payment in Distribution, expressed in $ terms;
- System Losses – the sum of Transmission and Distribution Losses, expressed in $ terms;
- Technical Losses in Distribution – losses, associated with the technical parameters of the distribution network, as calculated by the Energy Institute, expressed in GWh terms;
- Transmission Losses – the difference between energy purchased and sold by Armenergo, expressed in GWh terms.

[1] The calculation formulae and interrelationship of the defined terms are given in Appendix A.

4. FINDINGS

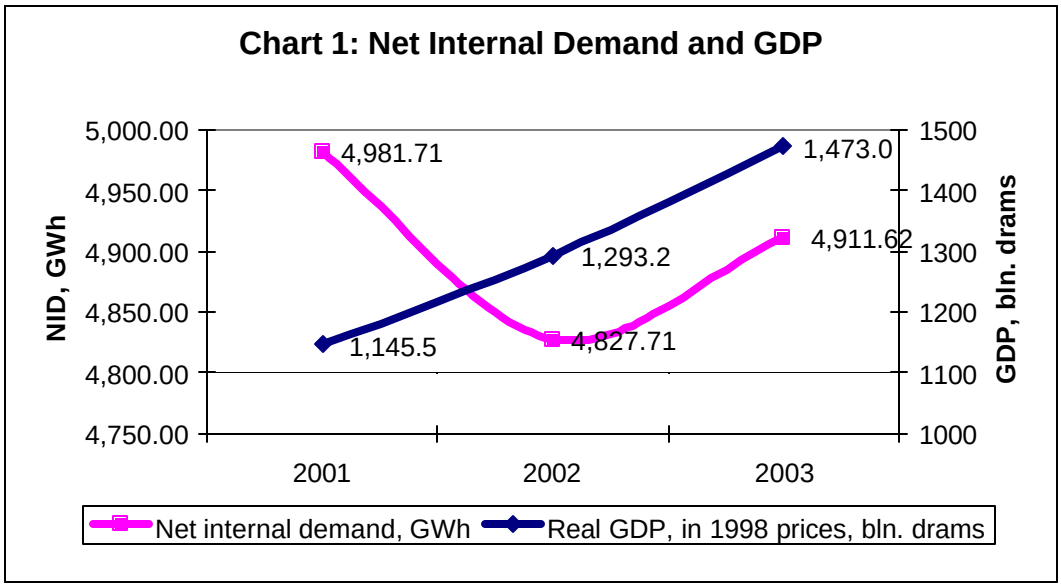
The findings from the analysis are summarized below. More details are also provided in the Appendices.

4.1 DEMAND, GENERATION, EXPORT AND IMPORT

4.1.1 Demand

- In 2003, Net Internal Demand increased by 1.7 % as compared to 2002 (see Table 1 in Appendix B). The unusually cold winter is among the major reasons for the increase of NID, since electricity still prevails over other energy types used for heating purposes.

- Chart 1[2] below depicts the increase in NID and a linear increase in real GDP in 1998 prices. Normally, there is a positive relationship between GDP and electricity consumption. According to the National Statistics Service of the RoA the growth of GDP in 2003 was mainly driven by a strong performance of industry and construction. Moreover, the growth in industry, which is usually the most energy-intensive customer, is the highest in the last decade.

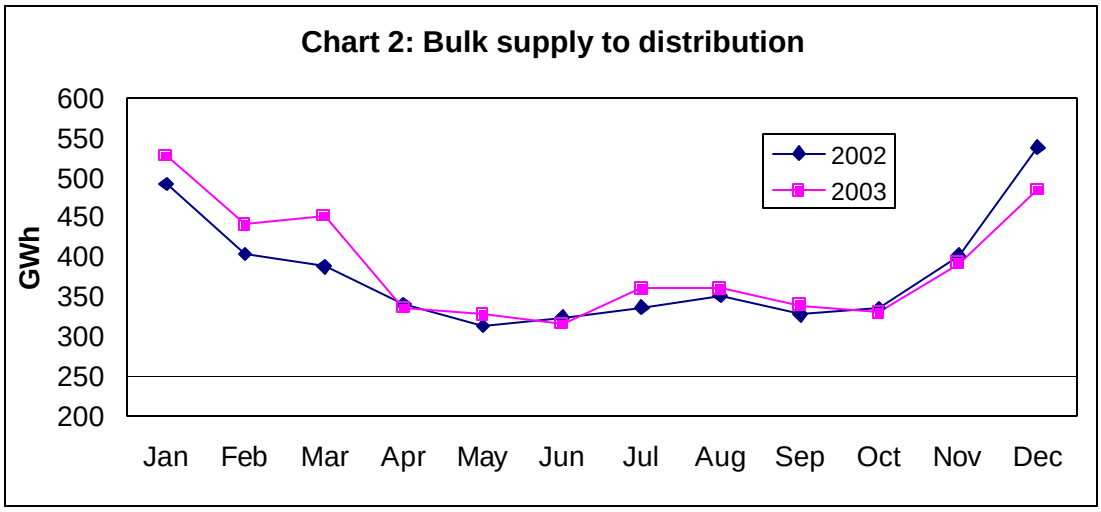


- Overall, Metered Domestic Consumption in 2003 increased by 7.5% (see Table 3 of Appendix B).

- Chart 2 on the following page describes monthly Bulk Supply to Distribution for 2003 in comparison with 2002. As can be seen there is no sustainable growth of demand over the whole period of observation. Noticeable growth is recorded only during first three months (winter months with high heating demand), which is followed by three months of usual demand level.

[2] GDP data source: National Statistics Service of the RoA.

A slight increase of consumption in July - September was due to the re-start of the Nairit chemical factory.



- A shift in the structure of Metered Domestic Consumption towards an increase in the share of residential and "other consumers" and a decrease in the share of budgetary organizations, water sectors and industry was observed in the reporting period. In 2003, the share of residential consumption in Metered Domestic Consumption has increased, exceeding its value for the same period of 2001 and 2002. A quick assessment allows one to conclude the above-mentioned growth in NID was mainly driven by a cold weather resulting in increased consumption for heating mainly in residential and "other customers" sectors ("other customers" mainly consists of commercial customers) during the first quarter of 2003 (see Table 2 of Appendix B).

- In absolute terms, the following are the major changes that have occurred in Metered Domestic Consumption in 2003 (see Table 3 of Appendix B):

  a) Consumption by "other consumers" significantly increased by 241.3 GWh or by 49%, which is explained by upswing of economic activity in service and small business plus changes in customer groups, when due to ongoing privatization some customers from budgetary organizations moved to the "other consumers" group;

  b) Consumption by budgetary organizations decreased by 108.6 GWh (37.2%). One of the reasons is that with privatization the number of budgetary organizations is considerably reduced. Moreover, with the strict policy of disconnections, budgetary organizations try to secure more efficient electricity usage;

  c) Residential consumption increased by 124.3 GWh (10.2%). The main reason is that previously non-recorded and non-reported losses, which essentially constituted part of demand that was not paid for, are converted into sales since customers pay for it now. Another reason is the high level of electricity consumption for heating purposes during the first quarter of 2003 due to abnormally cold weather conditions;

  d) Industrial consumption increased by 26.8 GWh (3.5%); and,

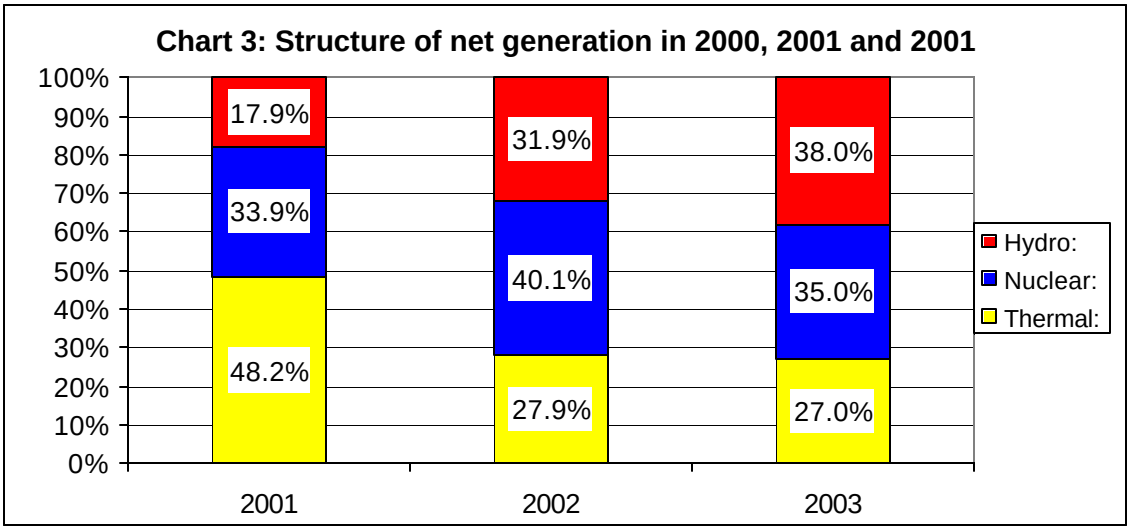
  e) Consumption in the irrigation sector decreased by 5.2 GWh (2.3%). The decline of consumption in the drinking water sectors by 20.2 GWh (7.3%) could be attributed to the implementation of water sector rehabilitation program.

4.1.2 Export

- Net Exports in 2003 decreased by 72.7 GWh (20.8%) mostly due to the significant decrease in exports to Iran. The main reason in non-perfect market structure and market obligations, which resulted in Armenia not banking electricity for swap with Iran.
- In 2003 the exports to Georgia increased by 20.5 GWh (10.7%). Starting from October, 2003 Armenergo exports electricity to Georgia based on agreement signed between Armenergo and Georgian United Distribution Company. According to that contract Georgian United Distribution Company committed to clear its old debt and remain current on new purchases. Also, RAO began exporting electricity to Telasi Distribution Company in December 2004.
- Net exports to Iran significantly decreased (by 86.9%). Export to Iran dropped by 25.2% and import dropped by 3.7%.
- The ratio of Net Exports over Net Generation is significantly lower in 2003 as compared with 2002 and 2001.

4.1.3 Generation and Import

- The increase in demand (Net Internal Demand plus Export) resulted in the increase of Net Generation by 0.2% in 2003 (see Table 1 in Appendix B).
- In 2003, there was a shift in the structure of Net Generation toward an increase in the share of hydro generation and a decrease in nuclear and thermal generation.



- In absolute terms, this shift is described as follows:
  a) Increase in hydro generation by 317.2 GWh;
  b) Decrease in thermal generation by 45.9 GWh;
  c) Decrease in nuclear generation by 260.1 GWh (see Tables 5 and 6 of Appendix B).

As was already mentioned, the decrease in nuclear generation was caused by the shortage of nuclear fuel. The GoA was not able to provide the nuclear fuel and the ANPP was in forced outage. Because of the shortage of the other available generating resources, it was decided to use the remains of available nuclear fuel, thus ANPP was put back in operation for two months, February and March and then restarted only in July when total refueling was completed.

The high level of precipitation allowed for the use of the hydro generation at its full capacity during the winter months and also during the spring.

The considerable increase in thermal generation was recorded during the first six months of 2003 because of the ANPP's outage.

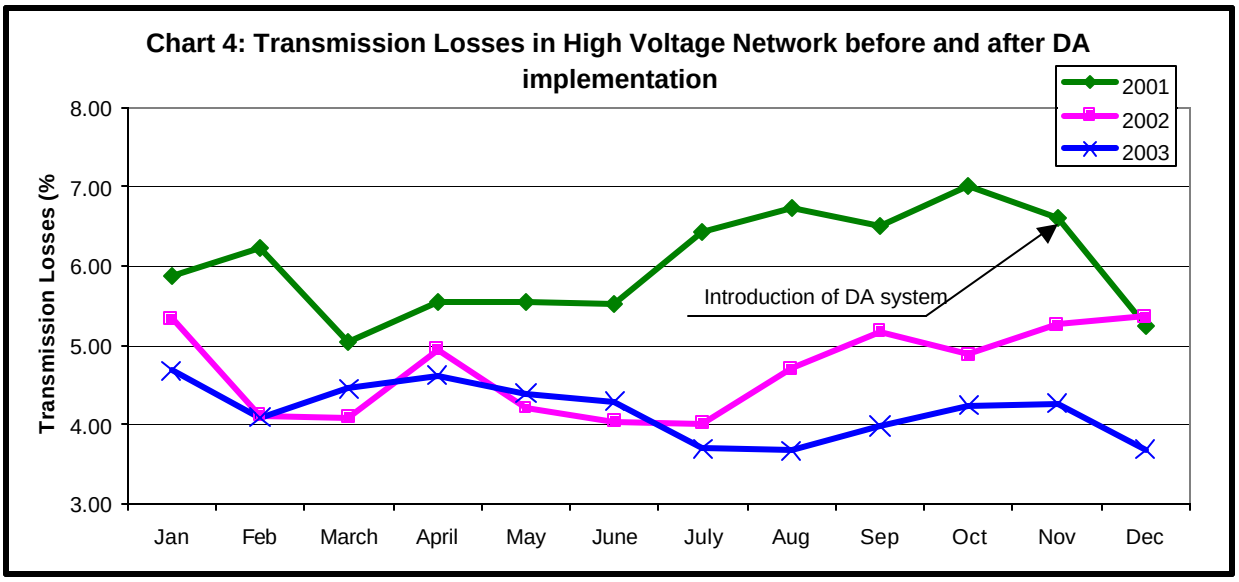
During the first six months of 2003 there was a sharp increase in the Own Consumption by the Generating companies (by 9.27 GWh or 151%). This fact is mainly attributed to ANPP's outage, since during that period the power plant purchases electricity for its maintenance from the distribution company. This eventually resulted in 14% increase of the Own Consumption by the Generating companies in 2003.

4.2 TRANSMISSION AND DISTRIBUTION LOSSES

- Transmission Losses, expressed in GWh terms, decreased by 11.7% in 2003. The actual increase of transmission losses during the first quarter of 2003, due to ANPP's outage and a high level of imports from Iran and exports to Georgia when a large amount of electricity was transmitted throughout the country, was followed by a substantial decline during following months due to improved operative electricity transmission mode.

- The ratio of the Transmission Losses over the Input to Armenergo, which is a historical indicator of the level of Transmission Losses, reached 4.2% in 2003 (see Tables 8 and 9 of Appendix C). This reflects the impact of two USAID-funded projects: the introduction of the Metering and Data Acquisition (DA) System in the High Voltage Network and the creation of the Settlements Center.

  Chart 4 on the following page shows the dynamics of the transmission losses in the High Voltage Network before and after DA System implementation.



Notes: 1. Actual energy savings for the period of November 2001 through December 2003 is 252.3 mln. KWh.

2. Associated financial savings have been calculated using two methods due to the fact that there was a significant tariff reduction for the wholesale power market in 2002:

a. Based on the bulk supply tariff of 13.33 AMD/kWh for the period of 2000 through August 2002 and 9.02 AMD/kWh for the period of September 2002 to present, the savings have been $4.54 mln. (W/O VAT)

b. Based on the bulk supply tariff of 13.33 AMD/kWh for the entire considered period, had the tariff stayed the same and was not reduced; the savings would have been $5.84 mln. (W/O VAT)

3. Due to reduction in losses and conversion of unaccounted kWh into sales, an additional $908 thousand in VAT has been paid to the state treasury.

- Technical Losses in Distribution, expressed as a % from Bulk Supply to Distribution, decreased during the observed period from 11.7% to 11.2% (see Tables 7 - 9 of Appendix C).

- Total Distribution Losses (technical and commercial), expressed as a percent of Bulk Supply to Distribution, decreased from 25.3% in 2002 to 21.7% in 2003 due to substantial decrease of commercial losses. (See Section 4.4)

4.3 FLOW OF FUNDS AND COLLECTIONS

- During 2003 the amount billed by Generators to Armenergo decreased from $88.9 million in 2002 to $84.4 million in 2003 due to increased share of cheap hydro production, which outweighed the increased amount of more expensive gas-fired generation during ANPP's extended outage.

- Cash receipts of ElNetArm have increased in the same period by $8.5 million, that is, by 7%. ElNetArm's total rate of collection continues its upward trend and reached 96% in 2003. This is higher than that of 2001 and 2002.

- Payments of ElNetArm to Armenergo remained almost at the same level, 102% in 2002 versus 101% in 2003. The fact that the percentage is over 100% reflects the lack in billing and payment.

- The higher payments by ElNetArm made it possible for Armenergo to cover, on the average, all its bills to the generators (total payments to the generators covered 162.3% of the generators' bills for the period). However, power sector financial management remains non-transparent. Payments to the different generators varied from 279% to ANPP to 45% to Dzora HPP.

- A positive shift can be detected in the payment discipline in almost all sectors. In 2003, the irrigation sector was the only sector where the collection rate was low (81.8%). Transportation and budgetary organizations have actually paid more than their bills for the period (thus reducing "old debt"). In the residential sector, the collection rates continued their upward trend and reached 94.4%. The irrigation sector has the lowest collection rate, it decreased from 91.8% in 2002 to 81.8% in 2003.

- If the irrigation sector is excluded from the picture, the collection rate in all other sectors combined is 97%. It must be noted that a significant improvement in collection was achieved despite the following problems:

    - A strict policy preventing the theft of electricity resulted in lowering the commercial losses thus increasing billed amounts but at the same time making the customers more reluctant to pay in cases where their bills grew.

    - Armenia went through presidential elections during the first quarter of 2003. To prevent political speculations during the election campaign, the management of ElNetArm reduced the pressure on certain categories of the customers.

More details about the flow of funds during 2001-2003 are provided in the Tables 10 and 11 and Charts 7, 8 and 9 of Appendix D.

4.4 NON-PAYMENT, COMMERCIAL AND FINANCIAL LOSSES

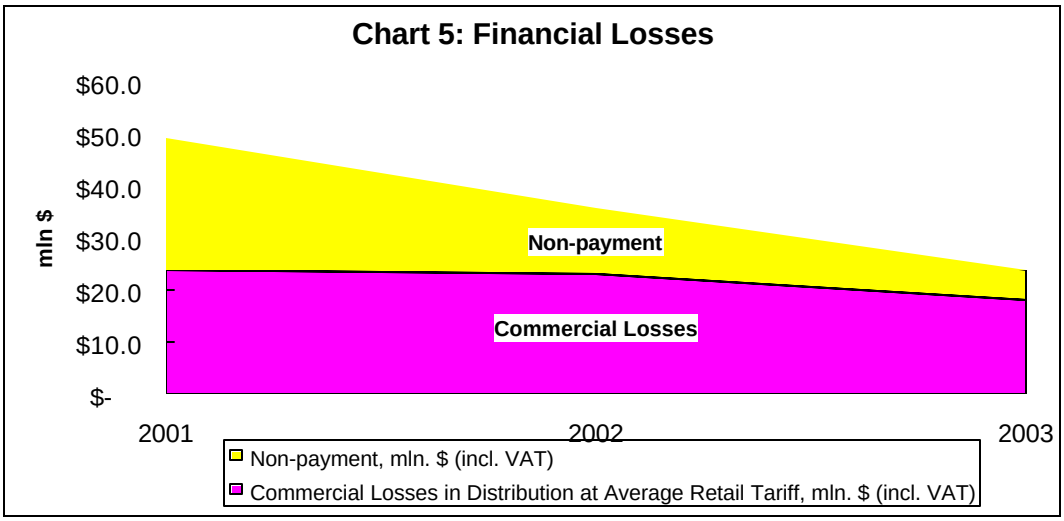
- In GWh terms, Commercial Losses in distribution decreased by 20.6% in 2003, although the Metered Domestic Consumption increased by 7.5% in the same period (see Table 3 of Appendix B and Table 8 of Appendix C).

- Expressed in $ terms, Commercial Losses in Distribution decreased by 21.6% in 2003 and amount to $18.1 million at Average Retail Tariff. Commercial Losses, expressed as a % of Potential Revenue, decreased from 15.4% in 2002 to 11.8% in 2003 due to the increased Potential Distribution Company Revenue (see Table 12 of Appendix E).

- In 2003 there has been a substantial decrease in Non-payment to Distribution Company (from $12.7 million in 2002 to $5.7 million in 2003). The share of Non-payment in Financial Losses also decreased substantially and reached 24% in 2003 versus 35.4% in 2002 (see Table 12 of Appendix E).

- During the same period Financial Losses in $ terms decreased by 33% due to the decrease in both Non-payment and Commercial Losses (see Table 12 of Appendix E).

- Potential Distribution Company Revenue, expressed in $ terms, increased by 2.1% mostly due to the increased collection (by 13.2%) on domestic sales (see Table 12 of Appendix E).



4.5 TARIFFS

- In 2003 actual weighted average retail tariff (inclusive of VAT) for ElNetArm sales remained at the same level as it was in 2002, 21.4 drams/kWh. The actual weighted average tariffs increased only for the "other consumers" group. At the same time, they slightly decreased in the residential, industrial, drinking water and transportation sectors, but substantially decreased for budget organizations from 23.6 to 21.2 drams/kWh (see Table 13 of Appendix F). These changes were caused by the difference in the structure of actual versus planned sales by time-of-use volume and voltage level.

- During 2003, the average tariffs decreased for ANPP, Hrazdan TPP and Vorotan Cascade, but increased for all other power plants. The overall weighted average tariff for Generators decreased by 4.3% (see Table 13 of Appendix F).

- In 2003 the average Bulk Supply tariff decreased substantially (14.3%) as compared with 2002 (see Table 13 of Appendix F).

As of May 16, 2003 PSRC substantially increased electric energy and capacity tariffs for the Sevan-Hrazdan Cascade. The reason for that increase was that Armenia was compelled to use the cascade as collateral in the transaction for the purchase of nuclear fuel. In order to increase the value of Sevan-Hrazdan so that it would constitute an adequate collateral, PSRC included in tariffs provisions for the plants' renovation. The PSRC issued a resolution increasing tariff for the Sevan-Hrazdan Cascade effective October 1, 2003 as following:

- Electric energy charge – 8.768 Dram/kWh
- Capacity charge per month – 574.08 Dram/kW.

Tariffs approved by the PSRC are provided in Table 14 of Appendix F.

APPENDIX A: FORMULAE AND INTERRELATIONHIP OF TERMS

Energy Balance, GWh

1	Gross Generation
2	Auxiliary needs
3 = 1 – 2	Net Generation
4	Import
5 = 3 + 4	Input to Armenergo
6	Export
7 = 5 - 6	Net Internal Demand
8	Transmission Losses
9 = 5 – 8	Delivery of Armenergo
10	Own consumption by Generating companies
11 = 9 - 6 - 10	Bulk Supply to Distribution
12 = 11 –15	Distribution Losses, of which:
13	*Technical Losses in Distribution*
14 = 12 - 13	*Commercial Losses in Distribution*
15	Retail Sales of ElNetArm (GWh)

Weighted Average Tariff

16 = 17 / 15	Weighted Average Tariff of ElNetArm Sales, dram/KWh

Potential Revenue and Loss Calculation, $

17	Retail Sales of ElNetArm ($)
18 = 17-19	Non-payment in Distribution
19	Cash Receipts of ElNetArm
20 = 16 * 14	Commercial Losses in Distribution
19 = 17+ 20	Potential Distribution Company Revenue

APPENDIX B: GENERATION, EXPORT AND CONSUMPTION

Chart 4: Energy Balance in 2003, GWh

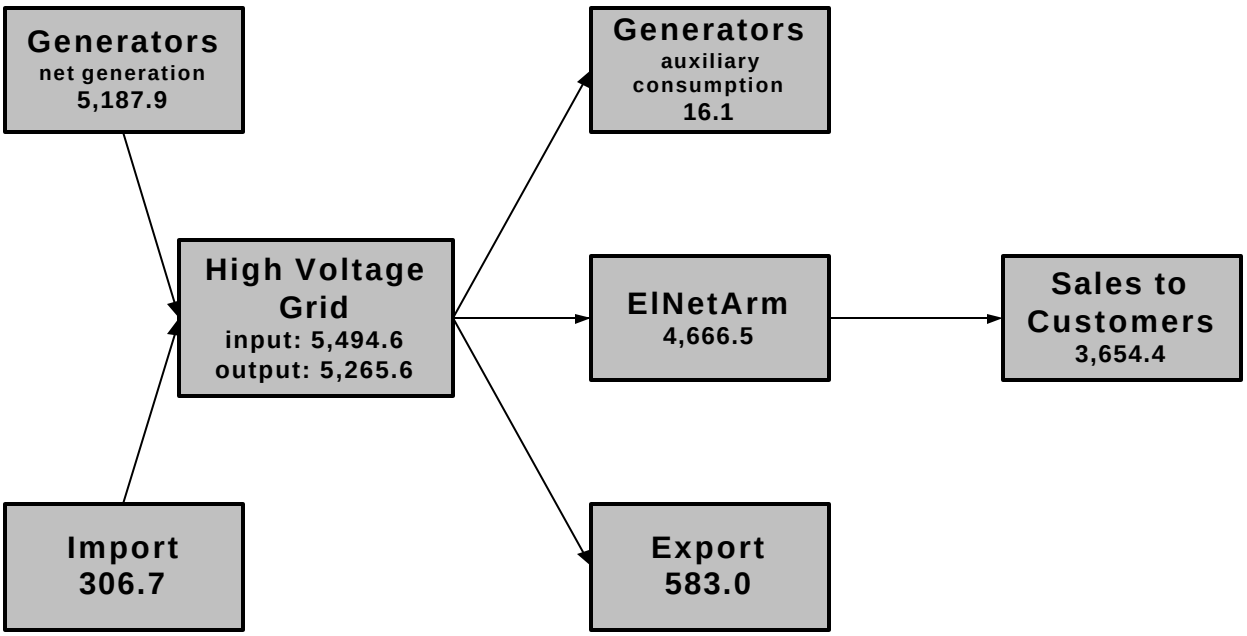


Chart 5: Energy Balance in 2002, GWh

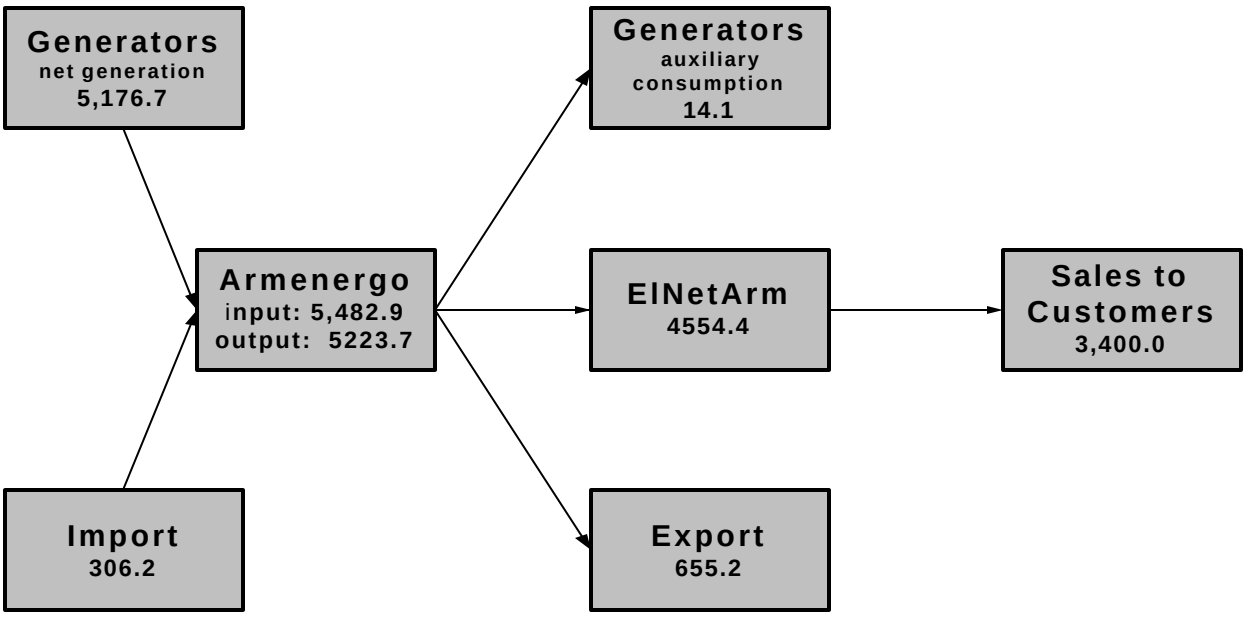


Chart 6: Energy Balance in 2001, GWh

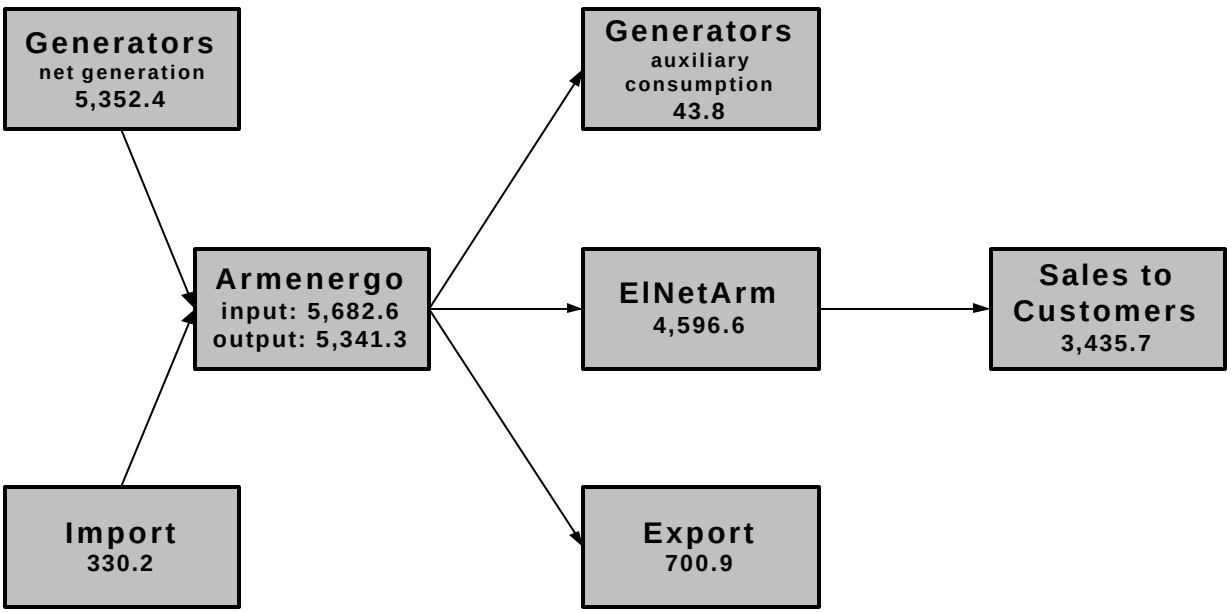


Table 1. Net Generation, Exports and Internal Demand

	2001	2002	2003
Net generation, GWh	5,352.4	5,176.7	5,187.9
Change from previous year, %	***-3.8***	***-3.3***	***0.2***
Net exports, GWh	370.7	349.0	276.3
Change from previous year, %	***-19.9***	***-5.9***	***-20.8***
Net internal demand, GWh	4,981.7	4,827.7	4,911.6
Change from previous year, %	***-2.4***	***-3.1***	***1.7***
Net exports, as % of Net generation	6.9	6.7	5.3

Table 2: Structure of Metered Domestic Consumption, %

	2001	2002	2003
Residential	34.5	35.9	36.8
Industrial	20.6	22.6	21.7
Budgetary Organization	6.8	8.6	5.0
Irrigation	11.4	6.7	6.1
Drinking Water	8.5	8.1	7.0
Transportation	3.5	3.6	3.3
Other Consumers	14.7	14.5	20.1
Total	**100.0**	**100.0**	**100.0**

Table 3: Metered domestic consumption, GWh

	2001	2002	2003
Residential	1,185.9	1,221.1	1,345.4
Change from previous year, %	***-3.9***	***3.0***	***10.2***
Industrial	708.8	768.0	794.8
Change from previous year, %	***1.8***	***8.4***	***3.5***
Budgetary Organizations	231.9	292.1	183.5
Change from previous year, %	***-1.1***	***25.9***	***-37.2***
Irrigation	391.5	228.1	222.9
Change from previous year, %	***-17.5***	***-41.7***	***-2.3***
Drinking Water	291.4	275.2	255.0
Change from previous year, %	***-9.9***	***-5.5***	***-7.3***
Transportation	120.4	123.5	119.5
Change from previous year, %	***-2.2***	***2.6***	***-3.2***
Other Consumers	505.9	492.0	733.3
Change from previous year, %	***5.6***	***-2.7***	***49.0***
Metered Domestic Consumption	**3,435.8**	**3,400.0**	**3,654.4**
Change from previous year, %	***-3.6***	***-1.0***	***7.5***

Table 4. Net Exports by Countries, GWh

	2001	2002	2003
Net exports to Iran	36.8	94.9	12.4
Imports from Iran	317.7	272.9	262.7
Exports to Iran	354.5	367.8	275.1
Net export to Georgia	231.6	192.0	212.5
Net exports to Artsakh and Kashatagh	102.3	62.0	51.5
Imports from Artsakh and Kashatagh	12.5	33.3	44.0
Exports to Artsakh and Kashatagh	114.8	95.3	95.5
Net exports	**370.7**	**349.0**	**276.3**

Table 5: Structure of Net Generation, %

	2001	2002	2003
Nuclear:	**33.9**	**40.1**	**35.0**
ANPP	33.9	40.1	35.0
Thermal:	**48.2**	**28.0**	**27.0**
Hrazdan TPP	43.6	23.4	23.3
Yerevan CPP	4.6	4.6	3.7
Hydro:	**17.9**	**31.9**	**38.0**
Sevan-Hrazdan HPP	5.7	7.2	9.6
Vorotan HPP	9.8	21.5	25.0
Dzora HPP	1.0	1.3	1.2
Small HPPs	1.4	1.9	2.1
Total	**100**	**100**	**100**

Table 6: Net Generation by Type, GWh

	2001	2002	2003
Nuclear:	**1,814.47**	**2,078.25**	**1,818.14**
Change from previous year, %	***-1.2***	***14.5***	***-12.5***
ANPP	1,814.47	2,078.25	1,818.14
Thermal:	**2,580.34**	**1,446.37**	**1,400.45**
Change from previous year, %	***4.0***	***-43.9***	***-3.2***
Hrazdan TPP	2,336.21	1,208.97	1,210.5
Yerevan CHP	244.13	237.4	189.95
Hydro:	**957.61**	**1,652.1**	**1,969.33**
Change from previous year, %	***-23.4***	***72.5***	***19.2***
Sevan-Hrazdan HPP	303.54	373.51	498.64
Vorotan HPP	526.85	1,112.82	1,299.32
Dzora HPP	54.13	65.49	63.57
Small HPPs	73.09	100.28	107.8
Net Generation	**5,352.42**	**5,176.72**	**5,187.92**
Change from previous year, %	***-3.8***	***-3.3***	***0.2***

APPENDIX C: TRANSMISSION AND DISTRIBUTION LOSSES

Table 7: Structure of System Losses, % of Total

	2001	2002	2003
Total distribution losses	77.3	81.7	81.5
Commercial losses in distribution	*41.9*	*43.8*	*39.6*
Technical losses in distribution	*35.4*	*37.9*	*42.0*
Transmission losses	22.7	18.3	18.5
System losses	**100**	**100**	**100**

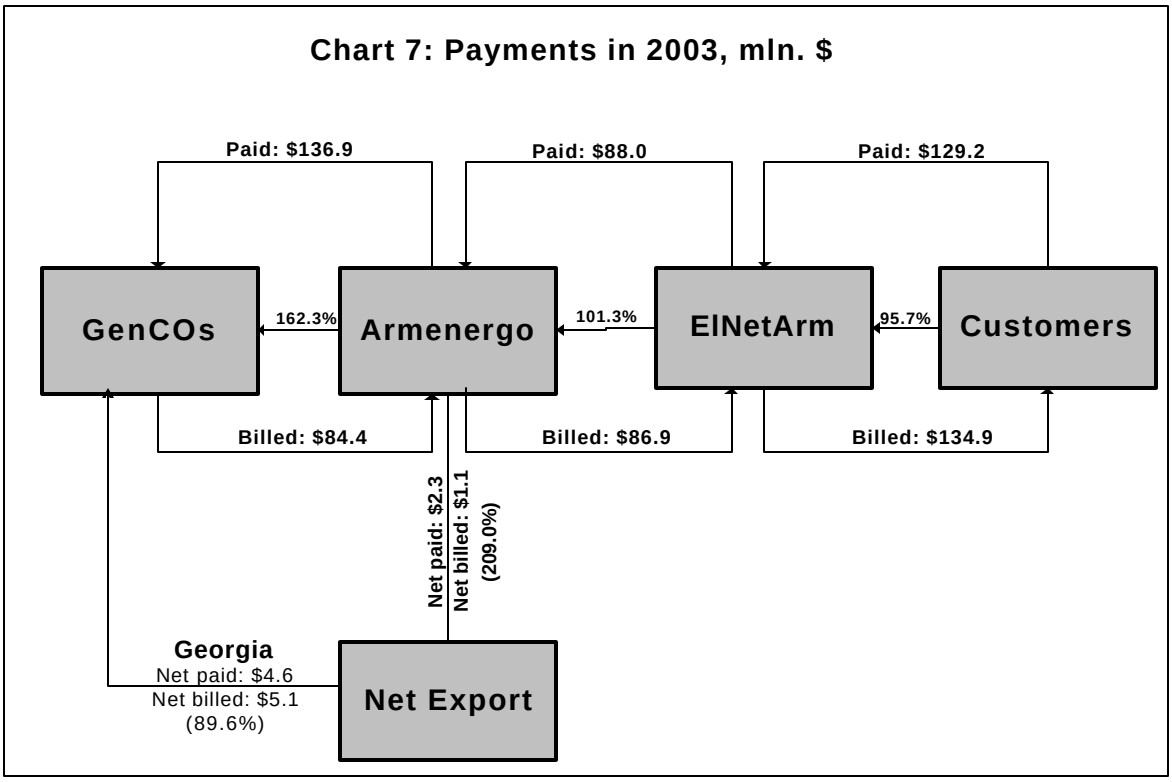
Table 8: System Losses, Input to Armenergo and Bulk Supply to Distribution, GWh

	2001	2002	2003
Total distribution losses	**1,160.8**	**1,154.3**	**1,012.1**
Change from previous year, %	*-1.3*	*-0.6*	*-12.3*
Commercial losses in distribution	*628.9*	*618.5*	*491.2*
Change from previous year, %	*0.1*	*-1.6*	*-20.6*
Technical Losses in distribution	*531.9*	*535.8*	*520.9*
Change from previous year, %	*-2.9*	*0.7*	*-2.8*
Transmission losses	**341.3**	**259.2**	**229.0**
Change from previous year, %	*1.1*	*-24.1*	*-11.7*
System losses	**1,502.1**	**1,413.5**	**1,241.1**
Change from previous year, %	*-08*	*-5.9*	*-12.2*
Input to Armenergo	**5,682.6**	**5,482.9**	**5,494.6**
Change from previous year, %	*-4.0*	*-3.5*	*0.2*
Bulk Supply to Distribution	**34,596.6**	**4,554.4**	**4,666.5**
Change from previous year, %	*-3.1*	*-0.9*	*2.5*

Table 9: Relative System, Transmission and Distribution Losses, %

	2001	2002	2003
System Losses (as per cent of input to Armenergo)	**26.4**	**25.8**	**22.6**
Transmission Losses	*6.0*	*4.7*	*4.2*
Distribution Losses	*20.4*	*21.0*	*18.4*
Distribution losses (as per cent of bulk supply to distribution grid)	**25.2**	**25.3**	**21.7**
Technical Losses in Distribution	*11.6*	*11.7*	*11.2*
Commercial Losses	*13.7*	*13.6*	*10.5*

APPENDIX D: FLOW OF FUNDS AND COLLECTIONS



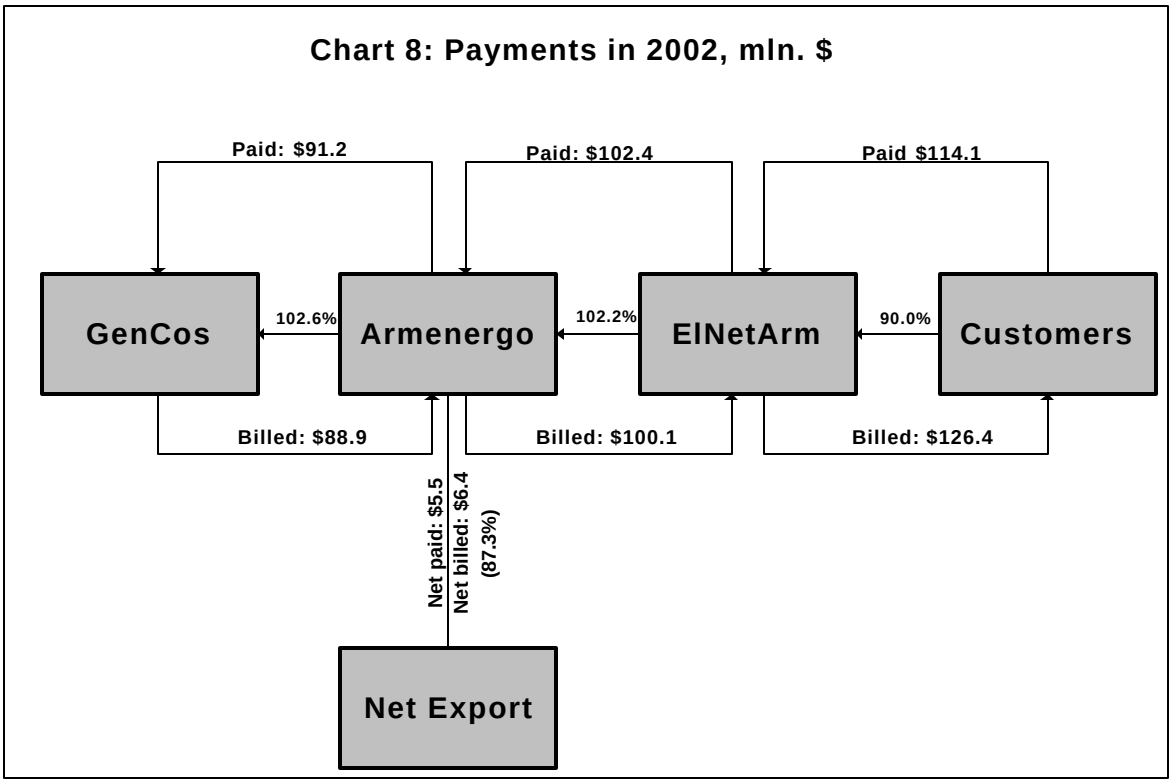


Chart 9: Payments in 2001, mln. $

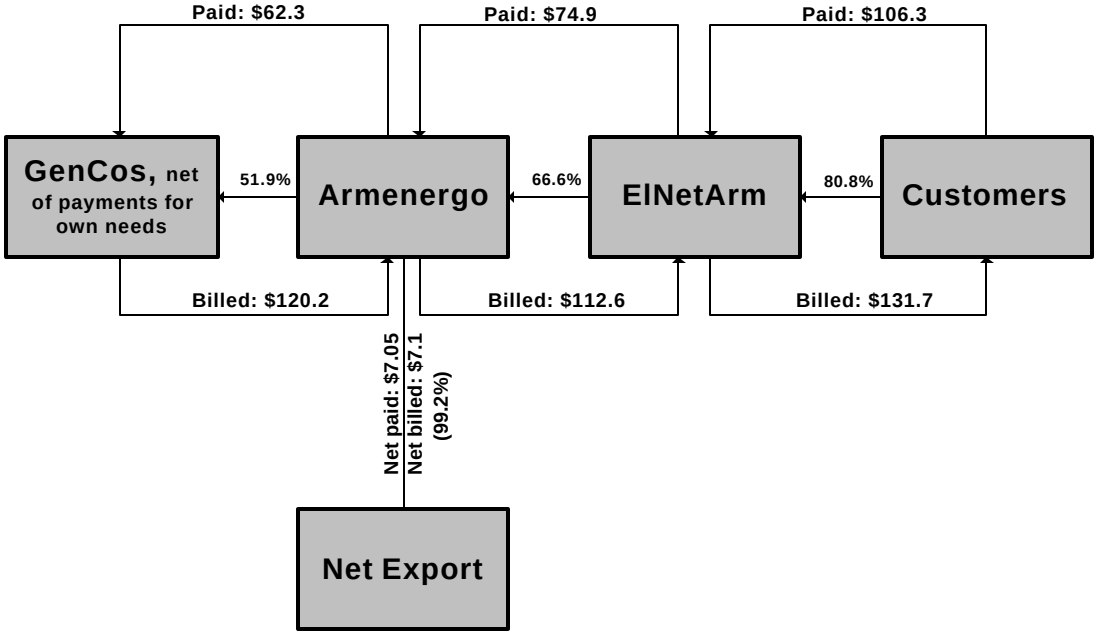


Table 10: Collection Rates of ElNetArm by End Users, %

	2001			2002			2003		
	Billed, $	Paid, $	Collection rate, %	Billed, $	Paid, $	Collection rate, %	Billed, $	Paid, $	Collection rate, %
Payments to ElNetArm by customers	131.7	106.3	80.8	126.7	114.1	90.0	134.9	129.2	95.7
Payments to Armenergo by ElNetArm	112.6	74.9	66.6	100.1	102.4	102.2	86.9	88.0	101.3
Payments to GenCos by Armenergo[3]	120.2	62.3	51.9	88.9	91.2	102.6	84.4	136.9	162.3
Payments to Armenergo in line of net exports	7.1	7.0	99.2	6.4	5.5	87.3	1.1	2.3	209.0
Payments to GenCos for export to Georgia							5.1	4.6	89.6
Payments to Armenergo by GenCos, in line of own consumption	1.2	0.8	68.8	0.4	0.5	119.2	0.4	0.2	48.2
Payments to GenCos by Armenergo	90.5	46.9	51.8	62.0	58.4	94.1	60.7	99.8	164.3

[3] Net of payments for own consumption.

Table 11: Collection rates of ElNetArm by customer classes, %

	2001	2002	2003
Residential	85.1	89.9	94.4
Industrial	81.7	81.1	98.7
Budgetary organizations	75.3	102.3	100.8
Irrigation	52.4	91.8	81.8
Drinking water	26.7	100.7	99.5
Transportation	94.9	74.0	102.4
Other consumers	119.6	91.0	96.6
Total	**80.8**	**90.0**	**95.8**

APPENDIX E: NON-PAYMENT, COMMERCIAL AND FINANCIAL LOSSES

Table 12: Financial Losses of the Electric Energy Sector

	2001	2002	2003
Exchange rate, dram/$, average annual[4]	550	573	579
Total Financial Losses, million $	**49.4**	**35.7**	**23.9**
Non-payment, million $ (incl. VAT)	**25.3**	**12.7**	**5.7**
Domestic Electricity Sales, million $	131.7	126.7	134.9
Collected on Domestic Electricity Sales, million $	106.4	114.1	129.2
Commercial Losses in Distribution at Weighted Average Retail Tariff, million $ (incl. VAT)	**24.1**	**23.1**	**18.1**
Share of Non-payment in Financial Losses, %	51.2	35.4	24.0
Share of Commercial Losses in Financial Losses, %	48.8	64.6	76.0
Potential Distribution Company Revenue, million $ (incl. VAT)	**155.8**	**149.8**	**153.0**
Financial Losses as per cent of Potential Distribution Company Revenue, %	31.7	23.8	15.6
Non-payment Losses as per cent of Potential Distribution C ompany Revenue, %	16.3	8.5	3.7
Commercial Losses as per cent of Potential Distribution Company Revenue, %	15.5	15.4	11.8

[4] Source: Central Bank of Armenia

APPENDIX F: TARIFFS

Table 13: Average Tariffs, Drams/kWh (VAT included)

Average ElNetArm Sales Tariffs			
	2001	**2002**	**2003**
Total	21.1	21.4	21.4
1. Residential	24.8	24.9	24.8
2. Industry	17.5	17.6	17.5
3. Budget organizations	24.1	23.6	21.2
4. Irrigation	20.2	19.2	19.2
5. Drinking water	18.4	18.3	18.2
6. Transport	16.7	16.7	16.6
7. Other consumers	19.2	21.1	21.8

Average Armenergo Sales Tariffs			
	2001	**2002**	**2003**
Total	13.3	11.8	10.2
1. ElNetArm	13.5	12.6	10.8
2. Generation companies, in line of own needs	15.3	16.0	16.0
3. Export, of which:	11.5	5.9	1.6
a) Karabagh	7.0	7.0	7.8
b) Iran	-	-	-
c) Georgia	13.8	16.6	14.6[5]
d) Kashatagh	7.9	8.0	8.2

[5] The export to Georgia was conducted under ArmRusGasProm license and it was based on a tolling agreement.

Table 13: Average Tariffs, Drams/kWh (VAT included) (Cont.)

Average Generators' and Import tariffs			
	2001	**2002**	**2003**
Total	**11.7**	**9.3**	**8.9**
2. ANPP	10.5	8.9	7.3
3. Hrazdan TPP	16.3	18.1	17.7
4. Yerevan TPP	20.5	20.5	21.3
5. Sevan -Hrazdan HPP Cascade	6.6	5.9	8.1
6. Vorotan HPP Cascade	3.4	2.1	1.6
7. Dzora HPP	-	2.5	5.6
8. Privatized HPPs	10.8	10.7	11.2
9. Import, of which:			
a) Karabagh	7.0	6.9	7.4
b) Iran	-	-	-

Table 14: PSRC Approved Tariffs (VAT included)

	2001	2002	2003
35kV=>, day time/night time, Dram	*16; 12*	*16; 12*	*16; 12*
6/10kV direct, day time/night time, Dram	*20; 12*	*20; 12*	*20; 12*
6/10kV non-direct, day time/night time, Dram	*25; 12*	*25; 12*	*25; 12*
0.4kV, day time/night time, Dram	*25; 15*	*25; 15*	*25; 15*
Bulk supply to ElNetArm, Dram/kWh			10.8228
Transmission:	**1.069**		
Electricity charge, Dram/kWh	*0.305*	*0.305*	*0.0768*
Monthly charge, Dram	*334.90*	*334.90*	*161.004*
Generation, Dram/kWh			
ANPP	**9.341**		
Electric energy charge, Dram/kWh	*4.375*	*4.375*	*3.078*
Capacity charge per month, Dram/kW	*2929.44*	*2929.44*	*2648.184*
Hrazdan TPP	**17.751**		
Electric energy charge, Dram/kWh	*14.515*	*14.515*	*14.959*
Capacity charge per month, Dram/kW	*656.47*	*656.47*	*611.58*
Yerevan CHP	**18.967**		
Electric energy charge, Dram/kWh	*15.604*	*15.604*	*15.8688*
Capacity charge per month, Dram/kW	*1978.54*	*1978.54*	*1740.996*
Sevan-Hrazdan Cascade	**6.299**		
Electric energy charge, Dram/kWh	*2.299*	*2.299*	*8.768*
Capacity charge per month, Dram/kW	*584.56*	*584.56*	*574.08*
Vorotan Cascade	**3.004**		
Electric energy charge, Dram/kWh	*1.896*	*1.896*	*0.9468*
Capacity charge per month, Dram/kW	*215.13*	*215.13*	*199.824*