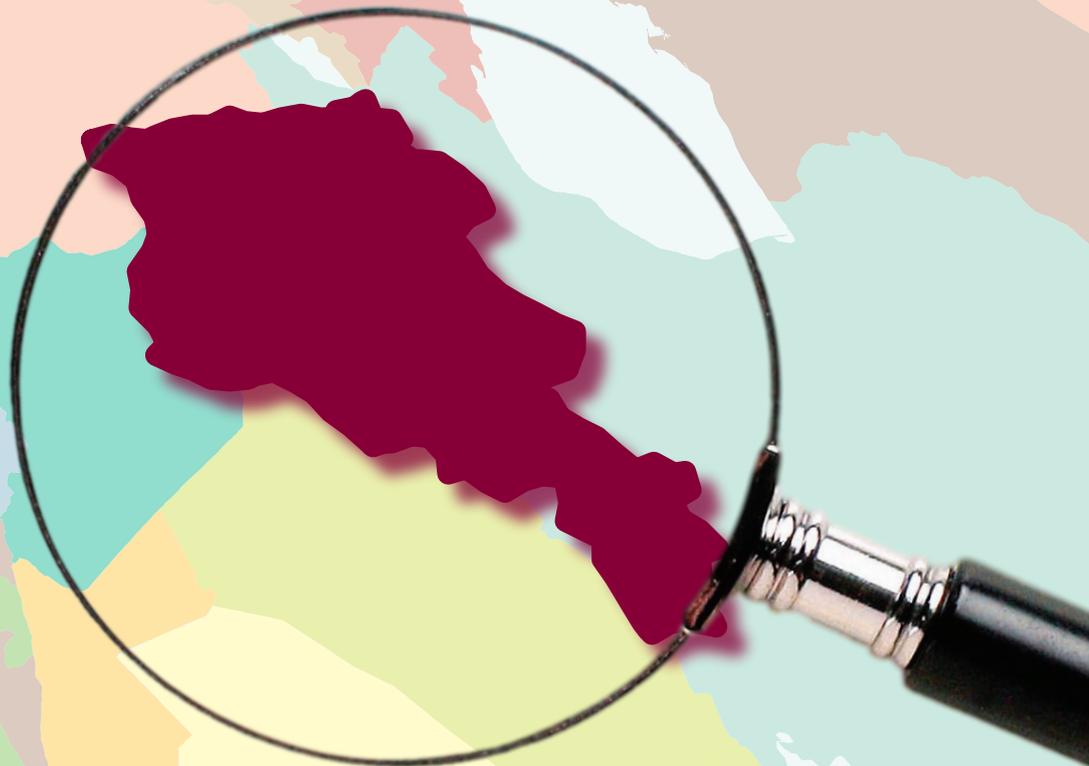




ARMENIA

FOLLOW-UP REVIEW of the Investment Climate and Market Structure in the Energy Sector

ENERGY CHARTER



Energy Charter Secretariat
2008

**FOLLOW-UP REPORT
ON INVESTMENT CLIMATE
AND MARKET STRUCTURE IN THE ENERGY SECTOR**

ARMENIA

**UPDATED VERSION
As of 28 May 2008**

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EXECUTIVE SUMMARY

The Republic of Armenia is a small landlocked country, located at the crossroads of Europe and Asia, with a continental climate and mountainous topography. The country is rich in mineral products, non-precious metals, semi-precious and ornamental stones, and natural mineral waters.

Armenia has a population of 3.2 million. The country is highly urbanised, with an official unemployment rate of 8.2% in 2005, as compared to 12% in 2000. According to the Constitution, which was adopted by national referendum on 5 July 1995 and subsequently amended by national referendum on 27 November 2005, Armenia is an independent and democratic country with a presidential form of government. The Constitution also guarantees a multiparty system.

Armenia joined the World Trade Organisation (WTO) in January 2003 and its steady economic progress has earned the country increasing support from international institutions. The International Monetary Fund (IMF), the World Bank (WB), the European Bank for Reconstruction and Development (EBRD), as well as other international institutions and foreign countries, are extending considerable grants and loans to Armenia. In cooperation with the WB and IMF, the Armenian Government developed an economic and fiscal policy and a poverty reduction strategy. Extreme poverty fell substantially over the period 1996-2004. Pressure from tax authorities and the introduction of 1% gross-receipts tax have increased tax collections, however, government spending on wages and social benefits has also risen. Nevertheless, the Government's intervention in the economy is gradually decreasing. The unemployment rate fell from 10.3% in 2001 to 8.2% in 2005.

Armenia has succeeded in substantially decreasing inflation (down from 3.1% in 2001 to 0.6% in 2005), stabilising its currency, privatising most of the small- and medium-sized enterprises, and introducing some improvements to tax and custom administration. The performance of the banking sector is also improving. During the period 2001-2005, the average annual growth of GDP production was 12.1%, as compared to 5.1% for the period of 1996-2000. This double-digit growth confirms a trend towards stable economic development. Overall, the medium-term economic outlook is broadly favourable on the basis of these recent improvements in infrastructure and governance institutions.

Armenia has a liberal foreign trade regime, which consists of a simple two-band import tariff (at 0% and 10%), no taxes on exports and no quantitative trade restrictions. Import, export and domestic production licences are required only for health, security and environmental reasons. There are no limits on hard currency imports and exports.

According to the "Index of Economic Freedom", an annual survey conducted by the Heritage Foundation and Wall Street Journal, in 2007 Armenia's economy was assessed as being 69.4% free, which corresponds to the world's 32nd freest economy. Notably, with respect to the 41 countries in the European region, Armenia's economy was ranked 19th freest. The UNCTAD Inward FDI Performance Index by host economy for the period 2003-2005 placed Armenia among the top 30 countries having the fastest growth in FDI performance.

Continuation of the overall progress will depend on the ability of the Government to resolve some remaining problems: increasing revenue collection; improving the investment climate; reducing the influence of the executive on the judiciary; ensuring debt sustainability; and taking action against corruption. There is a distinct difference in the level of industrial development, and the overall social and economic conditions of the population between Yerevan city and the other regions in the country. The Armenian economy also is influenced by certain unresolved political issues on a regional scale.

Armenia is almost completely dependent on imported gas and oil products. Domestically produced primary energy is electricity generated from hydroelectric plants, two thermal power plants and one nuclear power plant. Armenia's energy strategy therefore consists of both securing fuel and energy resources supply from abroad, and further developing the domestic renewable energy resources. As far as importation of oil products is concerned, entry to Armenia occurs only via Georgia and Iran as the necessary infrastructure between Armenia and Azerbaijan, and Armenia and Turkey is not in operation, which represents a significant constraint. For the time being, almost all imports of oil and gas originate in Russia.

The entire gas transmission and distribution system of Armenia is owned and operated by ArmRosGazprom, a joint venture between the Russian companies, Gazprom and Itera, and the Armenian State. The major shareholder is Gazprom.

Armenia has privatised its electricity distribution network. Until 2005, the network was owned by a UK investor, Midland Resources Holding Ltd., which ceded its shares to Interenergo. Interenergo is an Inter RAO United Energy Systems (UES) subsidiary, in which UES controls a 60% stake and Rosenergo to the remaining 40%. The problem of securing payments for electricity delivered has since been eradicated. The Armenian Government has started the privatisation of power generating companies. At present, the majority have already been transferred into the ownership of private entities.

Although the renewable energy sources (RES) market in Armenia is progressing relatively slowly, it maintains "open door" policies for investments and projects. While biomass and waste have only marginal domestic importance as household fuel, the first wind power generator (2.6 MW capacity) was established in Armenia in 2005, and other wind power projects are currently active. A number of studies have provided evidence of a geothermal anomaly and potential for flowing heat media to be discovered within the Sunik volcanic highlands.

The Nuclear Power Plant (NPP) Metzamor produces 40% of Armenia's electric energy. In October 2003, INTER RAO EES assumed the financial management of the NPP Metzamor. In particular, Russian experts are now responsible for managing the cash flows of the power plant, while the plant itself remains in the ownership of the Republic of Armenia. According to the amendments to the *Law on Energy*, adopted in 2006, the private sector is also allowed to participate in new nuclear projects under state control.

A. OVERVIEW

1. Summary Information

General information regarding the Republic of Armenia is presented in Table 1.

Table 1: Key Information

| | |
|-----------------------|---|
| Official Name | Republic of Armenia |
| Head of State | President: Serzh Sargsyan (since 9 April 2008) |
| Head of Government | Prime Minister: Tigran Sargsyan (since 10 April 2008) |
| National Legislature | National Assembly |
| Capital | Yerevan |
| Major Cities | Gyumri, Vanadzor, Ejmiatsin, Abovyan, Hrazdan, Kapan |
| Total Land Area | 29,800 km ² |
| Population | 3.2 million |
| Labour Force | 56% |
| Literacy | 99% |
| Official Language | Armenian |
| Independence Declared | 1991 (21 September 1991 – National Holiday) |
| Religion | Christianity (adopted in 301 AD) |
| Currency | Dram (AMD) (issued in November 1993) |
| Time Zone | GMT + 4 |

2. Geography

The Republic of Armenia is a small landlocked country, located at the crossroads of Europe and Asia. Together with Georgia and Azerbaijan, Armenia is situated in the South Caucasus. The country occupies an area of 29,800 square kilometres (km²), of which 28,400 km² are land and 1,400 km² are water. Armenia shares borders with Turkey to the west, Georgia to the north, Azerbaijan to the east, Nakhichevan to the southwest, and Iran to the south.

The climate of Armenia is continental with the average temperature fluctuating between +18°C and +32°C in July-August (average 17.10°C) and between –130°C and +10°C in January (average -6.80°C).

The type of land is as follows: 37.2% mountains, 29.8% pasture, 21% arable land and 12% woodland.

Armenia has deposits of copper, iron, molybdenum, gold, lead, silver, clay, limestone, zinc, as well as semi-precious and ornamental stones. Armenia is also rich in natural mineral waters. There are hundreds of natural wells throughout the country, as well as 10 natural lakes, 5 canyons, and numerous springs and torrents. Armenia's rivers, especially the Hrazdan, provide considerable hydroelectric power. Lake Sevan is the world's largest highland fresh water lake (1,254 km²). It is located at 1,916 metres (m) above sea level. The country's highest peak is Mount Aragats (4,090 m).

3. Environmental Issues

Armenia's environment became severely polluted during the Soviet period due to the introduction of heavy industries (such as the rubber and chemical plant in Nairit).¹ In mid-1995, in attempts to offset a six-year energy crisis, the Armenian Government reactivated a nuclear power plant at Metsamor, which had closed in 1988 after a catastrophic earthquake in northern Armenia. The energy crisis of this period led to deforestation when citizens scavenged for firewood. The draining of Lake Sevan, as a result of its use for hydropower, seriously threatens drinking water supplies as the lake is the major source of fresh water in the Republic.

4. Population and Employment

Based on current official estimates, Armenia has a population of 3.2 million. The country is highly urbanised (64.1%) with an annual growth rate of 0.7%. Armenia was the most ethnically homogeneous country of the 15 ex-USSR republics. Currently, 95% of its population is ethnic Armenian. Russians are the second largest ethnic group (1.5%).

Armenia has a worldwide Diaspora comprising about 5 million Armenians. The largest Diaspora communities are in Russia, USA, France, Germany and Iran.

Armenian is the official language and is spoken by 99% of the population. Russian dominates as the second language. English is the third spoken language as a result of the country's integration into the world economy.

The majority of people are aged between 17 and 59 years (56%). The level of education is high, and continues to be one of the main values in Armenian society. Currently, there are about 99 higher educational establishments with more than 149,800 students, of which 22 are public higher educational establishments (73,700 students), 67 are private and 10 are state universities.

The working population age ranges are 16-62 years for males and 16-59 years for females.

The official unemployment rate decreased to 8.2% in 2005, as compared to 9.6% in 2004. It seems, however, that the unofficial rate of unemployment is higher. The combination of graduates and the unemployment rate means that there is a large supply of highly qualified people available in Armenia.

5. State Structure

According to the Constitution, which was adopted by national referendum on 5 July 1995 and subsequently amended by national referendum on 27 November 2005, Armenia is an independent and democratic country with a presidential form of government. The new constitution gave the President broad executive powers. The President is elected by popular vote for a five-year term and may serve no more than two consecutive terms. The Government of Armenia, which is headed by the Prime Minister, is the main executive body. The President, in consultation with parliamentary groups, appoints the Prime Minister supported by the majority of

¹ Armenia, Microsoft Encarta, 2007.

deputies. The President is also responsible for appointing members of the Government, as proposed by the Prime Minister. The National Assembly is the legislative body of the country (single-chambered with 131 seats of which the members serve four-year terms). The last parliamentary elections took place on 12 May 2007. The governing Republican party currently has the parliamentary majority.

The territory of the Republic of Armenia is divided into ten marzes (regions), plus the City of Yerevan: Aragats, Ararat, Armavir, Gegharkunik, Kotayk, Lori, Siunik, Shirak, Tavush, Vayots Dzor and Yerevan. These regions are headed by marzpets (governors).

The highest appeal instance is the Appeals Court, which ensures the uniformity of law enforcement in the country through its final review of cases. The Constitutional Court rules on whether the decrees and decisions adopted by the National Assembly, the President and the Government comply with the Constitution of Armenia.

Armenia's constitution guarantees a multiparty system. Since independence, Armenia has built a strong record of progress on democratic reform, which resulted in its accession to the Council of Europe in 2001.

At the presidential elections held on 19 February 2008, the leader of the ruling Republican Party of Armenia and former Prime Minister, Serzh Sargsyan, was elected President. Currently, a coalition government is in place, which includes representatives of the leading Republican Party of Armenia and two minor parties, Prosperous Armenia and Dashnaktsutyun. Both the Government and the parliamentary majority have a pro-reform agenda, which was confirmed in June 2003 with the adoption of the Government's Action Plan for 2003-2007.

There is a territorial dispute with Azerbaijan and the conflict has not yet been resolved. There are ongoing negotiations within the framework of the so-called Minsk Group, under the auspices of the Organisation for Security and Cooperation in Europe (OSCE). At present, there are no diplomatic relations between Armenia and Azerbaijan, as well as between Armenia and Turkey, which seriously influences the economies of these countries and the entire region.

6. Economic Situation²

a) Performance of the Economy

Under the former Soviet central planning system, Armenia developed an industrial sector, supplying machine tools, military electronics, chemicals, textiles, shoes, carpets, and other manufactured goods in exchange for raw materials and fuel. The specialised industrial roles assigned to Armenia in the Soviet system offered, however, little of value to the world markets from which the Republic had been protected until 1991. Furthermore, about 30% of the previously-existing industrial infrastructure was damaged or lost in the earthquake of 1988. Basic economic data for Armenia is shown below in Table 2.

² The economic data in this section entirely derives from the National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia 2006, <http://www.armstat.am/StatData/> (last accessed on 21 January 2007).

Table 2: Basic Economic Data for Armenia

| | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|--------|--------|--------|--------|--------|
| Real GDP Growth (%) | 9.6 | 13.2 | 13.9 | 10.5 | 14 |
| Inflation Rate (% average) | 3.1 | 1.1 | 3.0 | 3.5 | 0.6 |
| Total FDI (USD millions) | 69.9 | 110.7 | 120.8 | 218.8 | 258.2 |
| Balance of Payments (USD millions) | | | | | |
| Current Account | -200.5 | -148.0 | -189.4 | -161.6 | -193.3 |
| Capital Account | 197.3 | 68.0 | 89.9 | 34.3 | 50.9 |
| Trade Balance (USD millions) | -408.1 | -483.8 | -432.3 | -450.2 | -582.2 |
| External Debt (USD millions) | 905.4 | 1025.1 | 1097.7 | 1182.9 | 1099.0 |
| External Debt (% GDP) | 42.7 | 44.2 | 39.1 | 33.0 | 22.4 |
| Unemployment Rate (% of labour force) | 10.3 | 9.4 | 8.5 | 9.6 | 8.2 |
| Exchange Rate (AMD/USD annual average) | 555.1 | 573.3 | 578.8 | 533.5 | 475.7 |

Source: National Statistical Service of the Republic of Armenia, *Statistical Yearbook of Armenia, 2006*

The steady economic progress afterwards has earned Armenia increasing support from international institutions. The International Monetary Fund (IMF), World Bank (WB), European Bank for Reconstruction and Development (EBRD), Asian Development Bank (ADB), as well as other international institutions and foreign countries are extending considerable grants and loans to the Republic.³ The Government has developed economic and fiscal policies, and a poverty-reduction strategy, in cooperation with the WB and IMF. Extreme poverty fell from 27.7% to 7.2% over the period 1996-2004.⁴ Pressure from tax authorities and the introduction of a 1% gross-receipts tax have increased tax collections, however, government spending on wages and social benefits has also risen.⁵ Nevertheless, the Government's intervention in the economy is gradually decreasing. The unemployment rate fell from 10.3% in 2001 to 8.2% in 2005.

Armenia joined the World Trade Organisation (WTO) in January 2003. Accordingly, Armenia has committed to liberalising the regulatory framework of a number of industries: business services, communications, education, financial services, health and social services, and air transport services.⁶

Armenia has succeeded in substantially decreasing inflation, stabilising its currency, privatising most of the small- and medium-sized enterprises, and introducing some improvements to tax and custom administration.

The performance of the banking sector is also improving: the currency is stabilising against the US dollar; the sector is becoming profitable; regulations are becoming

³ Background Note: Armenia, Bureau of European and Eurasian Affairs, US Department of State, December 2006.

⁴ Asian Development Outlook 2006: Armenia, Asian Development Bank.

⁵ The 2006 Index of Economic Freedom, The Heritage Foundation and Wall Street Journal, <http://www.heritage.org/index/> (last accessed on 7 February 2007).

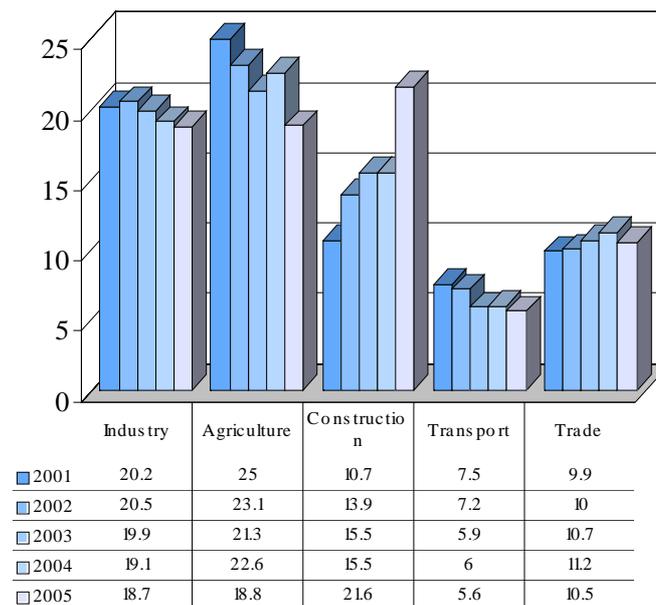
⁶ Ministry of Trade and Economic Development, Republic of Armenia.

more efficient; all banks adhere to internationally-accepted accounting standards; and minimum capital requirements are increasing.⁷

Continuation of the overall progress will depend on the ability of the Government to strengthen its macroeconomic management, including: increasing revenue collection; improving the investment climate; reducing the influence of the executive on the judiciary; ensuring debt sustainability; and taking action against corruption. Notably, the unemployment rate remains high, despite the strong economic growth.

During 2001-2005, the average annual growth of GDP was 12.1% as compared to 5.1% for 1996-2000. This double-digit growth confirms a trend towards stable economic development. In the more recent reporting period, the structure of GDP has changed (refer to Figure 1 and Figure 2). Construction grew to 21.6% in 2005 compared to 10.7% in 2001, whereas in the trade sector, transport and communication growth slackened. Agricultural output grew to 18.8% due to improved market access, favourable weather conditions and better quality production. Another sector which experienced a substantial increase is industry, which grew to 18.7% in 2005, although it should be noted that this figure decreased compared to the previous reporting period. The apparent growth is attributable to the power sector, machine building and metallurgy, which outweighed the poor performance in mining and agri-processing.⁸

Figure 1: Structure of GDP in 2001-2005



Source: National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia, 2006

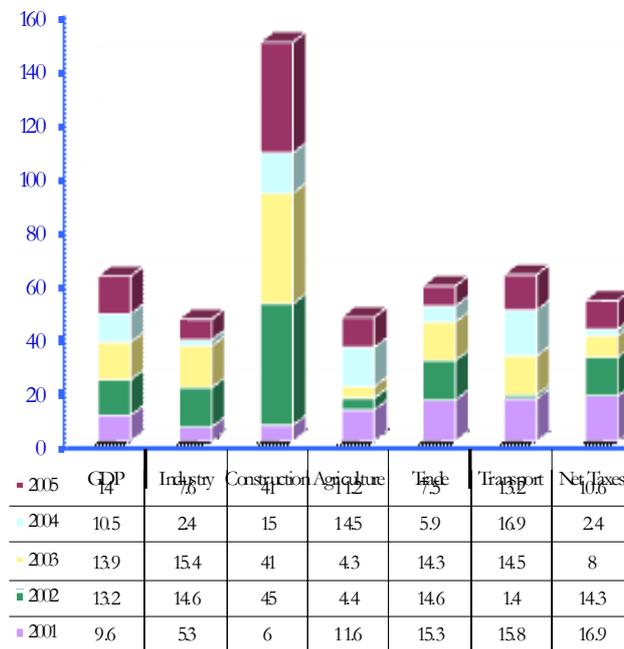
Region-wise, most industrial commodities are produced in the city of Yerevan – 47.3% of the total, which represents an increase of 2.1% compared to 2004.⁹ The city’s industrial growth was preceded by the decline of traditional industrial centres, such as Shirak, Lori, Tavush, Vayots Dzor and Aragatsoth. There is a distinct difference in the level of industrial development, and the overall social and economic conditions of the population between Yerevan city and the other merz.

⁷ Economist Intelligence Unit, Country Report: Armenia.

⁸ Ministry of Trade and Economic Development, Republic of Armenia.

⁹ Ibid.

**Figure 2: Annual Growth of Individual Sectors
(% with respect to previous year)**



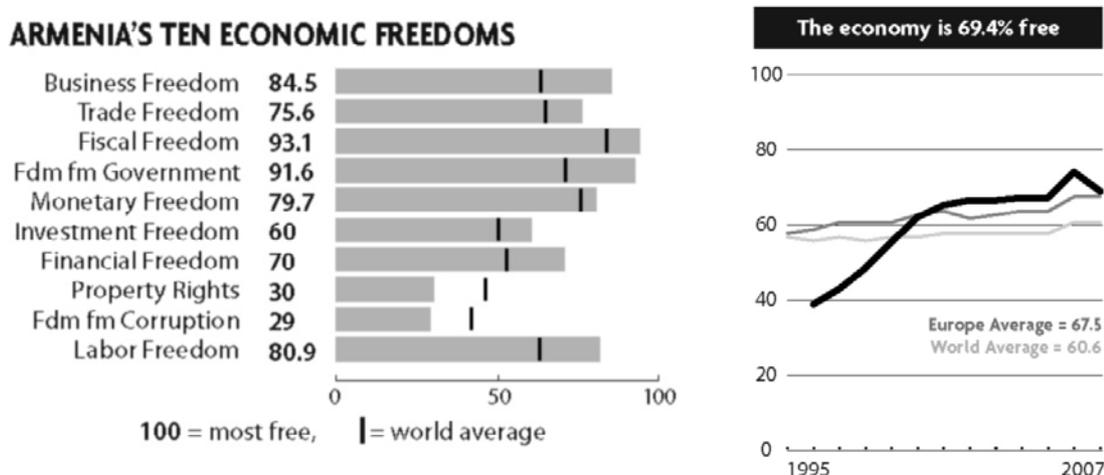
Source: National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia, 2006

According to the “Index of Economic Freedom”, an annual survey conducted by the Heritage Foundation and Wall Street Journal, Armenia’s economy is 69.4% free (2007 assessment, refer to Figure 3), which makes it the world’s 32nd freest economy. Armenia is ranked 19th freest among the 41 countries in the European region. Armenia’s score puts it above Europe’s average, which is an impressive result for an impoverished landlocked country. The survey states:

“Armenia rates highly in many areas, such as fiscal freedom, freedom from government, monetary freedom, financial freedom, business freedom, and labour freedom. Low tax rates, low government expenditure, and low revenue from state-owned businesses contribute to its impressive fiscal and government freedom rankings. Armenia has low inflation, and its banking sector is both wholly private and well regulated. Commercial regulations are flexible and relatively simple. There are few restrictions on foreign investment, except for land ownership. Armenia could still make some improvement in property rights and freedom from corruption. The judiciary is fairly weak and subject to political interference. For a post-Soviet country, however, Armenia shows an impressive amount of freedom.”¹⁰

¹⁰ <http://www.heritage.org/research/features/index/country.cfm?id=Armenia> (last accessed on 31 January 2007).

Figure 3: Index of Economic Freedom



Source: *Index of Economic Freedom* <http://www.heritage.org/>

b) Economic Outlook¹¹

The overall economic outlook is positive. The growth momentum built up in recent years continued in 2006-2007. Per capita GDP will continue rising, given a fairly stable population of about 3.2 million. Per capita income has a stable tendency to grow. Strong growth in government consumption and investment, as the authorities increase both social and capital spending, will provide a favourable outlook for domestic demand. In keeping with the 19.5% increase in AMD-denominated average monthly nominal wages in 2005-2007, further wage rises, along with continued strong inflows of workers' remittances, should support private consumption and domestic demand.

An escalation in the cost of imported energy is expected to put pressure on inflation. Given the appreciation of the domestic currency and official efforts to encourage its use rather than foreign currency, the authorities will require both vigilance and flexibility when setting monetary policy if target inflation is to be achieved. Although not predicted, any further appreciation of the AMD against the US dollar (USD) would help subdue the inflationary impacts of higher oil prices.

The Government has programmed a budget deficit of 2.9% of GDP in 2006 and 2007 to accommodate a sharp rise in spending on social programmes and infrastructure, in line with the targets in the Poverty Reduction Strategy Paper. The 2006 state budget increased spending on infrastructure, health, education, and social protection in addition to granting a higher allocation to public sector salaries and pensions. To keep the fiscal deficit within target, revenue collection will need to strengthen considerably, based on improvements in tax compliance and administration, and tax and customs reform.

If the trends of the last few years are maintained, increases in net income from abroad and foreign transfers are expected to offset the growth in the trade deficit and contain the current account deficit to a little over 4% of GDP in the medium term. The medium-term growth outlook is broadly favourable on the basis of further improvements in infrastructure and governance institutions. Prospects, however,

¹¹ Data from Asian Development Outlook 2006: Armenia, Asian Development Bank, <http://www.adb.org/Documents/Books/ADO/2006/arm.asp> (last accessed on 31 January 2007).

would be significantly better if agreements to resolve the disputes with certain neighbouring countries were to be concluded and the borders were to be opened, which would provide more opportunities for a significant growth in trade, investment and the economy at large.

Armenia's reliance on a narrow range of exports is a risk to growth because of its vulnerability to a slump in global prices for these commodities. A large volume of food imports and a limited manufacturing base are other key weaknesses. There is also a potential risk of considerably higher imported gas prices if subsidies are discontinued, which would push inflation up and drag growth down. Moreover, the country remains vulnerable to devastating natural disasters such as the 1988 Spitak earthquake, which continues to have an economic impact.

c) Trade

Armenia has a very liberal trade regime. In February 2003, it formally acceded to the WTO. Even so, trade suffers from significant behind-the-border barriers. These include:¹²

- (i) Administrative barriers that delay shipments, such as border procedures involving tax documents and signatures for border clearance, and customs and cargo inspections;
- (ii) Technical barriers to compliance with the WTO *Code of Good Practice*, such as harmonised technical regulations, international standardisation processes and infrastructure, and changes to bilateral agreements (mostly within the Commonwealth of Independent States); and
- (iii) Physical barriers such as inadequate inland transport and trade infrastructure, including roads, and border and warehousing facilities. In fact, poor roads and other infrastructure account for only a small part of the delay in taking goods from the factory gate to the border. The rest is explained by the administrative and technical hurdles. Recent studies have shown that regional integration of the economy, which would entail removing such barriers, improve trade relations and transport networks, could increase the country's trade by 30-50% and its GDP by 30%.

In 2005, as a result of the implementation of foreign trade policy aimed at maintaining higher growth rates in exports rather than imports, diversification of exports, and establishment of new economic relations, Armenia's external commodity turnover in the current prices was USD2,718.3 million, which represented 31.1% growth compared to 2004. During this period, Armenia's exports grew by 31.5% to USD950.4 million and imports grew by 30.9% to USD1,767.9 million. Despite unfavourable market conditions, it was possible to maintain the trend of the export growth marginally exceeding the import growth.

The external current account deficit reduced significantly, based on strong export growth and subdued import demand. Nevertheless, Armenia's balance of payment situation remained vulnerable, and measures to promote export and encourage domestic savings are needed. At the end of 2005, the public external debt amounted to around USD1,099 million, which equated to 22.4% of GDP. Notwithstanding,

¹² Data from Asian Development Outlook 2006: Armenia, Asian Development Bank, <http://www.adb.org/Documents/Books/ADO/2006/arm.asp> (last accessed on 31 January 2007).

Armenia's external debt situation appears less precarious than that of a number of other Central Asian countries.

In 2005, although the balance of trade remained negative at a value of USD817.6 billion, the result increased by USD189.7 billion relative to the previous year. Similarly, the balance of trade to GDP ratio improved, calculated at 16.8% versus 17.8% in the previous year.

The proportion of Armenia's total exports destined for countries in the Commonwealth of Independent States (CIS) was 18.9% in 2005 (as opposed to 17.3% in 2004) and valued at USD179.7 million resulting in growth of 43.7%. The corresponding proportion of total exports to European Union (EU) countries was 46.6% (as opposed to 35.3% in 2004), valued at USD442.6 million which indicated growth of 73.4%.¹³ Armenia's main export partners and their relative rankings for the period 2002-2005 are presented in Table 3. Figure 4 shows a graphical representation of Armenia's main export partners.

Table 3: Main Export Partners (% of total exports)

| | 2002 | | 2003 | | 2004 | | 2005 | |
|-------------|------|-------|------|-------|------|-------|------|-------|
| | % | Rank* | % | Rank* | % | Rank* | % | Rank* |
| Belgium | 18 | 1 | 18 | 2 | 15 | 1 | 13 | 3 |
| Georgia | 3 | 14 | 3 | 11 | 4 | 8 | 5 | 7 |
| Germany | 5 | 7 | 7 | 5 | 12 | 3 | 16 | 1 |
| Iran | 6 | 6 | 3 | 8 | 4 | 7 | 3 | 10 |
| Israel | 17 | 2 | 21 | 1 | 14 | 2 | 12 | 5 |
| Russia | 13 | 3 | 14 | 3 | 11 | 4 | 12 | 5 |
| Switzerland | 2 | 13 | 5 | 7 | 6 | 6 | 4 | 9 |
| US | 9 | 5 | 8 | 4 | 10 | 5 | 6 | 6 |

Note: * Ranking of trade partner by share of total exports.

Source: National Statistical Service of the Republic of Armenia, *Statistical Yearbook of Armenia, 2006*

Conversely, the proportion of Armenia's total imported product which originated from CIS countries in 2005 was 28.9% (valued at USD510.6 million) compared to 28.6% in 2004, representing an increase of 32.0%. For the same reporting period, 28.5% of Armenia's total imports in 2005 were sourced from EU countries (valued at USD503.6 million) versus 25.4% in the previous year, equating to 46.6% growth. Armenia's main import partners and their relative rankings for the period 2002-2005 are presented in Table 4. Figure 4 shows a graphical representation of Armenia's main import partners.

¹³ Ministry of Trade and Economic Development, Republic of Armenia
http://www.minted.am/en/for_consumers/132.pdf as of 31 January 2007.

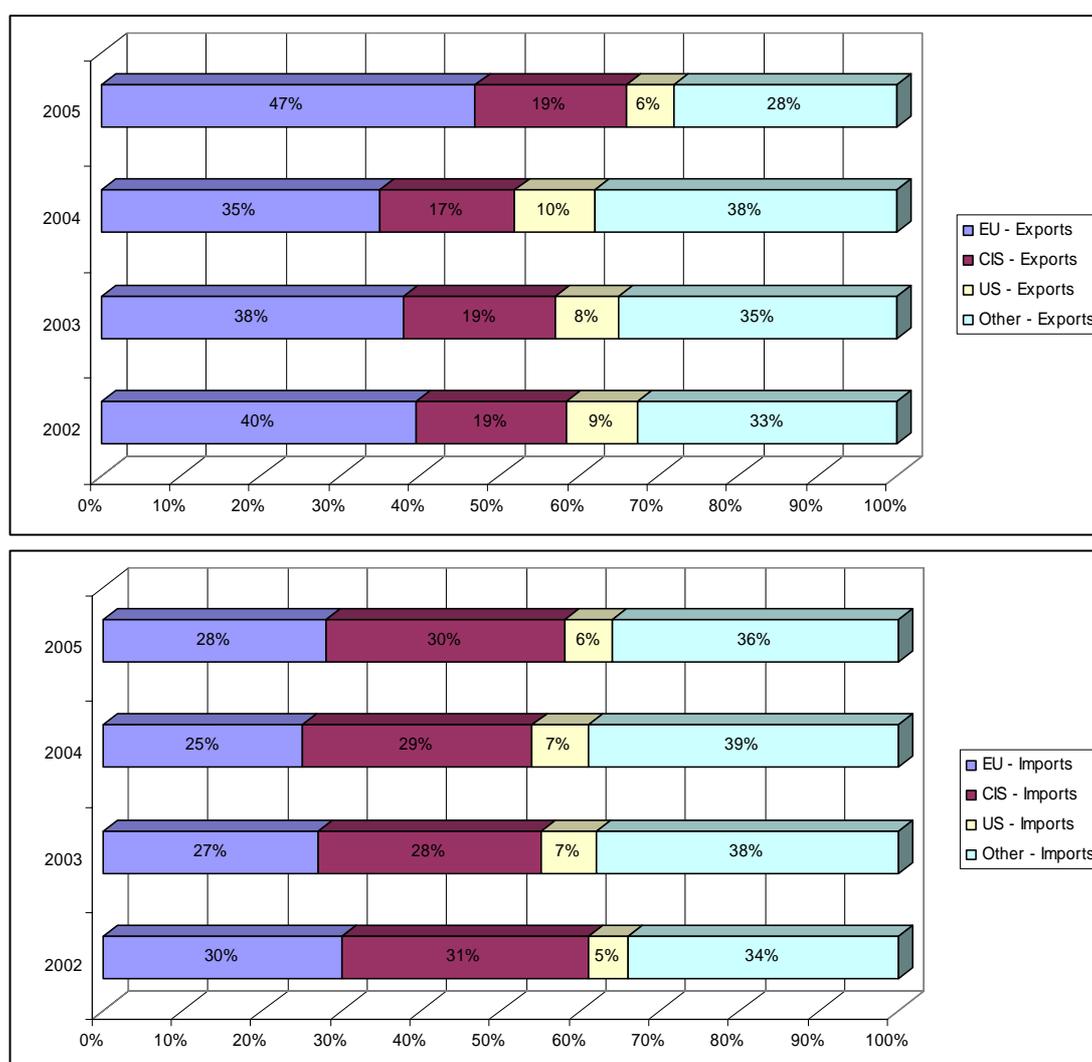
Table 4: Main Import Partners (% of total imports)

| | 2002 | | 2003 | | 2004 | | 2005 | |
|-------------|------|-------|------|-------|------|-------|------|-------|
| | % | Rank* | % | Rank* | % | Rank* | % | Rank* |
| Belgium | 9 | 2 | 10 | 2 | 8 | 3 | 8 | 2 |
| Georgia | 3 | 12 | 1 | 22 | 1 | 20 | 1 | 20 |
| Germany | 4 | 9 | 5 | 6 | 6 | 7 | 8 | 3 |
| Iran | 6 | 4 | 4 | 8 | 5 | 8 | 5 | 8 |
| Israel | 8 | 3 | 10 | 3 | 7 | 4 | 6 | 7 |
| Russia | 20 | 1 | 14 | 1 | 12 | 1 | 14 | 1 |
| Switzerland | 1 | 19 | 3 | 12 | 4 | 9 | 3 | 14 |
| US | 5 | 5 | 7 | 5 | 7 | 5 | 6 | 6 |

Note: * Ranking of trade partner by share of total imports.

Source: National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia, 2006

Figure 4: Main Trading Partners



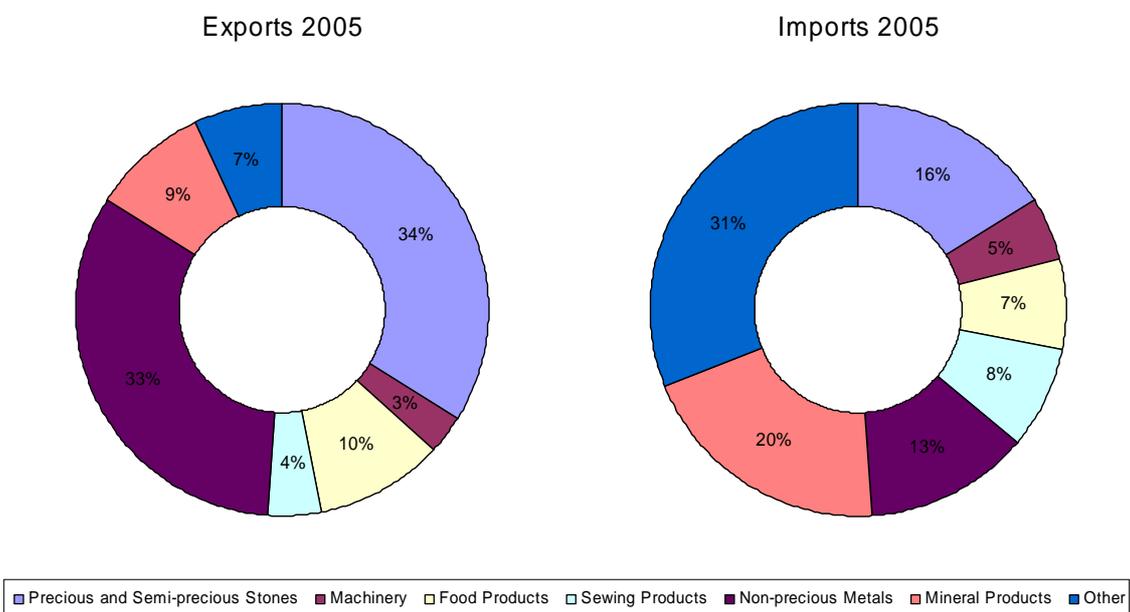
Source: National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia, 2006

In 2005, Armenia's exports of major commodities (refer to Figure 5) increased relative to 2004 as follows: precious and semi-precious stones, precious metals and by-products – 34% of total exports (growth of 112.4%); non-precious metals and by-products – 33% of total exports (growth of 230%); processed foodstuffs – 10% of total exports (growth of 139.7%); and mineral and raw material production – 9% of total exports (growth of 79.3%). It is important to note the significant growth which occurred in the non-precious metals and by-products sector (170%) compared to 2004. At the same time, the share of textile products and other commodity groups went down, as well as the share of precious and semi-precious stones, precious metals and by-products, and mineral and raw material products.

The cover factor (ratio of exports to imports) as well as standardised trade balance (ratio of trade balance to external commodity turnover), were 0.54 and 0.3, respectively, and remained consistent with 2004 levels.¹⁴

Relative to 2004, no significant changes occurred in the imports market in 2005. Levels of importation of the following major goods and services remained high (refer to Figure 5): precious and semi-precious stones precious metals and by-products – 16% of total imports (increase of 119.2%); mineral and raw material products – 20% of total imports (increase of 140.9%); machinery and equipment – 5% of total imports (increase of 167.5%); processed food – 7% of total imports (increase of 128.1%); transport services – 8.2% of total imports (increase of 157.7%); chemicals and related products – 6.5% of total imports (increase of 135.2%); and non- precious metals and by-products – 13% of total imports (increase of 150.8%).

Figure 5: Main Export and Import Products in Armenia for 2005



Source: National Statistical Service of the Republic of Armenia, Statistical Yearbook of Armenia, 2006

Armenia has a liberal foreign trade regime, which consists of a simple two-band import tariff (at 0% and 10%), no taxes on exports and no quantitative trade

¹⁴ Ministry of Trade and Economic Development, Republic of Armenia http://www.minted.am/en/for_consumers/132.pdf as of 31 January 2007.

restrictions. Import, export, and domestic production licences are required only for health, security and environmental reasons. There are no limits on hard currency imports and exports.

The *Customs Code*, in force since 1 January 2001, streamlines customs procedures and complies with WTO rules. The main features of the customs regulations are:

- (i) All exports from Armenia are duty free;
- (ii) The import tariff rates are 0 or 10%. The 10% tariff is levied mainly on consumer and luxury goods;
- (iii) Tariffs are in ad valorem terms and levied on CIF values;
- (iv) Armenia uses the Harmonised Code System for tariff classification;
- (v) No import customs duties are payable in the following circumstances:
 - a) Imported capital goods (included in the list defined by the Government of Armenia) forming a part of an investment in a business;
 - b) Transit goods transported across the territory of Armenia;
 - c) The means of transport (e.g. truck) used for regular interstate transport of freight;
 - d) Currency and stocks; and
 - e) Goods temporarily imported into Armenia and temporarily exported from Armenia for the purpose of processing or reprocessing.
- (vi) All payments must be made in Armenian currency.

d) Privatisation

By July 2003, the Government had privatised 7,178 small-scale and 1,789 medium and large-scale enterprises. Small-scale privatisation began in May 1991, which was followed by large-scale privatisation as of 1995. Almost 95% of medium and small enterprises had been privatised by May 2002. More than 100 large-size enterprises were also privatised. The Government likewise liquidated a number of medium and large-scale enterprises. As a result, almost all state enterprises have been privatised. Accordingly, the share of the private sector in GDP had increased to approximately 75% in 2002. In recent years the privatisation process has slowed down, mainly because remaining assets are less attractive and strategic investors are limited. The current privatisation programme covers nearly all remaining state-owned enterprises.

In 2002, Armenia's power distribution company was sold to British Midland Holding Ltd. (an off-shore company registered in England) after two unsuccessful attempts. In 2005, the company sold shares to Interenergo – an affiliate company of Inter RAO EES.

The privatisation programme set as its priorities the following:

- (i) Increase the operational efficiency of power distribution companies and transfer the retail power trade and collection business into private ownership;
- (ii) Secure real cash flow into other companies active on the wholesale power and capacity market and thus make power generation companies attractive to investors; and
- (iii) Facilitate large investments in building power generation capacities, in line with the development of the country's economy and integration into regional power markets.

The Government also entered into a 30-year concession agreement with an Argentinean investor in 2002 for the operation of the Yerevan international airport. In 2003, in an encouraging move by the Government, the unprofitable state-owned airline carrier was swiftly liquidated and its assets sold to two private operators. Little interest was shown from Western strategic sponsors, however, most firms have been sold to insiders, investors from the CIS or entrepreneurs linked to the Diaspora. The proportion of privatised companies by sector is presented in Table 5.

**Table 5: Privatised Companies by Sector
(as of 1 January 2003)**

| | | |
|------------------------------|-----|-----|
| Trade and Industry | 598 | 34% |
| Agriculture | 467 | 27% |
| Urban Construction | 252 | 15% |
| Transport and Communications | 83 | 5% |
| Energy | 33 | 2% |
| Others | 303 | 17% |

Source: Ministry of State Property Management

Details of the legislative framework for privatisation are presented in the following sections.

e) FDI Policy

With an economy heavily dependent on foreign trade, the Armenian Government is strongly outward-oriented and makes every effort to attract foreign investment. Foreign companies are welcome to invest in any sector and are entitled to no less favourable treatment than domestic enterprises (principle of national treatment).

Foreign investors may invest through the establishment of wholly foreign-owned companies, affiliates, branches, and joint ventures with local partners, or through the purchase of existing enterprises and/or a portion of the shares of existing entities. The exploitation of natural resources with state-owned enterprises is authorised, provided concession agreements are signed. Prior to operating a business, it must be registered with the local division of the State Register. Incentives are provided. In particular, duty-free imports of capital goods that contribute to the capital base of a foreign investment enterprise, as well as free entry of imported items for meeting production needs, are authorised. The 1997 *Law on Privatisation* provides foreign investors with the same rights to participate in the privatisation process in Armenia as local investors.

The Government has expressed its long-term commitment to attracting foreign direct investment (FDI) in order to generate and sustain economic growth, and ensure reduction of poverty. In this regard, the Government encourages foreign investment as a means of developing new industrial activities and to modernise existing enterprises. Another priority of economic development in the medium-term is industry diversification, with a higher degree of value-added and finished production in manufacturing. Large-scale privatisation offers additional opportunities, as demonstrated by the example below.¹⁵

¹⁵ http://www.armeniapedia.org/index.php?title=Lincy_Foundation, as of 1 February 2007.

The Lincy Foundation

The Lincy Foundation's contribution to Armenia is one of the most remarkable developments in the country's investment history. It demonstrates the significant role the Diaspora plays in the economy of Armenia.

Founded by Mr. Kirk Kerkorian, the Lincy Foundation, as of early 2007, had committed to USD232 million of funding for two major programmes, of which the second commenced in 2006.

The first of the Lincy Foundation's contributions to Armenia comprised:

I. A USD151 million grant to implement the following construction projects:

Road Renovation Project: USD73 million for reconstruction of 275 miles of highway, 2 tunnels and 5 bridges;

Yerevan Streets Renovation Project: USD15 million for the renovation of 12 main streets in Yerevan;

Housing Project: USD45 million for the construction and repair of 4,000 apartment units in the earthquake zone; and

Cultural Revitalisation Project: USD18 million for the renovation of 40 cultural institutions, including various museums and theatres throughout Armenia.

II. Small and medium enterprise (SME) development Credit Line: USD21 million.

The second Lincy Foundation programme envisaged an investment of USD60 million in the Armenian economy – road construction, improvement of Yerevan and school renovations. USD20 million was to be dedicated to each objective. In conjunction with the construction and repair of numerous roads, the programme framework was to comprise the renovation of 18 schools, of which 13 were located in Yerevan, including: installation of new heating systems; provision of adequate gym facilities; and improvements to seismic safety.

150 S. Rodeo Dr.,
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CA90212

Employer Identification Number (EIN): 954238697

The United Nations Conference on Trade and Development (UNCTAD) Inward FDI Performance Index¹⁶ by host economy for the period 2003–2005 placed Armenia among the top 30 countries having the fastest growth in FDI performance. This index is calculated in order to benchmark success in attracting FDI; it is the ratio of a country's share in global FDI flows to its share in global GDP. As a result of investment liberalisation, Armenia was ranked 22 in the previous period (2002-2004). Due to the considerable improvement in its position, Armenia has moved from a group of countries classified as "Under Performance" economies to the group of "Above Potential" economies, represented by such countries as Azerbaijan, China, Estonia, Iceland, and Bulgaria.

In 2005, total foreign investments reached USD400.4 million, 31% more than in 2004. In 2006, foreign investments totalled USD444.1 million, which is 10.9% more than in 2005. From 1 January to 1 July 2007 foreign investments totalled USD245 million. For the period of 2001-2006, essential structural changes have been

¹⁶ <http://www.unctad.org/Templates/Page.asp?intItemID=2468&lang=1>, as of 31 January 2007.

observed within the FDI value itself. With privatisation mostly complete, FDI became more important with regard to the establishment of small and medium-sized companies, as well as reinvestment.

Russian and American companies are the main investors in the country. The third largest foreign investor in the Armenian economy is Lebanon followed by Greece, Germany, France, Canada, and Argentina (refer to Table 6). FDI inflows are mostly linked to privatisation.

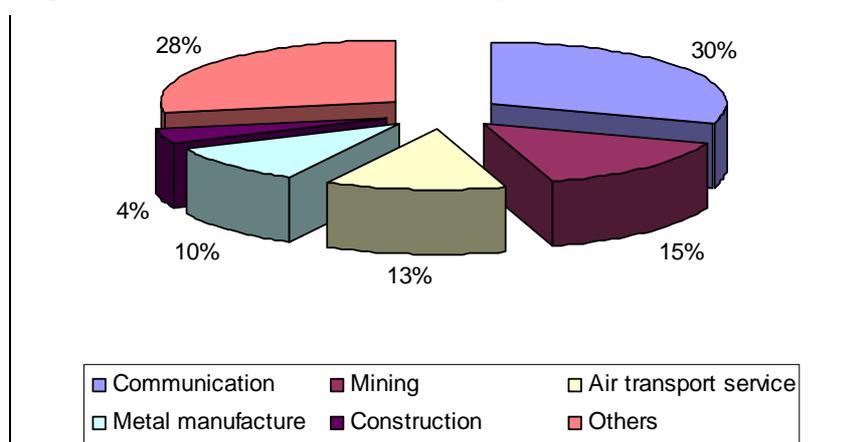
Table 6: FDI Inflows into Armenia by Country (USD million)

| | <i>Country</i> | <i>1991-2007 (I HY)</i> |
|----|----------------|-------------------------|
| 1 | Russia | 887.6 |
| 2 | USA | 247.3 |
| 3 | Lebanon | 220.0 |
| 4 | Greece | 214.0 |
| 5 | Germany | 190.2 |
| 6 | France | 183.7 |
| 7 | Canada | 155.1 |
| 8 | Argentina | 138.4 |
| 9 | UK | 83.8 |
| 10 | Cyprus | 63.4 |

Source: Ministry of Economy and Trade, Armenia

Since 1991, the number of companies with foreign capital participation has increased. According to official statistics, 3,347 companies with foreign capital have been established between 1991 and 1 January 2007 – most of them in recent years. In 1991-1997, the majority of joint ventures and private foreign companies were primarily involved in import-export trade, but since 1998 there is a trend towards investing in local production and services (refer to Figure 6 and Table 7).

Figure 6: FDI Flows in 2006 by Major Sectors of the Economy



Communications:
USD135.0 million

Air Transport Services:
USD55.6 million

Mining:
USD66.0 million

Construction:
USD17.1 million

Metal Processing/Engineering:
USD45.2 million

Other:
USD125.2 million

The energy sector is one of the key economic area in which substantial foreign investment takes place. However, measured in absolute terms, the amount of invested capital remains very modest. This reflects the small size of Armenia, and the difficulties that landlocked countries in general face in attracting foreign investors.

Table 7: Major Foreign Investors in the Republic of Armenia

| Investor | Country of Origin | Type of Business |
|------------------------------|--------------------------|--------------------------------|
| Vympelcom | Russia | Telecommunication |
| Pernod Ricard | France | Beverages |
| Chronimet Mining | Germany | Mining |
| Corporation America | Argentina | Armenia International Airports |
| Fatush Group Holding | Lebanon | Communication |
| Gazprom | Russia | Gas supply |
| Rusky Alyuminy (Rusal) | Russia | Metallurgy |
| K & K | UK | Production |
| RENCO Spa | Italy | Hotels |
| BGI/Castel Group | France | Alcoholic beverages |
| Franck Muller Watchland S.A. | Switzerland | Watches |
| Metal Prince LTD | UK | Mining |
| Synopsis | USA | IT |
| EpygiLabs | USA | IT |
| Lycos | USA | IT |

Multinational Companies Operating In Armenia

Aeroflot, Austrian Airlines, Air France, Acba Credit Agricole, Alcatel, Amyot Exco (Member of Grant Thornton Int.), BGI/Castel, Group, Bristol Myers Squibb, British Airways, Caritas, Comsup, Coca-Cola, Corporation America, Cronimet, Dundee Precious Metals, Ferfano Corporation, Franck Muller Watchland S.A., Gazprom, Glaxowellcome, Glaxosmithkline, Glencore, Grant Thornton Int., Golden Tulip, Hsbc, Huntsman, Intercontinental, Italtel, Kpmg, Lycos, Lufthansa, Macmillan, Marriott International, Microsoft, Pernod Ricard, Rusky Alyuminy (Rusal), Synopsys, Vympelcom.

The *Law on Foreign Investment*, adopted in July 1994, regulates foreign investment in Armenia. Foreign companies are encouraged to invest, and are entitled by law to the same treatment as local companies. In addition, they receive certain advantages and guarantees, including the following:

- (i) Foreign investors are protected against changes in business-related laws for five years. The *Law on Foreign Investments* stipulates that in case of changes in the legislation of Armenia regulating foreign investments, the laws in force at the time when the investment is made shall be applied for a five-year period, upon the request of a foreign investor. Further details concerning the *Law on Foreign Investment* are provided in Section B.3.a of the Law;
- (ii) Companies with foreign investments of over AMD500 million (about USD855,000) enjoy a corporate tax holiday for two years after making an

- investment (for details refer to Section B.1.h). Additionally, there are some special tax incentives in the Gyumri Region;
- (iii) Foreign investors can make investments in Armenia through the establishment of fully foreign-owned companies (including representations, affiliates, and branches), the purchase of existing companies and securities, or the establishment of joint ventures. The company registration process takes about a week. There are also incentives for exporters – no export duty and a value-added tax (VAT) refund on goods and services exported;
 - (iv) There are no limitations on the volume and type of foreign ownership, the number of foreign employees and access to financial sources. Although foreigners may not own land, a company registered by a foreigner as an Armenian business entity does have the right to buy land. Foreigners may obtain permission to use land under long-term lease contracts;
 - (v) All forms of property and civil rights to own and use property are protected under the Constitution. The Law on Property Registration regulates issues relating to registration of property rights;
 - (vi) Foreign investments in Armenia may be nationalised or confiscated only as an extreme measure in the case of an emergency declared in accordance with the legislation of the Republic of Armenia (for further details refer to Section B.3.a of the Law);
 - (vii) There are no restrictions on conversion or repatriation of capital and earnings, including branch profits, dividends, interest, royalties, or management/technical service fees. Cash exports are limited to USD10,000 or its equivalent. There are no limitations on wire transfers. Funds may be converted and transferred through all domestic banks (see also Chapter III.1.d of the Law); and
 - (viii) Commercial disputes may be settled either in independent state courts or through alternative dispute resolution mechanisms. This includes international arbitration tribunals, provided that this has been agreed upon in international investment agreements to which Armenia is a party. Armenia is also a member of the International Centre for Settlement of Investment Disputes.

To provide an effective mechanism to monitor improvement in the investment climate, a Business Support Council (BSC) was established by a Presidential Decree in early 2001. The Armenian Development Agency was appointed as the secretariat to act as an intermediary for the business community. Chaired by the Prime Minister, the evenly balanced private/state membership (the Chief Economic Adviser to the President, the Ministers of Trade and Economic Development, Finance and Economy, the Mayor of Yerevan, the Executive Director of ADA – as the executive secretary of the Council, and six representatives from the business community on a rotation basis), represents a powerful and influential vehicle to improve the business and investment environment and eliminate administrative barriers to investment.

The following is a listing of some main functions of the Business Support Council (BSC):

- (i) Assessment of particular complaints and recommendations submitted by individual entrepreneurs and groups of entrepreneurs to BSC for its consideration. Before taking such submissions into consideration, the BSC conducts, via mediation by ADA's Secretariat, consultations with the relevant government offices and leading experts in the field. After completing the consultation process, the relevant proposals and recommendations are submitted to the Presidium of the BSC at one of its meetings. Over the last two years, the

BSC has reviewed and developed recommendations on several dozens of issues, including changes in the tax legislation of the Republic of Armenia, simplification of VAT reimbursement procedures for exporters, simplification of the licensing of some types of activities, etc.;

- (ii) Prior to their consideration by the Government of the Republic of Armenia, all draft laws that may have direct or indirect impact on entrepreneurial activities, must undergo a mandatory expert assessment at the BSC. This procedure is very important in preventing the adoption of laws that may negatively impact the conduct of entrepreneurial activity; and
- (iii) The BSC acts as a coordination council on major projects implemented jointly with international organisations that aim to study the business climate in the country, and, to that end, develop relevant recommendations.

The Armenian Development Agency (ADA)

ADA was established in April 1998 by the Government of Armenia to facilitate foreign direct investment and promote exports. ADA acts as a “one-stop shop” agency for investors, assisting them in setting up their business in the country, helping with project implementation, performing a liaison role with the Government, providing information on investment opportunities in the country, as well as investment related regulations and laws.

Today, Armenia is particularly strong in several industrial sectors. The sectors with the most potential are: information technology; electronics; chemistry and pharmaceuticals; biotechnology; textiles; and food processing.

In the field of export promotion ADA helps to find export markets for products, undertakes market studies and seeks out partners for joint ventures aimed at increasing the volume of exports and developing new products.

Additionally, ADA provides aftercare services to existing investors and uses the Business Support Council (BSC) headed by the Prime Minister where ADA acts as a secretariat. The main goals of the BSC are to improve the business and investment environment, and to eliminate administrative barriers to investment.

ADA offers all of the abovementioned services to investors and exporters free of charge.

Information material concerning the investment climate in Armenia, tax and customs legislation, etc., is available from ADA as well as from Armenian Embassies.

Armenian Development Agency

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f) General Energy Policy of Armenia

Energy security and energy independence represent two important elements of the national security strategy of Armenia. Hence, the development of the energy sector has always been an issue of primary importance within the Government’s agenda of economic reform. Evidence shows that the energy sector of Armenia is fully operational and cost-effective. A substantial part of foreign investment relates to projects on rehabilitation and development in the gas and electricity sectors. The Government of Armenia considers the country’s energy sector as a driving force in restoring the entire national economy.

Armenia is almost completely dependent on imported energy. It does not have any oil wells, gas wells or refineries. There is also no coal production. Domestically produced primary energy is electricity generated by a nuclear power plant, two thermoelectric power plants, and numerous large and small hydroelectric power plants. To diversify its fuel supplies, Armenia has attempted to implement pipeline projects that would obtain natural gas from Iran.

The components of the energy sector comprise the electricity (power) system, the heat supply systems, and the gas supply system. It consists of commercial entities (regardless of the type of their ownership), and necessary facilities providing market services in the energy sector. This covers community services, including the production of electricity and heat (including cogeneration), transmission (transportation) and distribution of electricity and heat and natural gas, system operator services in the power and natural gas sectors, the construction of new or the rehabilitation of existing production facilities in the power and heat sectors, as well as the construction of transmission (transportation) and distribution nets in the power, heat and natural gas sectors.

The main principles of the Government's policy in the energy sector are:

- (i) Establishment of preconditions needed for the development of a competitive environment in the energy sector, and efficient activities;
- (ii) Regulation of activities;
- (iii) Unbundling of business activities, government management and regulation;
- (iv) Protection of the rights of consumers and business entities and finding a balance of their interests;
- (v) Efficient use of domestic energy resources and alternative sources of energy and, to that end, the use of economic and legal leverage;
- (vi) Investment promotion;
- (vii) Assurance of transparency in licensing;
- (viii) Assurance of security;
- (ix) Promotion of energy independence of Armenia, including via the diversification of domestic and imported resources;
- (x) Assurance of environmental protection;
- (xi) Promotion of R&D advances and the implementation of new, highly efficient and energy saving technologies, training and re-training of personnel;
- (xii) Promotion of the set-up and the development of energy markets; and
- (xiii) Unbundling of production, transmission (transportation), distribution, export/import, system operator and service provider activities in electricity markets.

In the first instance, the privatisation strategy provides for the restructuring and incorporation of interconnected energy complexes, and then for selling them to strategic investors. Non-strategic facilities are privatised by direct transfer to the private sector. Private investors are expected to build new energy complexes under Build-Own-Operate (BOO, an approach preferred by Armenia), Build-Own-Transfer (BOT) and Build-Own-Operate-Transfer (BOOT) schemes.

The Ministry of Energy is responsible for the energy sector, including the reform process. The Ministry is supported by other organisations, such as the Energy Institute and the Energy Strategy Centre (ESC). The main activity of the ESC includes the

elaboration of energy policy, feasibility studies and audits of energy projects, demand-side management and renewable energy.

Armenia's *Law on Energy* was enacted in 1997 and revised as of 11 April 2001. A further amendment, including a supplement, was adopted on 25 December 2003, and became effective on 14 February 2004 (refer to Table 8 in the following section). These changes were mostly necessitated by the adoption of a new *Law on the Public Services Regulatory Body* in December 2004 – to the extent that this new body was established on the basis of the Energy Regulatory Commission created (earlier) by the *Law on Energy*. Certain clauses had to be incorporated from the latter into the new law.

B. LEGISLATIVE FRAMEWORK FOR FOREIGN INVESTMENT IN THE ENERGY SECTOR

The principal laws covering foreign investment in the energy sector in Armenia are presented in Table 8.

Table 8: Principal Laws Covering Foreign Investment in the Energy Sector

| | |
|---|------|
| <i>Law on Foreign Investment</i> | 1994 |
| Constitution | 1995 |
| <i>Law on Privatisation of State Property</i> | 1997 |
| <i>Civil Code</i> | 1998 |
| <i>Law on Energy</i> | 2001 |
| <i>Law on State Registration of Legal Entities</i> | 2001 |
| <i>Law on Licensing</i> | 2001 |
| <i>Law on Concessions</i> | 2002 |
| <i>Code of Underground Resources</i> | 2002 |
| Concession for the Investigation and Mining Operation of the Subsoil Mineral Resources | 2002 |
| <i>Law on the Natural Monopoly Regulatory Commission of the Republic of Armenia (NMRC) – Amendment of the Law on Energy</i> | 2003 |
| <i>Law on Energy Saving and Renewable Energy</i> | 2004 |
| Public Services Regulatory Commission (PSRC) – <i>Law on Public Services Regulatory Body (PSRC)</i> | 2003 |

While in recent years Armenia has introduced notable reforms to its legal environment, the country continues to face considerable challenges in entrenching the legal rules, institutions and culture upon which its successful transition to a market-oriented economy will depend. All laws of the Republic of Armenia are published in the official State Bulletin. Ministries and agencies publish brochures (guidelines) with the legislation regulating their specific areas of competence. They also make this legislation available on their corresponding web sites.

1. Summary of Legislation Relevant to Investment in the Energy Sector

a) Constitutional Provisions¹⁷

The Constitution of the Republic of Armenia was enacted by referendum on 5 July 1995. With its amendment in 2005, also enacted by referendum, important provisions to the state structure, international treaty, and operation of the economy were introduced.

Article 3: The state shall ensure the protection of fundamental human and civil rights in conformity with the principles and norms of the international law.

Article 8: The right to property is recognised and protected in the Republic of Armenia.

[...] Freedom of economic activity and free economic competition is guaranteed in the Republic of Armenia.

Article 10: The state shall ensure the protection and reproduction of the environment and the

¹⁷ <http://www.parliament.am> as of 1 February 2007.

reasonable utilisation of natural resources.

Article 31: Everyone shall have the right to freely own, use, dispose of and bequeath the property belonging to him/her. The right to property shall not be exercised to cause damage to the environment or infringe on the rights and lawful interests of other persons, the society and the state.

[...] The private property may be alienated for the needs of the society and the state only in exclusive cases of prevailing public interests, in the manner prescribed by the law and with prior equivalent compensation.

[...] Foreign citizens and non-citizens shall not enjoy the right to land ownership except for cases prescribed by the law.

Article 31.1: The state shall protect the interests of consumers: take measures prescribed by the law to exercise quality control over goods, services and works.

Article 33.1: Everyone shall have the right to freedom of enterprise not prohibited by law.

[...] Abuse of monopoly or dominant position in the market and bad-faith competition shall be prohibited.

[...] Restriction of competition, possible forms of monopoly and their permitted sizes may be prescribed by the law.

Article 48: The basic tasks of the state in the economic, social and cultural spheres are:

[...] to pursue the environmental security policy for present and future generations; [...]

Article 11.1: Regions (marz) and communities shall be the administrative-territorial units in the Republic of Armenia.

Article 104.1: A community shall be a legal entity, have the right to property and other economic rights.

Article 105.1: The land in the administrative territory of the community with the exception of the land necessary for state needs and those belonging to natural persons and legal entities shall be deemed property of the community.

Article 106: The communities shall establish local taxes and duties within the scope defined by law. The communities can set forth fees for their services.

b) Establishment of Enterprises

The Armenian legislation provides the same legal guarantees and protection for foreign businesses as it does for its own citizens and businesses. Foreign investors have the right to establish any form of enterprise.

The legislation governing the establishment of companies is basically regulated by the Law on State Registration of Legal Entities (in force since 2001), and by the *Civil Code* (in force since 1999). Registering a legal entity requires state registration with several authorities, including the State Register, the tax authorities, the State Pension Fund, the State Patent Office, and the National Statistical Service. It may also be necessary to get a special or sectoral licence from the competent state agency. The registration takes 2-5 working days by law; a considerable improvement, as confirmed in the World Bank document Regulatory and Administrative Costs Survey (2002-2003).

The *Civil Code* of 1 January 1999 establishes the following most common types of enterprises:

- (i) Joint-stock companies (open and closed);
- (ii) Limited liability companies; and
- (iii) Business partnerships (general or limited).

The *Law on Joint-Stock Companies*, enacted on 25 September 2001, deals with the process of establishing and registering joint-stock companies in Armenia. In accordance with this law, foreign citizens have equal rights with Armenian citizens

and legal persons who are residing in the Republic of Armenia. The law also provides the legal basis for the transformation of all state energy enterprises into closed state joint-stock companies (100% of shares owned by the state).

The *Law on Bankruptcy* entered into force in March 1997 and defines that a debtor is insolvent when it is unable to meet its liabilities for 30 days. The debtor itself, the liquidator or certain groups of creditors may suggest a re-organisation. The liquidator is authorised to seize the debtor's assets and to examine and challenge claims; it has no authority, however, to investigate the debtor's financial affairs. With the assistance of the court, the liquidator may void transactions that involve an unfair alienation of property or the transfer of funds of the debtor. With the consent of the court or by public auction, sale of the debtor's assets is possible. Secured creditors receive priority in liquidation procedures. According to the amendment on 2002:¹⁸

- (i) If a debtor who has been found to be bankrupt is a lessee under a contract for financial leasing which foresees the possibility of assigning the leased assets to the lessee on ownership rights, the court, at the request of the managing trustee and with the consent of the lessor, may cancel the contract and turn over the leased assets to the debtor (lessee) on ownership terms, if the lessee has paid at least 80% of the price (via lease instalments) specified by the contract; and
- (ii) From the moment of being turned over to the lessee on ownership terms, the leased assets are considered to be mortgaged to the lessor, as collateral against the liability of the debtor (the lessee) represented by the unpaid part of the assets specified in the contract.

c) Licensing

The *Law on Licensing*, which entered into force in 2001, and the *Civil Code* govern the licensing of activities of enterprises. There are about 70 different types of economic activity in Armenia requiring a sectoral licence prior to starting operations. Licensing used to be a considerable problem for foreign investors in Armenia, as in other CIS countries, however this has since been radically improved. The majority of licences can now be obtained by a relatively simple procedure for which a "one-stop-shop" has been introduced.

The following energy-related activities require a licence under the *Law on Licensing*:

- (i) Power engineering sector:
 - a) Production, import and export, transport, distribution and trade in/of natural gas;
 - b) Production, import, transmission, export, distribution and trade in/of electrical energy;
 - c) Production, import and export, transport, distribution and trade in/of thermal energy;
 - d) Rendering services on transmission and centralised dispatch of electrical energy; and
 - e) Construction of new capacities in the fields of electrical and thermal powers.
- (ii) Nuclear power sector:

¹⁸ <http://www.parliament.am> as of 1 February 2007.

- a) Works on selection, construction, putting into operation, operation, usage, maintenance and removing away from operation of nuclear and radioactive waste stations, sources and storages of ionisation radiation;
- b) Works with radioactive wastes of nuclear and radioactive materials, including transportation, usage, storage, reprocessing and burial of such materials;
- c) Import and export of nuclear, radioactive and special materials, radioactive wastes, special equipment and technologies;
- d) Design and preparation of materials, equipment and systems for projects using atomic energy; and
- e) Expertise of projects using atomic energy, their designs and other documents.

The licence is granted by the Public Services Regulatory Commission (in the case of the power engineering sector), or the Government (in the case of the nuclear power sector).

The specifics of licensing in the field of power engineering are detailed in the *Law on Energy* section in this Report.

The *Law on Licensing* does not apply to permits (licences) issued for use of natural resources deemed to be under state ownership. Such permits are governed by the *Law on Concessions* of 5 November 2002.

d) Entrepreneurship and Corporate Laws

Foreign investors may establish a subsidiary, representative office or branch in Armenia. A business company is considered to be a subsidiary (dependent company) if another partnership or company holds more than 20% of the charter capital or voting shares in that enterprise.

Foreign investors may establish a subsidiary in the form of a joint-stock company, a limited liability company or a business partnership.

Joint-Stock Company (JSC)

A JSC is a legal entity established on collective or mixed property, and the owners must participate in the enterprise with a capital share. The starting capital is divided into shares, the quantity and value of which is determined by the founders. The liability of the founders is limited to the nominal value, as opposed to the market value, of the shares in their possession.

The *Law on Joint Stock Companies* provides for two types of JSCs:

- (i) Open- if the stocks are sold to the general public; and
- (ii) Closed – if the stocks are exclusively owned by the founders.

The minimum capital requirement for an open Armenian-owned JSC or any JSC with foreign participation is 1,000 times the minimum monthly wage. For wholly Armenian-owned closed JSCs, this is reduced to 100 times the minimum monthly wage. In certain industries, such as banking, a higher minimum investment requirement may apply.

The founders of a JSC are obliged, before registration of the company, to fully pay the charter capital. Upon the founding of a JSC, all its shares must be distributed among the founders.

Limited Liability Company (LLC)

This form of organisation is basically the same as a closed joint-stock company with the only difference being that there are no shares. The LLC is a legal entity founded by one or several persons. The profits are divided among them according to the investment share ratio, unless another ratio is stipulated in the charter. The company is limited because of the limited liability of its founders to the initial investments.

Business Partnership

A business partnership is a legal entity, which may be set up in the form of a general or limited partnership. Only individual entrepreneurs and/or commercial organisations may be participants in general partnership. They conduct business in accordance with the charter, in the name of the partnership and bear liability for its obligations with the property belonging to them. A person may only participate in one general partnership.

In a limited partnership, along with participants conducting business in the name of the partnership and being liable for the obligations of the partnership with their property (general partners), there are one or more participants (limited partners), who bear the risk of losses connected with the activity of the partnership within the limits of the amounts of contributions made by them (they do not take part in the conduct of the partnership business). A person may be a general partner only in one limited partnership.

e) Foreign Investment Legislation

The *Law on Foreign Investments* of 1994 (FIL) sets out the general framework for the establishment and the activities of foreign investors in Armenia. It also protects them against certain political risks, and includes provisions for dealing with dispute settlement. Should international treaties of the Republic of Armenia establish rules that differ from the FIL, the former shall prevail.

The main elements of the FIL are the following:

Definition and Forms of FDI

Pursuant to Article 1 (2), "foreign investment" means any type of property, including financial resources and intellectual values, which is directly invested by a foreign investor in commercial and other activities implemented in the territory of the Republic of Armenia to gain profit (revenue) or to achieve any other beneficial result.

Article 3 recognises the following forms of foreign investment:

- (i) Foreign currency, other currency values, and the national currency of the Republic of Armenia;
- (ii) Movable and immovable property (structures, buildings, equipment, and other material values), and any property right related to that property;
- (iii) Stocks, bonds, and other securities as established by the legislation of the Republic of Armenia;
- (iv) Any right to claim money or performance of contractual obligations;
- (v) Any valuable right to intellectual property;

- (vi) Any right, conferred by the legislation of the Republic of Armenia or by contract, to engage in economic activities, including the right to explore, extract, develop, or exploit natural resources;
- (vii) Paid services, and
- (viii) Any other type of investment not prohibited by legislation of the Republic of Armenia.

Pursuant to Article 4, foreign investors shall be entitled to implement investments through the following methods:

- (i) Establishment of enterprises entirely owned by foreign investors establishment of branches, divisions and representative offices owned by foreign legal entities, and the takeover of ownership of going concerns;
- (ii) Establishment of joint ventures with legal entities and unincorporated enterprises of the Republic of Armenia as well as citizens of the Republic of Armenia, or acquisition of shares in going concerns;
- (iii) Acquisition, within the limits defined by the legislation of the Republic of Armenia, of stocks, bonds, and other securities as established by the legislation of the Republic of Armenia;
- (iv) Attainment of the right to use land independently or with the participation of legal entities or unincorporated enterprises of the Republic of Armenia, as well as citizens of the Republic of Armenia, and procurement of concessions to use natural resources in the territory of the Republic of Armenia;
- (v) Acquisition of other property rights; and
- (vi) Other methods not prohibited by the legislation of the Republic of Armenia, particularly the conclusion of contracts with legal entities or unincorporated enterprises of the Republic of Armenia.

Investment Protection

Pursuant to Article 6, foreign investors receive national treatment (i.e. they are treated no less favourably than domestic investors). There is one exception to this rule, which concerns the acquisition of real estate (refer to Attachment 1 at end of this Report). However, foreign companies established in Armenia as legal persons have the same status as national legal persons and may own land. In addition, foreigners may obtain a permission to use land under long-term lease contracts.

To encourage foreign investment in the most significant fields of social and economic development, additional privileges for such investments may be established in a manner provided by the legislation of the Republic of Armenia. Vice versa, the Armenian legislation may define those areas of the Republic of Armenia, wherein the activities of foreign investors and enterprises with foreign investment are limited or prohibited due to requirements of national security.

Article 7 contains a so-called “stabilisation clause”. Accordingly, in the event of amendments to the foreign investment legislation of the Republic of Armenia, the legislation that was effective at the moment of implementation of the investment shall apply, upon the request of a foreign investor, during a five-year period from the moment of investing.

Article 8 includes guarantees against nationalisation and expropriation. Foreign investment in the Republic of Armenia shall not be subject to nationalisation. Expropriation may be allowed only as an extreme means in case of an emergency

declared in accordance with the legislation of the Republic of Armenia, and only upon the decision of a court and with full compensation. Investors must also be compensated for any damage or loss of profit resulting from illegal actions by state bodies or officials. Compensation shall be paid at current market prices or prices determined by independent auditors either in the currency invested, or in any other currency mutually agreed upon by the parties.

Article 9 provides for compensation for damages caused to foreign investors. They shall be entitled to compensation, through a court order, for those material and moral damages, including lost profits, caused as a result of illegal actions by government bodies of the Republic of Armenia or their officials, as well as improper performance, by those bodies or their officials, of their obligations established by the legislation of Armenia towards a foreign investor or an enterprise with foreign participation. Compensation shall be paid promptly at current market prices or prices determined by independent auditors. This compensation shall be paid either in the currency invested, or in any other currency mutually agreed upon by the parties. For the period from the moment of origination of the right to compensation through the moment of its execution, an interest in the due amount of compensation shall be calculated at current rates for deposit accounts established on the loan market of the Republic of Armenia.

Article 10 deals with the foreign investor's profits (revenues) and other means. Such profit shall, after paying the taxes and other fees established by the legislation of the Republic of Armenia, remain at his/her disposal. Foreign investors shall be entitled to open current and other accounts in Armenian banks, as authorised by the legislation of the Republic of Armenia. Foreign investors shall also be entitled to use their legally obtained means to acquire foreign currency or commodities on the Armenian domestic market, in a manner established by the legislation of the Republic of Armenia.

According to Article 11, foreign investors and foreign employees shall be entitled to freely transfer their property, profits (revenues) and other means legally gained as a result of investments or as a payment for labour or as compensation under Article 9 of this law. Foreign exchange is widely available, and the local currency – the Dram – is freely convertible.

Article 15 stipulates that the import of goods for supplementing the charter capital of enterprises with foreign investments, and which are included in the list established by the Armenian Government, is exempt from custom duties. If such goods are sold within a period of 3 years after availing oneself of this privilege, the customs duty, including the collection of calculated penalties for a delay in payment, is due in accordance with the rules and procedures set by the customs legislation.

Pursuant to Article 16, enterprises with foreign investment shall be entitled to export their products, works and services, and import products, works and services for their own needs without any licence, with the exception of those cases defined by the Armenian legislation and by international treaties.

Pursuant to Article 18, privileges established by this law shall apply to those enterprises with foreign investment where such investment is no less than 30% at the moment of establishment.

Article 21 deals with concession contracts. Any foreign investor shall be entitled to exploit renewable and non-renewable natural resources on the basis of concession contracts concluded by the foreign investor and the Government of the Republic of Armenia or authorised governmental body, in a manner established by the Armenian legislation on concessions. Concession contracts may contain exceptions from the legislation in force in the Republic of Armenia. In such cases, they shall be subject to approval by the Parliament of the Republic of Armenia.

Article 22 guarantees the exercise and protection of intellectual property rights of foreign investors in accordance with the legislation of the Republic of Armenia.

Dispute Settlement

According to Article 24 of the FIL, disputes arising between foreign investors and the Republic of Armenia in respect of foreign investment shall, in principle, be considered by the courts of the Republic of Armenia. However, since ratified international treaties are considered as superior to domestic legislation – with the exception of the country’s Constitution – foreign investors from countries having a Bilateral Investment Treaty (BIT) with Armenia do have the right to resort to international dispute settlement mechanisms. Armenia, likewise, respects the recourse to international arbitration under the Energy Charter Treaty.

Since Armenia’s accession as a full-time member to the WTO in February 2003, the opportunity to use foreign-based procedures for dispute settlement as provided for in bilateral intergovernmental agreements for the protection and promotion of investments has been automatically extended to all 146 WTO member countries.

Disputes related to foreign investment, to which the Republic of Armenia is not a party, shall be considered by the courts of the Republic of Armenia or by other bodies for economic dispute settlement, in accordance with the legislation. Such disputes shall be considered by a mediation court, should the parties have so agreed, unless otherwise established by international treaties or by the preliminary agreement (founding documents, economic contracts, and so on) of the parties.

f) Legislation on Real Estate

According to the *Law on Real Estate* of 1996, ownership of land is reserved for Armenian citizens and legal persons. Foreign nationals cannot obtain ownership rights over land. Accordingly, Armenia has taken an exception to the principle of non-discrimination in the “*Blue Book*” (refer to Attachment 1 at the end of this Report). However, any lawfully established legal entity in Armenia enjoys the same status as national legal entities, and is therefore entitled to acquire ownership rights over land. Furthermore, according to Article 20 of the FIL, property may be leased to foreign investors and enterprises with foreign investment on the basis of lease contracts.

g) Competition Legislation

The competition legislation of the Republic of Armenia comprises the Constitution, the *Civil Code*, and the *Law on the Protection of Economic Competition* (6 November 2000).

According to the law, anti-competitive practices include:¹⁹

- (i) Establishment of discriminatory prices;
- (ii) Artificial increase, decrease or maintenance of prices on the commodity markets;
- (iii) Division of the market according to a territorial principle, or according to the volume of purchase or sale, stock of goods or seller or buyer (contractor) terms, and others; and
- (iv) Hampering (restricting) other economic entities to enter the market or ousting them from the market. The agreements between the economic entities, which are aimed at ensuring or enhancing the competitiveness thereof shall not be regarded as anti-competitive if the total market share of the parties to such agreement does not exceed 20%.

The law also distinguishes two other types: concentration and unfair competition.

In addition, the *Law on Energy* and the *Law on Enterprises and Entrepreneurial Activities* include minimum provisions on anti-competitive behaviour in the energy sector.

Law on Energy:

Key principles of the government's policies: enhancement of competition and efficient operation in the energy sector and creation of essential conditions for the development of a competitive environment.

Law on Protection of Domestic Market

Basic concept: "economic branch" shall mean the producers as a whole of products which are like or directly competitive to the investigated product, operating in the territory of the Republic of Armenia, or those of the producers operating in the territory of the Republic of Armenia, whose collective output constitutes more than the half of the total production of like or directly competitive products in the Republic of Armenia.

Safeguard measures and terms of their application: for the purpose of this law, safeguard measures constitute an increase of the applied customs tariff rate on the import of a product, application of a tariff quota on the import of a product, application of a quota on the import of a product and application of any combination of the mentioned measures.

The total duration of a safeguard measure (including the duration of the provisional measure and the durations of the initial and extended measures) shall not exceed 8 years.

A safeguard measure may be reapplied on the import of a given product, on which a safeguard measure has been applied, only after 2 years of expiration of the applied safeguard measure.

h) Taxation

Tax legislation was reviewed between 1997 and 2000 when fundamental new laws on taxes were adopted, based predominantly on international standards. The relevant laws are: the *Law on Taxes* of 14 April 1997; the *Law on Presumptive Payments* enacted in 1998 (which substitutes profit and value added taxes); and the *Law on Simplified Tax* enacted in 2000.

¹⁹ <http://www.parliament.am> as of 1 February 2007.

The changes in tax legislation at the end of 2000 created two major groups of taxpayers:

- (i) Fixed (presumptive) and simplified tax payers; and
- (ii) Tax payers who prefer paying profit tax.

Thus, the final choice is left to the taxpayer. Personal income tax varies between 10 to 20% on monthly income, depending on the level of income. The standard VAT rate is 20%. The company profit tax rate is likewise 20%.

Presumptive Tax

This is a compulsory and non-refundable payment, replacing VAT and (or) profit tax (income tax – for individuals), paid to the state budget at the rates and terms set in this law. Payers of presumptive payment are individuals and legal entities, corporations without status of a legal person. VAT share in the amount of presumptive payment is 60%.

In the Republic of Armenia, presumptive payment²⁰ (VAT and excise tax) is imposed on imported diesel fuel and petrol (*Law on Presumptive Payments on Diesel Fuel and Petrol Imported to the Republic of Armenia, 1997*). The rate of presumptive payment for diesel is fixed at USD65/tonne (of which 31.3% is excise tax and 68.7% is VAT), and for petrol: USD222/tonne (of which 60.8% is excise tax and 39.2% is VAT). The State Custom Committee implements control over these payments.

Simplified Tax

This is a tax that substitutes VAT and/or profit tax (income tax – for individual entrepreneurs and notaries) paid to the state budget for entrepreneurial activities by rates and within deadlines defined by law. Legal entities and individual entrepreneurs shall be considered to be simplified taxpayers if, during previous reporting year, the total amount of turnover of sale of goods supplied and services rendered by taxpayers (exclusive of VAT) has not exceeded AMD50 million. Simplified taxpayers calculate tax on taxable activities for the current year relative to the amount of turnover: 7% for amounts under AMD30 million and 12% for amounts over AMD30 million. VAT accounts for 60% of the total amount of simplified tax. In the event that the amount of simplified tax for the given time period is less than 3.5%, then simplified tax shall be paid at the rate of 3.5%, with the remaining tax amount incorporated into the tax amount calculated for the following reporting period. Taxpayer employers make monthly compulsory social security payments on behalf of hired workers (individual entrepreneurs), in the fixed amount of AMD6,000. This amount replaces the payments carried out in accordance with and in the amount envisaged in the *Law on Compulsory Social Insurance Payments*.

Taxpayers involved in entrepreneurial activities may be subject to a simplified tax instead of income tax, profit tax and VAT, if their total net turnover of goods and services supplied during the previous year does not exceed AMD30 million (approximately USD51,000), provided that they meet certain conditions. The rate of simplified tax is applied to the entire sales turnover at 4-7%, irrespective of the actual amount of profit, and 3-5% of business expenses are deductible. Some types of activities (banks, insurance, investment, consulting, etc.) cannot be taxed by the simplified tax.

²⁰ <http://www.customs.am/tariff/fixed.php> as of 1 February 2007.

Corporate (Profit) Tax

The *Law on Corporate (Profit) Tax* became effective on 27 November 1997. The tax is paid by resident and non-resident organisations of the Republic of Armenia, with the exception of financial institutions and the Central Bank of the Republic of Armenia, which are defined as follows:

- (i) Resident organisations are those that have been established in Armenia, meaning that they have obtained state registration and are registered as tax entities, with the exception of subsidiaries of organisations specified in (ii); and
- (ii) Non-resident organisations are those that have been established in foreign countries, international organisations, as well as legal entities and organisations without the status of a legal entity created in the Republic of Armenia.

Taxable profit is defined as the positive difference between gross income of the taxpayer and deductions defined by this law. For resident organisations, corporate tax is levied on the taxable profit received within and outside the territory of the Republic of Armenia, whereas for non-resident organisations, corporate tax is levied on the taxable profit received from Armenian sources.

The following items are not treated as income:

- (i) Investments of the participants (shareholders, stockholders, members) in the charter capital (fund) of a taxpayer, the positive difference between the issuing price and the face value of the taxpayer's shares, and assets combined for the purposes of joint activity;
- (ii) The positive result of the revaluation of foreign currency and other assets and liabilities expressed in foreign currency, as well as the positive result of the revaluation of fixed assets;
- (iii) Amounts gained as a result of tax privileges; and
- (iv) Donated assets (including member fees) and gratis services rendered to non-commercial organisations.

“*Taxable profit*” is defined as the difference between the gross income and deductions allowed under the law. The notion of “*revenues*” includes those from lease of inventory, share holdings and securities transactions unrelated to the production of goods and grants by other enterprises and organisations (provided they were not previously taxed). Production and sale costs are deducted from a taxable profit. Depreciation is allowed on capital assets. There is no loss carry-forward provision. Under the law, the presumptive determination of profit is allowed in individual cases. Corporate tax is levied at 20% of taxable profits.

Companies with foreign investment are subject to the same tax regime as Armenian companies. Specific privileges (exemptions) in corporate taxation apply to companies with foreign investment exceeding AMD500 million (approximately USD855,000), according to Table 9.

The following table (Table 10) lists revenues received by non-resident organisations of Armenia and profit tax rates (%) that are used for withholding tax at the source by tax agents, in compliance with Article 57 of the law.

Table 9: Deductions from Profit Tax

| Year of Investment | Deduction from Profit Tax for Each Year | |
|--------------------|---|---------------------|
| | 100% | 50% |
| 1998 | 1999-2000 | 2001-2008 inclusive |
| 1999 | 2000-2001 | 2002-2009 inclusive |
| 2000 | 2001-2002 | 2003-2008 inclusive |
| 2001 | 2002-2003 | 2004-2007 inclusive |
| 2002 | 2003-2004 | 2005-2006 inclusive |
| 2003 | 2004-2005 | - |
| 2004 | 2005-2006 | - |
| 2005 | 2006-2007 | - |
| 2006 | 2007-2008 | - |
| 2007 | 2008-2009 | - |

Table 10: Withholding Tax on Corporate Profit

| Type of Income | Profit Tax (%) |
|---|----------------|
| Insurance compensation, reinsurance and freight income | 5 |
| Dividends, interest, leasing income, royalty, other income received from Armenian sources, etc. | 10 |

Personal Income Tax

According to the *Law on Income Tax* of 30 December 1997, this tax applies to Armenian nationals with permanent residence in Armenia (who have lived in Armenia more than 183 days in a given year) and to those without permanent residence who have income in Armenia. Income from labour, royalties, business activities, leasing of property, share capital, securities/deposit payments, in-kind income, etc. is subject to taxation (refer to Table 11). For permanent residents, income received outside Armenia is included in the total amount taxable in Armenia. Where bilateral treaties are in force, the income tax levied in Armenia can be reduced in direct proportion to the amount of income tax paid in another country, thereby avoiding double taxation. Foreign individuals are subject to the same rates as Armenians.

Table 11: Income Tax Rates

| Monthly Taxable Income (AMD) | Tax Rate (%) | Cumulative Tax (AMD) |
|------------------------------|--------------|---|
| 0-80,000 | 10 | |
| More than 80,000 | 20 | 8,000 plus 20% of the amount exceeding 80,000 |

Value Added Tax

Armenia introduced a value-added tax (VAT) on 1 January 1992. As of 1 July 1997, a new VAT law was implemented. VAT applies to all goods sold, services delivered and works performed. The general VAT rate is 20%, which is equivalent to 16.67% of the VAT-inclusive price. Domestic and foreign goods and services are treated equally.

However, a 0% VAT rate is applied to:²¹ the taxable turnover of services on processing and assembly of products from raw materials, semi-manufactured goods, and materials of foreign legal entities, enterprises without the status of a legal entity, or individuals according to their orders; services on the repair and modernisation of movable property within Armenia; and other similar services exported outside the customs border of Armenia that conform with the terms established by Armenian customs legislation.

Excise Tax

Excise tax is assessed on the production or importation of specific products, and is payable on the proceeds of the sale of products manufactured in Armenia, and on the declared value of products imported to Armenia.

The *Law on Excise Tax* was approved by the President on 24 June 1997 and amended on 24 September 1997. A new law came into force on 1 August 2000, thereby rendering the 1997 law null and void. Excise taxes are payable on both domestically produced and listed goods and imported ones. In the case of imports, the importing enterprises or individuals have to pay excise taxes. The excise rates are "ad valorem" (on the volume of goods) and are quoted on the volume of the goods. Petrol and diesel fuel are subject to the excise tax rates listed in Table 12. The law sets specific tax rates for both domestic and imported products. Excise tax does not apply to goods in transit through the territory of Armenia.

Table 12: Excise Tax Rates for Petrol and Diesel

| Production Code (according to trade nomenclature of the External Economic Activity) | Group of Products | Taxable Base | Rate of Excise Tax (AMD) |
|---|--|--------------|--------------------------|
| 2709 | Raw oil and oil materials | 1 tonne | 27,000 |
| 2711 (excluding 2711 11 and 2711 21) | Gases produced from oil and other hydro-carbons (except for natural gas) | 1 tonne | 1,000 |

In 2001 the law established a list of goods imported by organisations and private entrepreneurs that have a zero customs duty rating, thus are not subject to excise taxation, and for which value added tax shall not be calculated and collected by customs authorities. The list includes: aircraft petrol; aircraft fuel TS-1; aircraft oil MS-8P; aircraft lubricants; natural gas; electrical energy; acyclic hydrocarbons; anti-knock preparations, oxidation inhibitors, gum inhibitors, viscosity improvers, anti-corrosive preparations and other prepared additives for mineral oils (including gasoline) or for other liquids used for the same purposes; and special and electrical equipment.

Custom Duties²²

The following customs regimes exist in Armenia:

- (i) Import for free circulation;
- (ii) Re-importation;

²¹ <http://www.parliament.am/> as of 1 February 2007.

²² <http://www.parliament.am/> as of 1 February 2007.

- (iii) Transit shipment;
- (iv) Import into customs warehouse;
- (v) Import to duty free shop;
- (vi) Temporary import for processing;
- (vii) Temporary import;
- (viii) Temporary export;
- (ix) Import into free customs zone;
- (x) Import into free customs warehouse;
- (xi) Temporary export for processing;
- (xii) Export for free circulation;
- (xiii) Re-exportation;
- (xiv) Renunciation of the ownership right to the State benefit;
- (xv) Destruction; and
- (xvi) Import to free trade zone.

Import Duties

In December 1998, the *Law on Customs Duties* entered into force. Import duties are set between 0 and 10% *ad valorem* (on the volume of goods). Exemptions from import duties apply to internationally traded goods in transit and imports under intergovernmental agreements or those financed by the Government. Quantitative restrictions apply to a few items that could pose health, environmental or security threats.

Export duties

Armenia does not levy any export duties.

Land Tax

On 27 April 1994, the President of Armenia approved the *Law on Land Tax. Landowners* by which permanent and temporary users of state-owned land are required to pay land tax. The tax on the land available for lease shall be paid by the lessor. It applies to non-residential land. Residential property is covered under the *Property Tax Law* (refer below). For non-agricultural land, the land tax rate is based on the land's cadastral value, as follows:

- (i) For land used for the purposes of industry (including mines and territories damaged as a result of industrial activity), transport, radio communication, television, defence, occupied by gas-mines, as well as water supply infrastructure, land tax is applied based on the value of certain zones, as delineated by cadastral survey, at the following rates:
 - a) In urban areas – 1%
 - b) Outside urban areas – 0.5%.
- (ii) The rate of land tax for forestry fund land (with the exception of agricultural areas within the forestry fund) is applied at 1% of the average value of the unused portion of the land, as delineated by cadastral survey;
- (iii) Land tax for other non-agricultural land is applied at a rate of 1% of the value given type of soil according to the cadastral evaluation: 1.0% on land in urban areas; 0.3% on land outside urban areas used for the purposes of industry, transportation, communications, defence facilities, gas pipelines, and water supply infrastructure; 1% on vacant land in forests; and 1% on other vacant land.

Property Tax

The *Law on Property Tax* took effect on 26 December 2002. The law stipulates the following:²³

- (i) Organisations set up in the Republic of Armenia and other countries; international organisations and those created by them outside the Republic of Armenia; citizens of Armenia; and foreign citizens, as well as those without citizenship who possess property in the Republic of Armenia that is considered a taxable object under the Article 4 of this law. State bodies of the Republic of Armenia, the Armenian Central Bank, local governments and institutions of the Republic of Armenia are, however, exempt from this definition.
- (ii) In the event that a taxable object belongs by general joint property right to more than one taxpayer, the latter bear responsibility for property tax liabilities stipulated in this law in proportion to his or her share of the property.

Objects liable to property tax are: buildings and structures, and vehicles. Property tax is calculated as follows:

- (i) The basis of tax on buildings is considered to be the cadastral value; and
- (ii) The tax basis for a vehicle is dependent on its traction-motor power (horsepower or kilowatt), which is considered to be a taxable object. If a vehicle has more than one traction-motor, the total power of all traction-motors is considered a property tax base.

Avoidance of Double Taxation

Refer to Section B.3.b) of this Report.

i) Legislation Regulating Conditions for Entry, Stay and Employment of Foreign Nationals

The *Law on the Status of Foreign Citizens* of 1994 and the *Law on Foreign Investments* of 1994 regulate conditions for entry, stay and employment of foreign nationals.

j) Foreign Exchange and Securities Laws/Regulations

The *Law on Securities Market Regulation* of 2000, and its major amendment in 2005, regulates the following:

- (i) Procedure for securities issuance, distribution and their public trading;
- (ii) Procedure for activities of reporting issuers, disclosure of reports, submission of reports by managers of a reporting issuer and major shareholders of its equity securities;
- (iii) Procedure for performance of professional activities in the securities market;
- (iv) Procedure for the establishment and activities of self-regulatory organisations;
- (v) Authorities and obligations of the Central Bank of the Republic of Armenia; and
- (vi) Liabilities of professional participants of securities market for violation of the law and other legal acts.

²³ <http://www.parliament.am/> as of 1 February 2007.

The purpose of this law is:

- (i) Protection of investors;
- (ii) Guarantee the transparency of activities within the securities market;
- (iii) Assure effective operation, development and improvement of the securities market and system of clearing and settling transactions;
- (iv) Establish and maintain a trustworthy price formation system in the securities market; and
- (v) Safe use of cash and credit systems involved in securities transactions.

A “security” is defined as: any investment, payment or title securities envisaged by the *Civil Code* or other securities law of the Republic of Armenia; any profit-sharing agreement, participation in such an agreement or document certifying such participation; any shares of corporate stock or mutual funds, bonds issued by corporations or governmental agencies, stock options, futures or commodities contract, or other security derivative; any pre-emptive right to purchase securities, regardless of its form (documentary or non-documentary); any investment agreement, which includes all or part of the above-mentioned characteristics of securities; any document used for the purpose of attracting capital (means), regardless of its form (documentary or non-documentary); and any right towards a security or any document, certificate or receipt, regardless of its form (documentary or non-documentary), if exercising or transferring the rights certified by such documents is possible only upon their submission or registration in a special registry (regular or electronic). A security is also any document, regardless of its form, which is considered as such based on the traditions of business circulation.

The controlling authority is the Central Bank of the Republic of Armenia.

k) Legislative Framework for Privatisation

Privatisation of state-owned property began in Armenia in 1991 with a broad land privatisation programme through which most of the Armenian agricultural land was privatised. Privatisation of state-owned enterprises was introduced in 1992 by the *Law on Privatisation and De-nationalisation of State-Owned Enterprises and Unfinished Construction Projects*, and got under way in 1994 implemented via a voucher programme, through which approximately 5,000 large and small-scale enterprises changed ownership.

Law on Privatisation of State Property

The *Law on Privatisation of State Property*, as amended on 1 July 1999, deals with legal issues concerning privatisation of state property, including unfinished construction sites. This law does, in general, not regulate issues connected with the privatisation of property belonging to local authorities, including unfinished construction sites. Land privatisation is implemented under the procedure defined by the *Land Code of Armenia*.

Pursuant to Article 3(2), the objects of privatisation are:

- (i) Stocks of state stock companies, stocks belonging to the State in non-state companies and companies with state participation;
- (ii) The property of a company considered to be a share of the State and which is liquidated under the procedure defined by this law without court decision;

- (iii) State property given by utilisation right, including real estate;
- (iv) Non-dwelling territories belonging to the State which are not of common use in dwelling houses;
- (v) Unfinished construction sites;
- (vi) Property rights belonging to the state and intangibles, including the right of subscription of newly issued stocks, right of utilisation of underground and natural resources in cases defined by this Article;
- (vii) State enterprises or their amalgamation after having been restructured into state stock companies; and
- (viii) Dwellings belonging to local authorities, including the non-dwelling territories transferred to local authorities with conceptual rights and which are not of common use, are:
 - a) Leased to legal and physical persons before 15 December 1997; and
 - b) Given as 'small' objects for leasing or permanent usage.

Pursuant to Article 4, the aims, preferences and restrictions of the current phase of privatisation are defined by the programmes of privatisation of state property of Armenia (refer to following sub-section).

Article 5 lists the participants in privatisation. They include legal and natural persons, and also, in cases defined by this law, the members of personnel of the company being privatised. Foreign persons have the same rights of participation in privatisation as Armenian nationals.

Article 11 deals with the relationship between the privatised company and its personnel after privatisation. If more than 50% of the stocks of the company are privatised, the Armenian Government may restrict the right of the new owner(s) of the privatised company or their authorised bodies to change the minimum number of the employees for a period of 6 months, except in cases defined by legislation. The new owner(s) can change the restriction imposed on the minimum number of employees with the consent of the members of the personnel.

Article 14 sets out the different forms of privatisation of state property, which include: free subscription to stocks, auction, tender, direct sales, open or closed allotment of new stocks, issuance of bonds with the right of converting into stocks, sales of stocks in specialised markets, and transfer of the State's right of utilisation of state property.

The Armenian Government, under the procedure defined by this law, decides upon the form of privatisation of state property. The choice may take into account the specifications of the branch, its position in internal and external markets, the financial condition of the enterprise, the advisability of privatisation of state property as operating company, and the need for investments. Articles 15-20 describe in more detail each of the forms of privatisation mentioned above.

Article 24 deals with the preparation of state property for privatisation. The preparatory activities may include:

- (i) Restructuring of state enterprises into state stock companies; and
- (ii) In case of privatisation of state shares of state stock companies:
 - a) Division, separation of the company, as well as association and amalgamation with other companies;
 - b) Implementation of financial and economic audit of companies;

- c) Restructuring of the debt of companies;
- d) Elaboration of a plan of activities of companies;
- e) Preparatory activities for issuance of new stocks;
- f) Implementation of measures with the aim of familiarising the persons who declared their will to take part in the privatisation with the financial and economic activities of the company;
- g) Publication of information on activities of the company;
- h) Evaluation of the assets and liabilities of the company;
- i) Price evaluation of stocks; and
- j) Review of licences in case of licensed activities.

Article 25 deals with the price calculation of the property being privatised. The price calculation methods are: balance method; method of definition of current prices of cash flow; method of similar enterprises or market price of property; method of income (profit) multiplier; and other recognised methods.

Pursuant to Article 29, the transfer of the right of ownership as a result of privatisation occurs on the basis of a written contract between the state's authorised body and the purchaser under the procedure defined by the Government of Armenia. According to Article 31, the Republic of Armenia guarantees the rights of the participants in privatisation.

Programmes for the Privatisation of State Property

The privatisation of enterprises of strategic importance was deferred to 1998-2000. The *Law on the Programmes for the Privatisation of the State Property* during the period 1998-2000 opened the way for large-scale privatisation, including large enterprises in the energy sector. At the initial stages of the privatisation programmes, the established practice was that employees of the privatised companies had the first choice to buy shares with cash or vouchers. Selling the remaining shares was usually achieved through auction. In the meantime, the Government has terminated the voucher programmes for privatisation. Further privatisation was carried out for cash. To ensure a successful privatisation process, the Government established the Ministry for Privatisation in 2003, which was subsequently transformed into the Department for State Property Management in 2003.

Details of the more recent privatisation strategy are included in the *Law on the 2001-2003 Programmes for State Property Privatisation* of 27 July 2001.

Pursuant to Article 1, the objectives of these Programmes are as follows:

- (i) Enhance the efficiency of commercial organisations through the privatisation of their state stake;
- (ii) Develop the methods of state property privatisation, giving priority to those promoting investment in commercial organisations and providing for social guarantees;
- (iii) Provide for consistent and continuous privatisation policy and completion of state property privatisation within the time this programme is in force;
- (iv) Create the prerequisites for a stable economic growth through promoting competition;
- (v) Increase the number of non-state commercial organisations in the economy; and
- (vi) Increase state revenues through the funds received from state property privatisation.

Article 3 establishes selection criteria for state property subject to privatisation, as follows:

- (i) Complete privatisation of the companies and objects serving agriculture or relevant sectors;
- (ii) Complete privatisation of the companies producing consumer goods and having the greatest influence upon the consumer market of the Republic;
- (iii) Complete privatisation of 'small' residential objects and unfinished construction sites with industrial or social profiles; and
- (iv) Undertake privatisation of the companies engaged in scientific-industrial and research activities.

According to Article 5, it is intended to offer the companies with state stake included in the lists of the *Programme for Privatisation or Liquidation*, in compliance with the *State Property Privatisation Law*, in the following proportions: in 2001, 40% of the total number of companies with state stake were to be included in the programme; 30% in 2002; and 30% in 2003.

Article 8 deals with measures of preparation for privatisation per sectors of the economy and companies with a separate state stake. To prepare the companies with state stake in 'small' residential objects and unfinished construction sites involved in the privatisation process, a state governing body, authorised by the Government of the Republic of Armenia, was entitled to submit sub-programmes regarding privatisation of certain sectors of the economy for approval by the Government. The authorised state governing body carrying out privatisation is required to outline a plan of the overall organisational and technical measures for preparing state property for privatisation. Implementation is determined by government resolution, the persons appointed by the above-mentioned body, or the state and territorial administrative bodies.

Pursuant to Article 10, the organisational measures for the implementation of the programmes are as follows:

- (i) Organising campaigns to raise awareness among large sections of the public on the *State Property Privatisation Law*, the relevant Government resolutions, and other normative legal acts;
- (ii) Organising methodological and practical training for the staff engaged in the privatisation process;
- (iii) Carrying out subscription to shares through the territorial subdivisions of the state governing bodies authorised by the Armenian Government executing privatisation;
- (iv) Floating new shares through the stock exchanges; and
- (v) Involving consulting companies and experts in privatisation and liquidation activities through the state governing bodies authorised by the Armenian Government carrying out privatisation.

l) Legislation Regulating the Publishing of Laws

All laws of the Republic of Armenia are published in the official State Bulletin.

m) General Measures for Ensuring Observance at Sub-National Levels

Regional and local authorities are obliged to ensure observance of all laws, secondary legislation, regulations, orders, decrees, judicial decisions, and international agreements.

n) Legislation on Intellectual Property Rights

Armenia's intellectual property laws are shown in Table 13:

Table 13: Legislation on Intellectual Property in Armenia

| Legislative Act | Date of Enactment | Coverage |
|--|-------------------|---|
| 1. <i>New Law on Patents</i> (with amendments due to the TRIPS requirements) | 1999 | Articles 27, 30, 31 and 34 of the TRIPS* Agreement |
| 2. <i>New Law on Copyright and Related Rights</i> (with amendments due to the TRIPS requirements) | 2000 | Articles 12, 14 ^{ter} of the Berne Convention and Article 10 of the TRIPS Agreement |
| 3. <i>Law on Selection Achievements</i> | 1999 | Article 27 of the TRIPS Agreement related to the protection of plant varieties |
| 4. <i>New Law on Protection of Trade Names</i> (with amendments due to the TRIPS requirements) | 1999 | Article 8 of the Paris Convention |
| 5. Amendments to the <i>Civil Procedure Code</i> | 1999 | Articles 42, 46, 47 and 50 of the TRIPS Agreement |
| 6. Amendments to the <i>Civil Code</i> | 2000 | (Articles 17, 22, 30, 39 of the TRIPS Agreement) |
| 7. Amendments to the <i>Criminal Procedure Code</i> | 1999 | Articles 46, 47, 50 and 61 of the TRIPS Agreement |
| 8. <i>Customs Code</i> | 1999 | "Special Requirements related to Border Measures" provided by Section 4, Part III of the TRIPS Agreement |
| 9. <i>Criminal Code</i> | 1999 | Articles 10 ^{bis} , 10 ^{ter} of the Paris Convention and Articles 46, 47, 50 and 61 of the TRIPS Agreement |
| 10. <i>New Law on Trademarks, Service Marks and Appellations of Origin of the Goods</i> (with amendments due to the TRIPS requirements) | 1999 | Articles 5(C), 6 ^{bis} , 6 ^{septies} , 10 of the Paris Convention and Articles 15, 16, 17, 19, 22, 23, 24, 46 and 47 of the TRIPS Agreement |
| 11. <i>Law on Protection of Economic Competition</i> (including the regulation of unfair competition and protection of undisclosed information) | 2000 | Articles 10 ^{bis} , 10 ^{ter} of the Paris Convention and Article 39 and 40 of the TRIPS Agreement |
| 12. <i>Law on Protection of Topographies of Integrated Circuits</i> | 1998 | Articles 35-38 of the TRIPS Agreement |

Note: * TRIPS – trade-related aspects of intellectual property rights

o) Energy-Related Legislation

The laws that are specific to the energy sector of Armenia are: the *Law on Energy*; the *Energy Saving and Energy Efficiency Law*; the *Subsoil Utilisation Code*; the *Law Concession for the Investigation and Mining Operation of the Subsoil Mineral Resources*; the *Law on Foreign Investment*; the *Law on Licensing*; and the *Law on the Natural Monopoly Regulatory Commission*. Furthermore, and the following regulations, introduced by the Public Services Regulatory Commission, apply:

- (i) Regulation for the setting and the revision of tariffs;
- (ii) Regulation on the procedures for licensing of activities in the energy sector of the Republic of Armenia;

- (iii) Rules for Amending Licences; and
- (iv) Rules for licensing of power and natural gas import and export activities in the energy sector of the Republic of Armenia.

Law on Energy

General Provisions

According to Article 1, the law shall regulate the relationships between government bodies, legal entities of the energy sector operating under this law, and consumers of electricity, thermal energy and natural gas in the Republic of Armenia. As such, the law does not deal with the oil sector.

Pursuant to Article 2, the objective of this law is the establishment of the government policies in the energy sector and the mechanisms for their implementation.

The law uses the following main terms on licensing:

- (i) Licence: a document issued by the commission to a legal entity in confirmation of its rights and liabilities regarding carrying out activities and providing services in the energy sector in compliance to the *Law on Energy* of Armenia;
- (ii) Licensee: a legal entity that has been granted a licence in compliance with the law;
- (iii) Licensed activity: an activity that must be licensed in compliance with the law;
- (iv) Commission: The Public Services Regulatory Commission of the Republic of Armenia, *Law on the Public Services Regulatory Body* of 2003 (PSRC); and
- (v) Decision (Decree): A legal act adopted by the Commission within the area of its competence in compliance with the law.

State Policies in the Energy Sector

Article 5 sets out the basic principles of the state policies in the energy sector as follows:

- (i) Enhancement of competition and efficient operation in the energy sector and creation of essential conditions for the development of a competitive environment;
- (ii) Regulation of the operations in the energy sector;
- (iii) Separation of the economic activity, government management, and regulation functions;
- (iv) Protection of the rights of the consumers and the economic entities in the energy sector, and the assurance of a balance of their interests;
- (v) Efficient use of domestic energy resources and alternative sources of energy, and implementation of economic and legal mechanisms for that purpose;
- (vi) Encouragement of investments in the energy sector;
- (vii) Ensuring transparency of the licensed operations in the energy sector;
- (viii) Ensuring safety in the energy sector;
- (ix) Enhancement of the energy independence of Armenia, including by diversifying domestic and imported energy sources;
- (x) Ensuring the protection of the environment;
- (xi) Encouragement of scientific and technical progress and employment of new energy-efficient and energy-saving technologies, as well as encouragement of personnel training and re-training;
- (xii) Encouragement of the formation and development of energy markets; and
- (xiii) Separation of the generation, transmission (transportation), distribution, export, import, system operator functions, and functions of service provision to the power market.

Regulation in the Energy Sector

According to Article 8, the regulation of the energy sector is part of the state policies, aimed at balancing the customers' and licensees' interests by defining and supervising the market rules for electricity, thermal energy and natural gas, the regulated tariffs, and the licence conditions, as well as the creation of equitable conditions for the licensees, and the formation and development of a competitive market.

Article 9 sets out the basic principles of regulation as follows:

- (i) Regulation by an autonomous body, within the framework of authorities specified by the law;
- (ii) Transparency of the regulations for the public;
- (iii) Elimination of discrimination of customers or any licensee;
- (iv) Balance of interests between the consumers and entities engaged in operations in the energy sector;
- (v) Collegiality of decision-making by the regulating body; and
- (vi) Restriction of the scope of regulation consistent with the development of a competitive market.

Article 10 outlines the primary methods of regulation, including:

- (i) Licensing, establishment of licence conditions and their supervision;
- (ii) Implementation of accounts and sub-accounts for energy sector licensees in conformity with the National Chart of Accounts, and laws and legal acts related to accounting, for reporting purposes to the regulatory body;
- (iii) Setting regulated tariffs;
- (iv) Development of model contracts or mandatory terms for energy and/or natural gas supply (service provision) between licensees, as well as energy and/or natural gas supply (sale/purchase) to consumers, and the registration of contracts executed between licensees;
- (v) Defining the market rules and regulations;
- (vi) Development of legal acts and oversight of their implementation by the regulatory body, within the framework of its authorities;
- (vii) Development of service quality requirements; and
- (viii) Study the investment programmes presented by the licensees with the purpose of determining their full or partial inclusion, or rejection, in the tariff.

According to Article 11, the regulation of the Armenian energy sector is carried out by an Energy Regulatory Commission, which acts pursuant to the authority vested in it by this law, and which is autonomous within its jurisdiction. The Commission is the legal successor of the Public Services Regulatory Commission of the Republic of Armenia. It has a key role due to its authority and its distinct and independent legal operations.

Articles 12-20 deal with the composition, tasks and work procedures of the Energy Regulatory Commission and Article 17 defines its responsibilities, specifically, the Commission shall:

- (i) Set the regulated tariffs for electrical and thermal energy and natural gas, transmission (transportation), distribution in the energy sector, system operator, services provided in the energy market, as well as maximum tariffs for electricity and natural gas import;

- (ii) Issue licences for operations in the energy sector;
- (iii) Oversee compliance with the licence conditions and apply penalties provided by this law;
- (iv) Approve, reject or set conditions for the purchase of licensees' shares (unless otherwise provided by *Law on Privatisation of State Property*), as well as for the sale or other form of transfer of any asset essential to the provision of the services provided by licensed entities, in compliance with Article 27 of this law;
- (v) Establish rules on supply and use of electrical and thermal energy and natural gas;
- (vi) Approve the energy market rules in cooperation with the body authorised by the Government;
- (vii) Establish model forms or mandatory provisions for energy and natural gas supply and service contracts to be signed between energy sector licensees and, pursuant to the procedures established by the Commission, register such contracts as well as contracts for export and import of electric power and natural gas;
- (viii) Establish model electricity and natural gas supply contracts, or mandatory provisions thereof, between licensees and consumers and ensure their application;
- (ix) Conduct discussions regarding disagreements between licensees to review the inquiries and complaints from the consumers regarding supply of energy and natural gas, including disputable bills submitted to the consumers, and issue decisions and/or clarifications on discussed issues;
- (x) Conduct or organise inspections of the licensee's installations and review the licensees' financial operations by requiring substantiating documents so as to monitor the implementation of licence conditions, and to check the accuracy of financial reports and information provided by licensees;
- (xi) In accordance with procedures established by the Commission, request from the licensees and licence applicants all information and data necessary for the Commission for issuing a licence, setting tariffs, settling disputes, or any other issues being addressed by the Commission;
- (xii) Set quality requirements for services provided to the consumers by the companies; prescribe accounts and sub-accounts in conformity with the laws of Armenia, approved National Chart of Accounts and other legal acts of the Republic of Armenia for regulatory reporting;
- (xiii) Review development-investment projects of licensees in order to make a decision as to whether the investments (fully or partially) will be included or rejected in the future tariffs; and
- (xiv) Ensure enforcement of and provide comments on the resolutions adopted by the Commission.

Setting Regulated Tariffs and Payments for Services

The Commission has the right to approve or reject the tariffs of a licensee. According to Article 21, the principles of setting regulated tariffs for electric and thermal energy, and natural gas, as well as the extent of payments for services rendered, are as follows:

- (i) Compensation of justified operation and maintenance costs, as well as the depreciation allocations of fixed assets and non-material assets essential for the licensed operation to comply with the licence provisions;
- (ii) Allowing a reasonable profit;
- (iii) Inclusion of justified costs for loan services;
- (iv) Establishment of differentiated tariffs for customers, dependent on the consumption volume, requested capacity, season, time of use, connection terms, and type of service;

- (v) Inclusion of justified and essential insurance costs;
- (vi) Inclusion of justified costs related to compliance with environmental norms;
- (vii) Inclusion of mothballing and preservation costs of the installations, subject to mothballing in conformance with the Energy Development Programme of the Government;
- (viii) Assurance that the costs of securing used nuclear fuel are met and that the requisite allocations to the Nuclear Plant Decommissioning Fund are made; Inclusion of justified technical and commercial losses; and
- (ix) Inclusion of other justified and necessary costs as provided by the legislation.

Licensing of the Activities of Economic Entities in the Energy Sector

The operation of the energy sector is based on the system of licences. Licences are the administrative acts issued by the Commission according to the *Law on Energy*, which concretise and describe the obligations and rights of a licensee in order to exercise a particular activity in the energy sector. Licences are not transferable.

According to Article 23, a licence is required for the following activities: generation of electricity and thermal energy (including combined electric/thermal generation); transmission (transportation) and distribution of electricity, thermal energy, and natural gas; implementation of system operator services in the electric energy and natural gas sectors; and construction or reconstruction of new generating capacities in addition to associated transmission and distribution networks in the electric/thermal energy or natural gas sectors; electricity and natural gas import and export activities; and power market services provision. Only a licensee holding adequate operational licences in compliance with this law may engage in electric and thermal power and natural gas sale/purchase (purchase with intent to sell) activities, in accordance with the licence conditions and market rules.

Articles 24-28 set out the conditions for granting an operational licence. Pursuant to Article 28, the licensee has the following responsibilities:

- (i) Comply with all conditions set forth in this law, the legislation of the Republic of Armenia, other legal acts, the legal acts adopted by the Commission, and the conditions set forth in the licence;
- (ii) Forward to the Commission for its approval a time schedule and a plan of activities ensuring the implementation of environmental and safety requirements;
- (iii) Implement the operation, technical service and repair of the equipment under its management, ensuring the safety and health of staff and citizens;
- (iv) Make sure the equipment used during the implementation of the licensed operation complies with the effective technical rules and conditions provided in the licence;
- (v) Render the buildings, constructions, structures, installations and lines included in the licensed operation accessible to representatives of the Commission and other entities defined by law;
- (vi) Inform the general public about the technical safety rules as well as about the licence and contract-related rights and responsibilities of the parties stipulated by other norms;
- (vii) In conformance with the licence provisions, conduct technical audits (including on technical losses, specific fuel consumption, consumption of energy or natural gas consumption for the plant's own needs) and/or financial audits, with the involvement of independent experts;

- (viii) In established procedures, coordinate with the Commission the development of investment programmes, in order to obtain an opinion regarding the full or partial inclusion of investments in the future tariffs;
- (ix) Submit for the Commission's approval the calculation methodologies of inevitable technological losses, specific fuel consumption, energy or natural gas used for own needs and other constituent elements of the tariff; and
- (x) Perform other responsibilities provided by this law.

The terms and conditions for granting licences are as follows:

- (i) The Commission sets the form and the list of documents that have to be submitted to the Commission for granting licences for activities;
- (ii) A licence for an activity is issued if the legal entity that has submitted an application is in possession (owns or has access under a contract) of the required equipment/facilities;
- (iii) The Commission sets the procedure and conditions for considering an application for a licence and granting a licence to an applicant;
- (iv) The Commission must consider an application for granting a licence and adopt the relevant decision (decree) within the term set by the Commission; the term cannot exceed 60 days from the moment of submission by the applicant of all required documents; and
- (v) The Commission shall mail to the applicant a copy of the decision (decree) for granting or refusing the granting of a licence within 10 days from the adoption of the decision (decree).

Article 30 deals with the modification of the operation licence. The licence provisions may be modified based on the initiative of the Commission, only with consent of the licensee, unless the intended amendments are required under Armenian law.

Articles 32-39 deal with the content of each type of licence and describe the respective rights of the licence holders. The law restricts the possibility of holding multiple licences in order to avoid monopolistic or oligopolistic practices.

Electrical and Thermal Power and Natural Gas Provision Contracts

According to Article 40, concluded contracts between licensees, as well as import and export contracts become effective from the moment of their registration with the Commission. Article 41 specifically deals with consumer contracts and the liability for breach of obligations. In particular, Article 41(4) gives the supplier the right to refuse the energy (gas) supplies completely or partially if the consumer has:

- (i) Used the energy or natural gas under his authority by tampering with the metering device, which resulted in a decrease of the energy or natural gas consumption level registered by the metering device; or
- (ii) Consumed energy or natural gas without the contractually-required metering device or by means of bypassing it.

Pursuant to Article 41(5), the supplier shall also have the right to disconnect the supply of electricity, thermal energy or natural gas to a customer if the customer does not pay a bill within the period of time established by the Commission. Such disconnection from energy and/or natural gas supply shall follow a warning procedure set forth by the Commission.

Enforcement

Article 42 gives the Commission the power to impose sanctions in instances of non-compliance or inadequate compliance or violation of the requirements of this law, the legal acts of the Commission, or the licence provisions by the licensees. In particular, the Commission may impose the following sanctions: a warning; reduction of the tariffs; suspension of the licence; and revocation of the licence.

The licensee shall have the right to express his opinion, suggestions or disagreement regarding the imposed sanction at the Commission's session. In addition, according to Article 43, an appeal against legal acts issued by the Commission can be filed in Court. However, the amount of tariffs established by the Commission is not subject to appeal and cannot be changed by Court.

Guarantees for Ensuring Energy Supplies to Consumers

Articles 47-56 contain rules for securing energy supply to consumers. Pursuant to Article 47, a distribution licensee must supply energy and natural gas to every consumer in its service territory who has met the requirements of the Supply and Usage Rules approved by the Commission. According to Article 49, all licensees shall prepare operational programmes for dealing with situations requiring unavoidable restriction of electric and thermal energy and natural gas supply, based on the procedures established by the Commission. These programmes shall reflect conditions of priority for service to certain customers. The Armenian Government shall establish a list of such customers.

Article 53 deals with the right of access to electric transmission, natural gas transportation and/or distribution networks. The access of generation and import licensees to the transmission (transportation) and distribution networks shall be conducted pursuant to the procedure established by the Market Rules. Transmission (transportation) and distribution licensees must transmit (transport) and distribute electric energy (natural gas) through their networks to other licensees or the customer, based on established contracts, and at the tariff established by the Commission, provided such transmission (transportation) and (or) distribution shall be in conformance with system reliability, safety and technical rules and procedures.

According to Article 55, disputes among the licensees shall be resolved by means of negotiations. Either party may apply to the Commission to resolve the issue at dispute within the Commission's authority. This does not limit the right of the parties to resolve the disputes in a Court.

International Treaties

Article 57 stipulates that in the event that provisions set forth in international treaties of the Republic of Armenia are inconsistent with provisions prescribed in this law, the former shall prevail.

Notably, Part 1 of Article 59 (Transitional Clauses) states the following:

"1. From the moment of enactment of this Law in the electric power system:
(b) The exclusive right to sell electric power is extended to a person/entity that possesses a licence for the distribution (of power) for a period of five years on the territory covered by the licence.
(c) All electric power (capacity) produced within fifteen years at small hydropower plants and by using other renewable energy sources shall be purchased in compliance to the rules established on the market."

The Public Services Regulatory Commission has issued the following Regulations with respect to:

- (i) Licences: the *Law on Energy* requires the Commission to issue licences for generation, import, export, transmission and distribution of electricity and heat, as well as for import, export, transmission and distribution of natural gas. Model licences have been prepared for electricity generation, transmission and distribution, and for the transmission and distribution of gas. Licences issued to state-owned companies are likely to need modifications in the course of privatisation;
- (ii) Model Contracts: The *Law on Energy* gives the Commission the responsibility to "register" contracts concluded between licensees. The Commission has produced 13 model contracts, including contracts concluded between gas importers and transmission companies, contracts between gas transmission and distribution companies, and contracts for the purchase and sale of electricity for residential and non-residential consumers;
- (iii) Electricity Tariffs: The single most controversial activity of the Regulatory Commission has been the setting of electricity tariffs. The Commission has recognised that low tariffs (below costs) and poor collection rates are the biggest obstacles to the attraction of private investment (refer to next section).
- (iv) The Commission has also adopted a *Resolution* in pursuit of the establishment of an attractive investment climate for the development of new and renewable energy sources; and
- (v) Resolution of 30.11.2007 No. 598 states that, "*On approval of the methodologies for calculation of tariffs for sale of electricity delivered from power plants operating on renewable energy resources within the territory of the Republic of Armenia and on setting tariffs for 2008 for sale of electricity generated by those plants*", fixed tariffs without VAT for the sale of electricity delivered from different kind of plants have been set, in particular:
 - a) Tariff for small hydropower plants constructed on natural river-beds – AMD17.214/kWh;
 - b) Tariff for small hydropower plants constructed on irrigation systems – AMD11.475/kWh;
 - c) Tariff for small hydropower plants constructed on waterways for drinking water – AMD7.651/kWh;
 - d) Tariff for wind power stations – AMD31.343/kWh; and
 - e) Tariff for stations using biomass – AMD32.969/kWh.

This Resolution is updated annually by 1 December and comes into force 1 January the following year. The Resolution is being updated on the basis of specially developed principles (Government Resolution of 04.05.2007 No. 207) and takes into account the following:

- (i) Tariff of the previous year;
- (ii) Adjustment for inflation;
- (iii) Consumer price index; and
- (iv) Exchange rate of AMD to USD.

The above principles shall be applicable for 15 years from the date of issuing a licence for electricity generation (*Law on Energy* of 7 March 2001).

Subsoil Utilisation Code

The objectives of the *Subsoil Utilisation Code of the Republic of Armenia* (6 November 2002) are as follows: regulation of the relations pertaining to subsoil and subsoil use in the context of a mixed economy; subsoil protection, rational and integrated use of subsoil with the aim of meeting the economy demands for mineral resources and other needs; environment protection; ensuring labour safety in the process of subsoil use; and protection of rights and economic interests of the Republic, as a subsoil owner and subsoil users. For this purpose the law comprises two parts: principles, order of subsoil use, and relations pertaining to subsoil use.

Article 2: Basic Definitions:

- (i) Subsoil: part of the Earth's crust occurring in substrata (underground), and in the absence thereof, below the earth's surface, below the bottom of water reservoirs and flows;
- (ii) Subsoil Use: allocation of subsoil for geological exploration, business activity and other purposes;
- (iii) Mineral Resources: usable solid, liquid, gaseous elements of subsoil including non-saline, mineral, thermal subsurface waters, geothermal energy, bottom sediments of water reservoirs and rivers, as well as stockpiled wastes resulted from subsoil use;
- (iv) Expected Reserves of Mineral Resources: hypothetical cumuli of mineral resources, quantity, quality and location of which were assessed based on the direct and indirect data, as well as general geological factors; and
- (v) Recoverable Value of Mineral Resources: a unit value of extracted and processed mineral resources, calculated on the basis of market prices and standard indicators of applied technologies.

Article 4: Ownership of Subsoil

- (i) Subsoil is the exclusive property of the State, which may be granted on the basis of the right to use and shall not be privatised; and
- (ii) Plots of subsoil shall not be subject to purchase/sale, pledge or otherwise alienated.

Right to subsoil use may be alienated or transferred from one subsoil user to another following the order set forth by the law of the Republic of Armenia.

Article 8: Limitations on Subsoil Use

- (i) In order to ensure human health, national security, and protection of the environment, the use of certain subsoil plots may be limited or prohibited by laws of the Republic of Armenia, or other legal acts; and
- (ii) Subsoil use in residential areas, on the territory of suburban structures, industrial, and communication objects, etc. is limited or prohibited in order to prevent damage to important objects of economy.

Article 9: Users of the Subsoil

- (i) Users of subsoil shall be citizens of Armenia and legal entities (including foreign ones) having the right to use subsoil in accordance with the code, the law of the Republic of Armenia and other legal acts; and
- (ii) Users of subsoil, acting with the aim of exploration, prospecting and

development of radioactive resources, as well as disposal of radioactive or harmful chemical substances, shall be only legal entities established by the Government of Armenia and possessing a special permit.

Special right to subsoil use shall be established only by the Government.

Article 12: Subsoil Use Time Limits

Subsoil is allocated for use with the aim of geological survey and exploration of mineral resources for a definite period of time, but not more than 50 years, based on the projected scope and conditions of envisaged works. Subsoil use time limits are established in an appropriate state registration, licence and/or contract.

Article 17 determines types of subsoil geological exploration and Section 3 sets forth all the requirements for subsoil use for the purposes of mining operations and purposes not related to mining operations.

Article 22 deals with a subsoil use agreement. This Agreement can provide for subsoil use on a production sharing principle. List of areas where subsoil is used based on production sharing shall be approved by the Armenian Government.

Article 30 outlines the types and methods of subsoil use for the purposes of mining operations and for purposes not related to mining operations.

Article 31 defines the order of subsoil use for the purposes of mining operations.

Article 34 presents the key information for a subsoil use contract for the purposes of mining operations on reserve deposit fields.

Article 38 discusses mining operations without mining allotment and special zones of sanitary protection.

Article 39 outlines the design of facilities (enterprises) for mining operations and crude ore processing, as well as underground facilities not related to mining operations.

Article 40 discusses the main requirements for the design, construction and operation of facilities (enterprises) for mining operations and crude ore processing, as well as the development of underground facilities not related to mining operations.

Article 42 outlines the basic rights and responsibilities of subsoil users.

Article 44: Payments Related to Subsoil Use.

Subsoil use shall be reimbursable with the exception of cases set forth by Article 45 of the present Code. Payments shall be made when using subsoil, as follows:

- (i) Participation in tender;
- (ii) Provision of information on subsoil;
- (iii) Subsoil use (royalty); and
- (iv) Compensation for geological exploration financed from the state budget.

Section 7 addresses government control of subsoil protection and use.

Concessions for Exploration and Mining Operation of the Subsoil Mineral Resources
The Law on Allocation for Subsoil Exploration and Commercial Production for the Purposes of Mineral Resources Development was adopted on 11 May 2002 and sets forth a procedure of subsoil allocation for the purposes of exploration and/or commercial production of mineral resources on the territory of the Republic of Armenia. In addition, the law regulates relations pertaining to mining rights. In case the norms of international agreements to which the Republic of Armenia is party stipulate otherwise, the provisions of this law shall be applied.

The basic definitions of the law are as follows:

- (i) Licence for Mining Operations: a written permit establishing the right to mining operations on a certain plot of subsoil. A licence shall be issued for a period not exceeding 12 years;
- (ii) Licence for Exploration: a written permit establishing the right to general exploration on a certain plot of subsoil. A licence shall be issued for a period not exceeding three years;
- (iii) Special Licence for Mining Operations: a written permit establishing the right to mining operation on a certain plot of subsoil. A licence shall be issued for a period exceeding 12 years, but not more than 25 years;
- (iv) Licence Contract: a written agreement signed by a authorised by the Government of the Republic of Armenia (Authorised Body) and a licensor, establishing terms and conditions of granting a mining right, and responsibilities of the parties thereto;
- (v) Concession Contract: a written agreement signed by the Authorised Body and the holder of a Special Licence for Mining Operations, which regulates the obligations of all parties, as established by law; and
- (vi) Stabilisation Contract: a written agreement signed by the Authorised Body and the holder of a special Licence for Exploration, which regulates the obligations of all parties, as established by law.

Article 19 states that, in accordance with the law, an approved applicant for a Special Licence for Mining Operations is required to sign a concession contract with the Government's Authorised Body.

As per Article 20, the holder of a Special Licence for Investigation, on the basis of an application submitted to the Authorised Body, may be entitled to a Special Licence for Mining Operations on the investigation site, for the purposes of commercially developing its mineral resources. Notwithstanding, in compliance with existing provisions, an applicant holding a Special Licence for Exploration shall be given preference.

Article 27 states that holders of Special Licences for Exploration or Special Licences for Mining Operations may apply to the Authorised Body for the extension of the subsoil plot allocated according to the licence. The Authorised Body retains the right to approve or reject such an application.

Article 30 states that holders of Special Licences for Exploration or Special Licences for Mining Operations intending to renounce their rights to a subsoil plot (or a part thereof) which is subject to a licence, must apply to the Authorised Body at least three months prior to the intended date of effect. In accordance with the law, the Authorised

Body shall issue a renunciation certificate to the applicant, which may or may not be subject to specific conditions.

Article 40 stipulates that, on the basis of an application, the Authorised Body can extend the validity of a Licence for Mining Operations for the period indicated in the application, provided it does not exceed six years and the mineral resource deposits are sufficient to continue their commercial development.

Article 45 states that royalties for extracted non-metallic mineral resources and ornamental stones shall be imposed in the amount and the order established by the Government of the Republic of Armenia.

Article 49 advises that the issuance of a Special Licence for Mining Operations may be subject to additional fees on behalf of the licensor. Payment of such additional fees arises when the State provides a licensor with commercially valuable information on the site in question, obtained during previous investigation and exploration conducted on the site.

Article 50: Stabilisation Contracts

- (i) Subject to a written application from an applicant aiming to obtain a Special Licence for Exploration, as well as supporting documentation issued by the Consultative Committee for Subsoil Use, the Authorised Body shall sign a Stabilisation Contract on behalf of the Republic of Armenia;
- (ii) In the event that a Stabilisation Contract is established with the holder of a Special Licence for Exploration, the holder may choose to have remedial mechanisms and compensation for additional expenditure applied as set forth by the present law; and
- (iii) Stabilisation Contract shall become effective simultaneously with a respective special licence for exploration and be valid not more than 12 years starting from the commencement of the mineral resources commercial development.

Article 51: Concession Contracts

- (i) Subject to a written application from an applicant aiming to obtain a Special Licence for Mining Operations, as well as supporting documentation issued by the Consultative Committee for Subsoil Use, the authorised body shall sign a Concession Contract on behalf of the Republic of Armenia, either in addition to or instead of a Stabilisation Contract; and
- (ii) Concession Contract shall become effective simultaneously with a special licence for mining operation and be valid during the whole term of this licence validity.

Article 48 states that holders of Special Licences for Exploration or Mining Operation, as well as Licences for Exploration and/or Mining Operation shall make an annual concession payment to the State, as prescribed by the Government, which will not exceed:

- (i) The five-fold minimum wage amount per square kilometre of a subsoil plot allocated under a Licence for Exploration or Special Licence for Exploration; and
- (ii) The fifty-fold minimum wage amount per square kilometre of a subsoil plot allocated under a Licence for Mining Operation or Special Licence for Mining Operation.

Article 66 states that mining rights may not be transferred or pledged without the consent of the Authorised Body, with the exception of the case provided for by Part IV of the present Article. Any mining rights transactions undertaken without such consent shall be null and void.

An application submitted with the aim of obtaining consent, as per the present Article, should include information on the economic entity applying for the mining rights being transferred, which is equivalent to that provided by the transferor at the time of obtaining the mining rights in the first instance. The procedure for transferring mining rights shall be established by the Authorised Body.

Mining rights may be transferred without the consent of the Authorised Body, if the restructuring of an economic entity or licensor results in reassignment of the mining rights. The reorganised economic entity shall notify the Authorised Body of the reassignment of the mining rights within 14 days of registration of restructured organisation.

The *Subsoil Utilisation Code* and *Concession for Investigation and Mining Operation of Subsoil Mineral Resources* have two main weaknesses: the Licence for Exploration and the Licence for Production are not connected; and the state taxes (royalties, supplementary payments, etc.) differ in the two laws in ways that are not explained in detail.

Energy Saving and Renewable Energy Law

Article 1 sets out the purpose of the law and the defining principles of state policy with respect to the development of energy saving practices and renewable energy sources. The enforcement mechanisms aim at the following:

- (i) Strengthening the economic and energy independence of the Republic of Armenia;
- (ii) Increasing the economic and energy security, and the safety levels of energy systems of the Republic of Armenia;
- (iii) Establishment and development of new industry infrastructure and organisation of services promoting energy saving and renewable energy; and
- (iv) Reduction of adverse techno-born impacts on the environment and human health.

Article 3 states that the present law shall regulate the inter-relations of: the state administration and local government bodies of the Republic of Armenia; and legal and physical persons arising from and/or in connection with activities in the sphere of energy saving and renewable energy, such as:

- (i) Development, production, importation and use of energy devices, machinery, equipment and products, and producing, transporting, transforming, storing and operating based on energy as well as renewable energy resources;
- (ii) Development, production and importation of up to date insulation and weather-resistant materials and structures aimed at increasing the energy efficiency of buildings and constructions;
- (iii) Development and application of industrial-technical complexes using energy carriers (including for lighting, heating, ventilation, water supply and sewerage systems) and energy efficiency designs, technologies and technical solutions for buildings and constructions;

- (iv) Development, production, importation and use of equipment and technical complexes for quality testing, registration, and consumption regulation of energy resources;
- (v) Energy carriers and mechanical energy production using renewable energy resources, including electric energy generation from water resources, where the present law applies to hydro-power stations with installed capacity of up to 10,000 kW inclusive; and
- (vi) Organisation, research and development, design, assessment, construction, reconstruction and regulation activities for efficient use of energy resources, including renewable energy.

Article 5: Principles of State Policy in Energy Saving and Renewable Energy

- (i) State policy in the area of energy saving and renewable energy shall be based on the principle of voluntary participation of the involved parties; and
- (ii) The principles of state policy in energy saving and renewable energy are:
 - a) Increasing the level of supply of indigenous renewable energy carriers to satisfy the energy demand of the economy;
 - b) Implementation of energy saving strategies, as well as development and enforcement of legal and economic mechanisms for the promotion of renewable energy;
 - c) Ensuring high priority of efficient use of energy given the increasing volumes of imported and extracted energy resources;
 - d) Ensuring increasing usage of renewable energy resources as well as the application and development of renewable energy new technologies aimed its promotion;
 - e) Ensuring competitiveness of renewable energy resources and protection/enforcement of the rights of businesses engaged in the area of renewable energy;
 - f) Ensuring high priority of issues of environmental protection and efficient (economic) usage of natural resources while implementing measures/activities aimed at the development of energy saving and renewable energy;
 - g) Promotion of energy efficient production of electric and/or heat energy, including for autonomous energy producers;
 - h) Promotion of integrated activities between the autonomous energy producers, using renewable energy resources, and the energy system aimed at the exchange of electric energy;
 - i) Promotion of consumer choices and use of different energy carriers and energy efficiency technologies; and
 - j) Implementation of energy saving and renewable energy state (national) targeted programmes.

Article 8: Voluntary Certification of Energy Devices Compliance

- (i) Legal (physical) persons using, producing and importing energy devices can submit those in the manner established by the *Law on Certification of Compliance of Goods and Services with Normative Requirements* for voluntary certification based on energy efficiency indicators;
- (ii) Voluntary certification of compliance provided herein by the present Article shall be implemented at the initiative and expense of the legal and physical persons using, producing and importing energy devices; and
- (iii) Based on results of voluntary certification of compliance, the labelling of energy devices shall be carried out in accordance with the energy efficiency indicators.

Article 13: Energy Examination/Audit

- (i) The purpose of energy examination/audit shall be providing a conclusion on the real values of energy efficiency relative to values of defined by national standards;
- (ii) Energy examination/audit shall be voluntary and carried out by the initiative and at the expense of legal and physical persons;
- (iii) Energy examination/audit of projects carried out at the expense of state budget shall be implemented by the decision of the Government by contract in the manner established by law; and
- (iv) The measurement of energy efficiency indicators planned by energy examinations/audits shall be carried out by expert laboratories certified in the manner established by the *Law on Certification of Compliance of Goods and Services with Normative Requirements*.

2. Summary of Laws/Regulations Relevant to Investing in the Energy Sector

Legal instruments, than those referred to in Section B.1.o), that are relevant to foreign investors include:

- (i) *Lithosphere Code* (2002);
- (ii) *Water Code* (2002);
- (iii) *Law on Patents* (1993);
- (iv) *Law on Insurance* (1996);
- (v) *Law on Standardisation* (1999) as amended and supplemented in 2004;
- (vi) *Law on Metrology Unification* (1997); and
- (vii) Energy Regulatory Commission's *Resolution No 27 on Licensing Procedures for Activity in the Energy Sector* (1998).

3. Summary of Participation in International Organisations and/or Conventions

a) List of Bilateral Treaties on the Protection and Promotion of Foreign Investments

The Government of Armenia has signed the bilateral agreements on the protection and promotion of investments listed in Table 14.

In addition, bilateral investment protection agreements are under negotiation between the Republic of Armenia and Australia, Kazakhstan, the Republic of Korea (South Korea), Syria, Malaysia, Ireland, Spain, Portugal, Bolivia, Hungary, Slovakia, Brazil, the Czech Republic, Japan, FYR of Macedonia, Morocco, Slovenia, and Jordan.

Armenia is also a signatory to the CIS Multilateral Convention on the Protection of Investor Rights. In addition, bilateral investment protection agreements are under negotiation between the Republic of Armenia and Australia, Kazakhstan, the Republic of Korea (South Korea), Syria, Malaysia, Ireland, Spain, Portugal, Bolivia, Hungary, Slovakia, Brazil, the Czech Republic, Japan, FYR of Macedonia, Morocco, Slovenia, and Jordan.

Armenia is also a signatory to the *CIS Multilateral Convention on the Protection of Investor Rights*.

Table 14: Bilateral Investment Protection Agreements of Armenia

| Partner | Date of Signature | Date of Ratification |
|----------------------|--------------------------|-----------------------------|
| Argentina | 16 April 1993 | 27 September 1993 |
| Austria | 17 October 2001 | 9 October 2002 |
| Belarus | 26 May 2001 | 21 November 2001 |
| Belgium/Luxembourg | 7 June 2001 | 20 February 2002 |
| Bulgaria | 10 April 1995 | 29 August 1995 |
| Canada | 8 May 1997 | 17 March 1999 |
| China | 4 July 1992 | 6 October 1992 |
| Cyprus | 18 January 1995 | 12 June 1996 |
| Egypt | 9 June 1996 | 8 December 2005 |
| Finland | 5 October 2004 | 27 February 2007 |
| France | 4 November 1995 | 5 August 1996 |
| Georgia | 4 June 1996 | 18 February 1997 |
| Germany | 21 December 1995 | 23 June 1997 |
| Greece | 25 May 1993 | 13 October 1993 |
| India | 23 May 2003 | 27 April 2004 |
| Iran | 6 May 1995 | 14 November 1995 |
| Israel | 19 January 2000 | 21 March 2001 |
| Italy | 23 July 1998 | 11 October 2000 |
| Kazakhstan | 6 November 2006 | - |
| Kyrgyzstan | 4 July 1994 | 29 August 1995 |
| Latvia | 7 October 2005 | 27 February 2007 |
| Lebanon | 1 May 1995 | 29 August 1995 |
| Lithuania | 25 April 2006 | 27 February 2007 |
| Qatar | 22 April 2002 | 23 October 2002 |
| Romania | 20 September 1994 | 11 October 1995 |
| Russian Federation | 15 September 2001 | 2 December 2005 |
| Sweden | 8 February 2006 | - |
| Switzerland | 19 November 1998 | 9 October 2002 |
| Tajikistan | 22 April 2002 | 4 November 2002 |
| The Netherlands | 10 June 2005 | 2 December 2005 |
| Turkmenistan | 19 March 1996 | - |
| Ukraine | 7 October 1994 | 16 January 1996 |
| United Arab Emirates | 20 April 2002 | 4 November 2002 |
| United Kingdom | 27 May 1993 | 13 October 1993 |
| United States | 23 September 1992 | 26 September 1995 |
| Uruguay | 6 May 2002 | 25 March 2003 |
| Vietnam | 1 February 1993 | 28 April 1993 |
| Total | 37 | 34 |

Source: Ministry of Trade and Economic Development of the Republic of Armenia

b) List of Bilateral Treaties (Agreements) on Avoidance of Double Taxation

The Republic of Armenia currently has bilateral treaties on the avoidance of double taxation with the countries listed in Table 15.

Table 15: Bilateral Treaties

| Country | Signed | Entered into Force |
|--------------|-------------------|--------------------|
| Austria | 27 February 2002 | 1 December 2003 |
| Belarus | 19 July 2000 | 7 November 2001 |
| Belgium | 7 June 2001 | 23 September 2003 |
| Bulgaria | 10 April 1995 | 26 September 1995 |
| Canada | 29 June 2004 | 29 December 2005 |
| China | 5 May 1996 | 8 October 1996 |
| Estonia | 13 April 2001 | 7 November 2001 |
| France | 9 December 1997 | 7 February 2001 |
| Georgia | 17 November 1997 | 17 March 1999 |
| Greece | 12 May 1999 | 11 October 2000 |
| India | - | 9 September 2004 |
| Iran | 6 May 1995 | 8 October 1996 |
| Italy | 14 June 2002 | 23 September 2003 |
| Latvia | 15 March 2000 | 7 February 2001 |
| Lebanon | 16 September 1998 | 13 September 2000 |
| Lithuania | 13 March 2000 | 7 February 2001 |
| Moldova | 6 October 2002 | 22 October 2003 |
| Netherlands | 31 October 2001 | 9 October 2002 |
| Poland | 14 July 1999 | 7 November 2001 |
| Qatar | 22 April 2002 | 23 October 2002 |
| Romania | 25 March 1996 | 8 October 1996 |
| Russia | 28 December 1996 | 26 December 1997 |
| Syria | 29 June 2005 | - |
| Tajikistan | 1 July 2005 | - |
| Thailand | 7 November 2001 | 9 October 2002 |
| Turkmenistan | 5 June 1997 | 17 March 1999 |
| UAE | 20 April 2002 | 23 September 2003 |
| Ukraine | 14 May 1996 | 8 October 1996 |

Source: Armenian News Network/Groong, 31 January 2006, <http://groong.usc.edu/ro/ro-20060131.html> as of 1 February 2007

c) Free Trade Agreements

The Republic of Armenia has concluded Free Trade Agreements with the Russian Federation, Belarus, Ukraine, Georgia, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, and Kazakhstan. Under these agreements, equivalent customs duties, taxes, and similar charges are not levied by either party on a mutual basis.

Relevant protocols have been signed with the Russian Federation and Belarus, which list exceptions to free trade treatment, as well as protocols on the phasing-out of exceptions to free trade treatment.

Bilateral agreements on trade and economic cooperation were signed with the European Union, USA, Canada, Cuba, Argentina, Brazil, Switzerland, China, India, Iran, Egypt, Lebanon, Syria, United Arab Emirates, Qatar, the Republic of Korea (South Korea), and Vietnam, which stipulate the use of most-favoured-nation treatment (MFN) in foreign trade.

d) Membership in International Organisations

The international organisations of which Armenia is a member are listed in Table 16.

Table 16: Membership in International Organisations

| Member | |
|---------------|--|
| APCTT | Asian and Pacific Centre for Transfer of Technology |
| BSEC | Black Sea Economic Cooperation |
| BSTDB | Black Sea Trade and Development Bank |
| CCC | Customs Cooperation Council |
| CIS | Commonwealth of Independent States |
| CoE | Council of Europe |
| EAPC | Euro-Atlantic Partnership Council |
| EBRD | European Bank for Reconstruction and Development |
| ECT | Energy Charter Treaty |
| IFC | International Finance Corporation |
| IMF | International Monetary Fund |
| ISO | International Organisation for Standardisation |
| ITU | International Telecommunication Union |
| IPU | Inter-Parliamentary Union |
| FAO | Food and Agriculture Organisation |
| ECE | Economic Commission for Europe |
| ICRM | International Red Cross and Red Crescent Movement |
| IFRCS | International Federation of Red Cross and Red Crescent Societies |
| IOM | International Organisation for Migration |
| OPCW | Organisation for the Prohibition of Chemical Weapons |
| PFP | Partnership for Peace |
| WFTU | World Federation of Trade Unions |
| ESCAP | Economic and Social Commission for Asia and the Pacific |
| IAEA | International Atomic Energy Agency |
| IBRD | International Bank for Reconstruction and Development |
| ICAO | International Civil Aviation Organisation |
| IDA | International Development Association |
| IFAD | International Fund for Agricultural Development |

| Member | |
|----------------|---|
| ILO | International Labour Organisation |
| IOS | International Organisation for Standardisation |
| ICDO | International Civil Defence Organisation |
| ICAO | International Civil Aviation Organisation |
| INTOSAI | International Organisation of Supreme Audit Institutions |
| INTERPOL | Interpol |
| IOC | International Olympic Committee |
| ITU | International Telecommunication Union |
| OSCE | Organisation for Security and Cooperation in Europe |
| RAMSAR | Ramsar Convention on Wetlands |
| UN | United Nations |
| UNCTAD | United Nations Conference on Trade and Development |
| UNESCO | United Nations Educational, Scientific, and Cultural Organisation |
| UNIDO | United Nations Industrial Development Organisation |
| MIGA | Multilateral Investment Geographic Agency |
| UPU | Universal Postal Union |
| WCO | World Customs Organisation |
| WHO | World Health Organisation |
| WIPO | World Intellectual Property Organisation |
| WMO | World Meteorological Organisation |
| World Bank/IDA | World Bank/International Development Association |
| WTO | World Tourism Organisation |
| WTO | World Trade Organisation |

| Observer | |
|-----------------|---|
| ACCT | Agency for the French-Speaking Community |
| EEC | Eurasian Economic Community |
| NAM | Nonaligned Movement |
| OAS | Organisation of American States |
| OIF | International Organisation of the French-Speaking World |

e) Important Conventions Concerning the Energy Sector, Investment Disputes or Intellectual Property Rights

Armenia has ratified the *New York Convention on Recognition and Enforcement of Foreign Arbitral Awards* and adopted the *Law on Arbitration Courts and Arbitral Proceedings*.

Armenia is a member of the International Centre for the Settlement of Investment Disputes (ICSID), which gives additional confidence to foreign investors by providing for a rapid, effective and qualified settlement of investment disputes.

Armenia has ratified the following international environmental conventions:

- (i) *Convention on Long-Range Transboundary Air Pollution* (entered into force in 1983);
- (ii) *Montreal Protocol on Substances that Deplete the Ozone Layer* (entered into force on 1 January 1989);
- (iii) *Convention on Environmental Impact Assessment in a Transboundary Context* (Espoo Convention, adopted in 1991 and entered into force on 10 September 1997).
- (iv) *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (entered into force on 5 May 1992);
- (v) *United Nations Framework Convention on Climate Change* (entered into force on 21 March 1994); and
- (vi) *Kyoto Protocol* (adopted in Kyoto in 1997 and closed for signature on 15 March 1999).

4. Exceptions to National Treatment

There are no general restrictions applicable to foreign investors concerning investments in the Republic of Armenia. However, Armenia has identified one non-conforming measure concerning the purchase of land by foreigners. Under the *Law on Real Estate*, only Armenian citizens and companies (including subsidiaries of foreign companies incorporated in Armenia) may own land. Non-incorporated branches of foreign companies may only lease land. Foreign nationals, stateless natural persons and foreign legal persons not incorporated in Armenia do not have the right of land ownership (refer to Attachment 1 at rear of this Report for the legal text of this exception).

C. MARKET STRUCTURE AND PRIVATISATION BY SUB-SECTORS

1. Physical Features

a) Overview

Armenia is almost completely dependent on imported energy. There are no producing oil or gas fields and no refineries in Armenia. There are also no coalmines. The only domestic sources of electricity are hydropower plants (HPP) and a single nuclear power plant (NPP). Fuel rods and other major inputs for the nuclear power plant are also imported.

An historical summary of Armenia's total primary energy production (TPEP) and consumption (TPEC) is shown in Table 17. Data suggests that Armenia imports on the average about two thirds of the energy it consumes. Should power produced from imported fuel rods at the NPP be also considered as imports, the share of imported energy in consumption would be even higher, exceeding 80%.

Table 17: Armenia's TPEP and TPEC: 2002-2004 (Quads)

| | 2002 | 2003 | 2004 |
|------|-------|-------|-------|
| TPEP | 0.041 | 0.041 | 0.046 |
| TPEC | 0.164 | 0.175 | 0.180 |

Note: 1 Quad = 1 quadrillion British Thermal Units (BTU).

Source: US Department of Energy/Energy Information Administration

2. Oil

a) Exploration and Production

Petroleum Exploration and Production Legal Framework

Armenia does not produce crude oil and has no refinery. However, the right conditions for oil and gas accumulations do exist in the country, and considerable effort has been devoted to create the preconditions for private investment in exploration and production.

In the energy sector, the *Code of Underground Resources*, enacted by Parliament in 2002, has broad enabling principles that allow foreign investment to take place. The *Code of Foreign Investment* is also important to potential foreign investors. Both laws are fully consistent with the Armenian Government's investment objectives.

There is no bar to foreign equity involvement in the upstream or downstream ends of the petroleum sector. Applications by interested companies for exploration licence for areas free of petroleum activities can be made at any time.

From early on, the Ministry of Energy of the Republic of Armenia embarked on a programme of legislative reform aimed at making Armenia an attractive place for foreign exploration companies to invest. In 1992, the Ministry requested the assistance of the European Union's Technical Aid to the Commonwealth of Independent States (TACIS) programme. This materialised in a 1 year European Union (TACIS)-sponsored project (undertaken by Robertson Research of the UK and Partex of Portugal consortium and completed in July 1995). This project resulted in a

comprehensive four-volume report on the hydrocarbon potential, the establishment of an exploration databank, and the adoption of a policy for entering into production-sharing type agreements. As a result of these efforts, the business climate for foreign companies wishing to participate in petroleum exploration in Armenia was radically improved and negotiation processes streamlined and activated.

All current agreements have to be approved by the Government. The model petroleum agreement drafted under the EU-funded TACIS programme of 1994-95 serves as the basis for all negotiations with international oil companies. Some of the terms and conditions contained within this agreement are:

- (i) Negotiable exploratory work programmes and investor's financial commitments;
- (ii) Negotiable exploration periods and relinquishment terms;
- (iii) A Technical Advisory Committee comprising staff of the international oil company and the Ministry;
- (iv) Independent, international sole expert and arbitration resolution in disputes;
- (v) The usual provisions as to appraisal and development of a discovery for both oil and gas;
- (vi) Giving an investor an opportunity to freely export his share of produced oil and gas;
- (vii) Cost petroleum and profit petroleum splits established in percentage;
- (viii) Standard international provisions for the protection of the environment and for adherence to standards of good oilfield practice;
- (ix) International oil company rights assignment;
- (x) No foreign exchange controls; and
- (xi) Standard international accounting provisions.

Figure 7: Petroleum Exploration Contract Areas



Source: Oil and Gas Journal

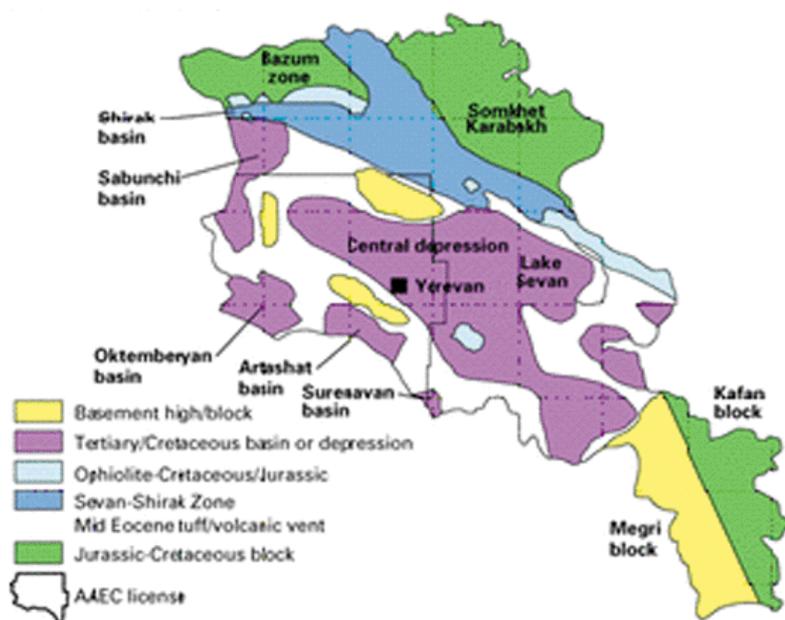
As shown in Figure 7, six contract areas have been defined: Block 1 (open, 5,450 km²); Block 2 (7,250 km²); Block 3 (open, 3,325 km²); Block 4 (5,925 km²); Block 5 (4,250 km²); and Block 6 (3,600 km²).

The Government and its advisers believe that the draft model production-sharing agreement is entirely consistent with good international practice. The Government will enter into negotiations around other contractual arrangements, provided they are consistent with international practice and the Government's objectives.²⁴

In 1997, the Armenian American Exploration Company (AAEC) signed a production-sharing agreement with the Ministry of Energy for an initial period of 5 years, covering Block 1 and Block 2. It was subsequently approved by the Government. In 2002, in the framework of this agreement a Canadian company, Transeuro Energy, was given an opportunity to acquire all of the interest in the two blocks from AAEC.²⁵ Transeuro Energy pledged to invest at least USD10.5 million in prospecting for oil and gas in the Armarir region over the next five years.²⁶

On 22 April 2007, a petroleum exploration and production-sharing Agreement for mining rights of Blocks 4, 5 and 6 in Armenia was signed between the Ministry of Energy and the Ministry of Environmental Protection, on one side, and Blackstairs Energy PLC on the other. The duration obtained for the Special Licence for Mining Operation is 25 years, which can be prolonged by a further term of up to 12 years.

Figure 8: Petroleum Basins in Armenia



Source: *Oil and Gas Journal*

Upstream Potential and Prospects

Serious exploration for oil and gas began in 1947. Before gaining independence, exploration occurred during two periods (1947-74 and 1981-90). During the first phase, 55 deep wells and 115 structural/mapping wells were drilled. Evidence of hydrocarbons was encountered in a number of wells. In 1947-53, a systematic study of basin geology, combined with gravity and surface magnetic surveys, was conducted (refer to Figure 8).

²⁴ Tim Papworth, Andranik Aghabalyan: Armenia's Prospects, OGI, August 12, 2002, with updates.

²⁵ Former Soviet Union Oil and Gas, Week 24, 2004, p. 14.

²⁶ Former Soviet Union Oil and Gas, Week 08, 2005, p. 22.

During the 1960s, additional geophysical data was acquired in those areas identified as having exploration potential, including the Oktemberyan and Near Araks basins. Nearly 1,000 km of seismic data were acquired in the 1960s, but the low level of technology made the data of very limited exploration use. Well Oktemberyan-13E tested gas at a rate ranging up to 1.54 million cubic feet/day (MMcfd), the flow continuing for six months. Other wells nearby recorded lower rates. Oil and gas levels recorded in Shorakhpur-31E led to further drilling on that prospect at a later date. The USSR Ministry of Geology decided to terminate exploration activities in 1974. Soviet economists decided that exploration targets identified from exploration in the Armenian SSR compared unfavourably with other areas in the USSR, which had lower exploration risk and were closer to existing production infrastructure.

The most significant result of the second phase was the recovery of about 1 m³ of oil from a Lower Eocene/Paleocene reservoir in Shorakhpur-1P. This was the first oil recovery of any volume in Armenia. In addition, the Oktemberyan-1P well tested the equivalent of 850 MMcfd of gas (54% methane, the rest mainly nitrogen) for a short duration from fractures in an ophiolite at 4,350 m depth, which indicated the presence of a deep mature gas source rock. Most drilling and seismic activities stopped during 1990, coinciding with the collapse of the Soviet Union.

After independence, in order to determine Armenia's real hydrocarbon potential, the Armenian Government requested the assistance of the US Trade and Development Agency (USTDA). A study was undertaken by consultants commissioned by the California Public Services Regulatory Commission during 1993-94. The experts estimated Armenia's total hydrocarbon potential to be nearly 6.4 billion bbl of oil in-situ and nearly 6.2 trillion cubic feet (tcf) in recoverable gas. However, a large portion of these volumes was assigned to parts of the Central Depression (the Hrazdan and Urartu areas), which had only been partially explored.

The 1995 TACIS study concluded that average resource-in-situ prospects of 70 million bbl of oil (estimated 14 million bbl recoverable) exist in the Garni-Shorakhpur area, east of Yerevan (part of the Central Depression) and 144 billion cubic feet (bcf) gas resource-in-situ prospects (estimated 110 bcf recoverable) in the Oktemberyan basin area. The study identified prospects and leads that totalled 1,775 tcf of gas in place and 422 million bbl of oil in-situ in the two main basins. However the estimated risk factors were high, the lowest risk recorded being 1 in 7 (14%). According to this study, only 16 wells in Armenia had been drilled on valid prospects. Of these, 13 penetrated the main objective, 3 did not, and 7 were inadequately evaluated. Of the other 6 wells, 4 were dry (Oktemberyan-13AE and 12E, Markara-5P, and Garni-1P), while 2 were non-commercial gas wells (Oktemberyan-7P and 13E).

Following the initial TACIS project, there was a second project assisting government efforts to find oil and gas investors. In due course, this resulted in the eventual signing in January 1997 of a production-sharing agreement (PSA) between the Ministry of Energy and the Armenian American Exploration Co. (AAEC) from San Diego, California. AAEC committed to a three-well programme and 60 km of seismic data, all to be completed within 1 year, and a minimum expenditure of USD10 million. The programme itself, given the large size of the concession, was reasonable and fair but the time period for achieving it proved to be unrealistic. During July 1997 to March 1998, AAEC recorded 210 km of reflection seismic data using an Armenian seismic contractor, Atom Energy Seismic Projects. In August 1997, AAEC purchased a

Skytop Brewster drilling rig in France and had it shipped via the Black Sea, arriving in October. AAEC set up its own camp, and drilling of the Azat-1 exploration well commenced in December. By July 1998 the well had reached 3,524 m, having encountered minor oil traces. By this time over USD20 million had been spent. Mainly for financial reasons, drilling ceased while technical studies continued. AAEC relinquished the northern part of the licence (Block 1) in February 2002 and retained the southern Block 2 (7,250 km²) until February 2004.

These recent studies suggest that two oil prospects, Shorakhpur and Nubarashen, east of Yerevan, contain potential recoverable volumes of 20 million bbl each. Over 10 years the two fields could produce a combined 11,000 bbl/d of oil, exceeding the current daily consumption of petroleum products in Armenia. Other fields could exist, particularly northwards into the deep Aramus basin, which is believed to be the main oil source area.

The four gas prospects identified in South-western Armavir have sizes of 10 to 40 bcf of recoverable gas. At least another eight similar size (or larger) prospects are known but require more technical work.²⁷

b) Oil Products Trade, Distribution and Retailing, Oil Storage, and Emergency Planning

Legal Framework

Imports of diesel and petrol are subject to a special law on presumptive payments, due from both legal entities and natural persons. Irrespective of results of economic activity of payers of presumptive payments and irrespective of customs value, the presumptive payment rate per tonne has been set for diesel fuel at USD65/tonne (payable in either AMD or foreign currency) and for petrol at USD222/tonne. Value share of VAT in the total amount of presumptive payments was set at 68.7% for diesel fuel and 39.2% for petrol.

Retailing is competitive, with many private gas stations offering fuel, lubricants and services. Petroleum product prices were liberalised in 1993.

Market Structure

Armenia does not have large oil refineries and all of the oil products are imported. Imports currently run at about 350,000 tonnes/year, mostly engine fuel (gasoline, Diesel, and jet, refer to Table 18). There are practically no exports of oil products. Stocks run at insignificant levels and are basically limited to operational buffer stock at distribution depots and retail outlets. Fuel oil (used mostly at power plants) is de-emphasised, since the intention is to use mazut only as an emergency (“strategic”) back-up fuel stock at power stations.

Petroleum products are an important item in Armenia’s imports. Petroleum products’ share in total primary energy consumption in 2001 was 11.7%.

By far the greater part of oil products imports originates in Georgia at the Batumi refinery (over two-thirds of total). Shipments are mostly via a single-track railroad linking Armenia to Georgia. There are some 260 rail tank cars in operation in Armenia.

²⁷ Papworth *et al*, *op. cit.*

Table 18: Imports of Petroleum Products, 2000-2006
(kt/year*)

| Refined Product | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|------------------------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|
| Motor Gasoline | 181.5 | 187.3 | 177.7 | 191.7 | 215.6 | 184.7 | 171.6 |
| Jet Fuel | 37.2 | 39.7 | 51.2 | 25.9 | - | - | - |
| Kerosene | 2.0 | - | - | - | 44.7 | 44.8 | 39.1 |
| Diesel Fuel | 70.3 | 87.3 | 85.5 | 109.5 | 106.1 | 112.4 | 112.7 |
| Residual Fuel Oil (Mazut) | - | - | - | - | 0.0 | 0.0 | 0.0 |
| Natural Gas | - | - | - | - | 1332.1 | 1685.0 | 1713.6 |
| Liquefied Gas | - | - | - | - | 23.5 | 19.4 | 14.9 |
| Total | 306.3 | 328.1 | 342.0 | 353.5 | - | - | - |

Note: kt/year = thousand tonnes per year

Source: Republic of Armenia Customs Service / National Statistical Service

Due to the current situation in the region, as well as to some technical reasons, railway connections to world markets are relatively limited. There is a rail link via Georgia for cargoes from the ports of Poti and Batumi. For the time being, the only other option to supply Armenia with oil products is by road from Iran which crosses a difficult mountainous area. Traffic is handled exclusively by Iranian trucks. When combined, all these factors result in relatively small volumes of petroleum products entering Armenia from Iran.²⁸

Oil products storage infrastructure in Armenia is generally adequate in capacity. At maximum nameplate charge, it can store up to 1.2 million tonnes of light products and 0.9 million tonnes of fuel oil, by far exceeding current annual consumption. However, most depots do not comply to modern standards to begin with, and many need repairs.

In 1999-2000, the Government reorganised the petroleum products distribution sector, by splitting and subsequently corporatising and privatising the newly formed branches of the former government distribution monopoly. The largest branch (Haynavatamterk) was sold in 2000 in its entirety for AMD133.5 million (approx. USD250,000) through open subscription at a 25% discount to the company's assessed value, a common privatisation norm.²⁹

The availability of natural gas and technologies that make possible its use in vehicle engines are two factors that have facilitated the conversion of many users of engine fuels from gasoline to natural gas. Of particular importance are bus and truck fleets consisting of older vehicles with carburettor-fitted engines, i.e. engines that are most likely to be especially polluting and use excessive amounts of fuel. The technology used is that of compressed natural gas (CNG) held in bottle-type containers located on the roof of the bus, behind the truck driver's cabin or under the chassis. Although not particularly advanced, this solution for the use of CNG in automotive applications fits the requirements of the local market reasonably well, since distances between cities in Armenia are not long and a battery of CNG bottles is generally sufficient to allow the daily vehicle runs without refuelling.

²⁸ Ibid.

²⁹ Ministry of State Property Management, Republic of Armenia.

Table 19: Major Players Importing Armenia’s Petroleum Products

| | |
|----|--|
| 1 | MAX CONCERN LLC |
| 2 | MIKA LIMITED Co.Ltd |
| 3 | ARAKS Co.Ltd |
| 4 | GAS AMA LLC |
| 5 | AGRO-PETROL SERVICE Co.Ltd |
| 6 | MIKA ARMENIA TRADING LLC |
| 7 | SERGEY GROUP Co.Ltd |
| 8 | OKTAN PLUS LLC |
| 9 | FLASH Co.Ltd |
| 10 | GARNI Co.Ltd |
| 11 | MERAAT IRANIAN INTERNATIONAL TRADE CO. CJSC, ARMENIAN REPRESENTATION |
| 12 | TIRE Co.Ltd |
| 13 | VYAK Co.Ltd |
| 14 | DIDI GROUP Co.Ltd |
| 15 | GOSH-GAS LLC |

The price advantage is the major driving factor for conversion from liquid fuel (gasoline) to CNG; the conversion also leads to savings in fuel cost, as well as to longer engine life due to the superior anti-knock and non-corrosive properties of CNG. A positive externality is the reduced environmental pollution. Due to these private and public benefits, the Government intends to maintain its current policy of promoting the use of CNG in vehicle engines by preserving the price advantage of CNG over gasoline, running awareness programmes about CNG technologies and adopting a *Law on the Use of Alternative Engine Fuels*.

To further improve imports and marketing of oil products, the Government of Armenia and the IMF agreed to implement in 2004 the following steps:

- (i) Increasing presumptive taxes on diesel fuel by 1 January 2004;
- (ii) Make the presumptive tax on natural gas used by vehicles a function of sales, while increasing the minimum tax on each pump from AMD1 million per month to AMD1.5 million per month (expected yield: AMD0.4 billion);
- (iii) Assuring that the incentives to use natural gas are not eroded, by introducing a presumptive tax on petrol stations based on the number of gasoline pumps, as it is currently done for natural gas (expected yield: AMD0.3 billion);
- (iv) Passing legislation to ensure that customs clearance of all petrol imports is undertaken at the point of entry in order to reduce smuggling; and
- (v) Networking all customs houses and passport-reading machines with a single system. Despite the lack of progress in populating the valuation database with invoice values, assuring that the share of commercial imports whose approved customs value is determined by the transaction price will increase in time.³⁰

³⁰ Republic of Armenia – Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding, IMF, October 30, 2003.

3. Coal

Coal (including bituminous and oil shale) is the only fossil fuel of which Armenia has known resources. Total in-place reserves are 200-250 million tonnes. There are six known coalfields, at Antaramut (in the north), Ijevan (northeast), Jajur (northwest), Jermanis (west central), Nor Arevik (south), and Shamut (north). In addition, there are also oil shale deposits at Jajur, Nor Arevik, Aramus (central), and Dilijan (north central).

However, there has never been much of a systematic evaluation to determine how much coal or oil shale can be mined economically. There seems to be exploitable deposits at Ijevan, in the northeast part of the country, and Jermanis, in the western central part of the country, and there are plans to open at least one state-owned mine.³¹

To build a better understanding of the quality of the resources in economic terms and assess the feasibility of coal mining, the Government of Armenia has requested foreign technical aid. A multi-year Coal Resources Assessment Programme funded by USAID was developed and implemented by the United States Geological Survey (USGS). As part of the programme, a geochemical laboratory to determine the quality of coal has been set up and is currently operating in Armenia. The laboratory is furnished with up-to-date equipment designed to obtain the most precise data on heat combustion, humidity, volatility, the content of sulphur, and other major parameters of coal. A database on resources in Armenia has been created on the basis of numerous archive documents. This database is being continually processed and enlarged at the computer centre operating at the geochemical laboratory.³²

Under the USAID-funded programme, the USGS conducted detailed fieldwork on six coalfields in Armenia and exploratory drilling in one of the six coalfields, the Antaramut-Kurtan-Dzoragukh coalfield. Several comprehensive reports on coal and oil shale fields have been released, including a pre-feasibility study of the Antaramut-Kurtan-Dzoragukh coalfield. The study indicates that there could be some 916,000 tonnes of recoverable reserves at the site (of which 714,000 tonnes surface and the remainder auger), exploitable over a period of up to 20-25 years (about 30-42,000 tonnes/year). Total capital requirements were estimated at about USD1.2 million, of which USD0.9 million worth of equipment and USD0.3 million in working capital. The locations of Armenia's coal and oil shale deposits are shown in Figure 9.

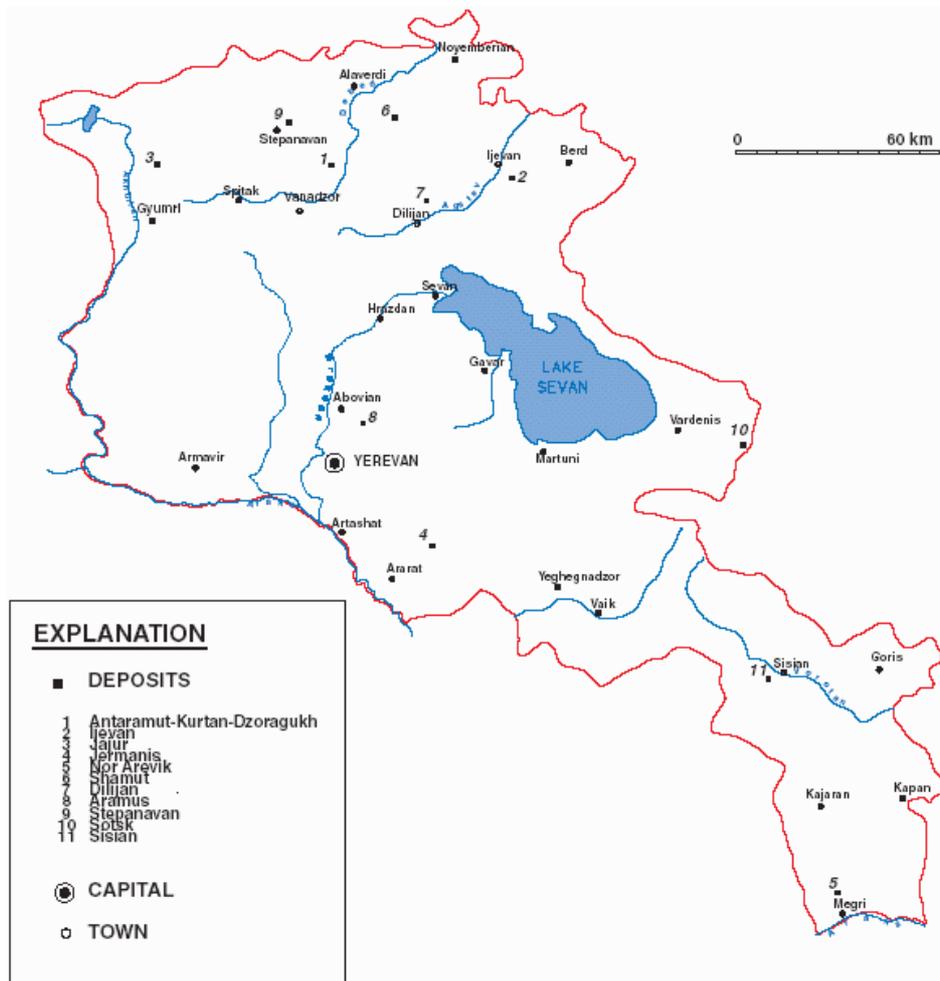
The estimated cost of coal at the mine mouth was in the range of USD16.03 to USD20.43/tonne, with sale or market price for such coal suggested to range from USD20.04 to USD25.54/tonne at the coal sales yard. To match the USD8.81/Gcal (gigacalorie) price for natural gas fuelling a proposed 50 MW (electricity generating) fluidised bed plant, the coal, at 4,673 kcal/kg, could be sold for as high as USD40.67/tonne on an energy-content basis. A comparison with home heating natural gas in Yerevan, at 0.9 cents/m³, indicates that the coal could be sold for as high as USD51.32/tonne on an energy-content basis. The above energy comparisons are on an energy basis and do not include coal transportation or coal- and ash-handling costs.³³ The environmental impact of coal mining in the main forest areas of Armenia has also not been taken into consideration.

³¹ US DOE Fossil Fuel International: An Energy Review of the Republic of Armenia.

³² OHCA.

³³ US Geological Survey Bulletin 2178.

Figure 9: Locations of Armenia's Coal and Oil Shale Deposits



Source: US Geological Survey

Another attempt to begin coal production in Armenia was made earlier, at the height of the energy crisis in the early 1990s. A special fast-track programme was designed, aiming at opening a mine at the Djadjur deposit. The objective of the project, funded by USAID, was to improve fuel supply to households during the winter by producing up to 400 tonnes of coal/day (up to 50,000 tonnes/year). The mine was officially opened on 16 December 1995, as a fully functional surface coal mine with housing for the crew, electrical wiring in place, an on-site doctor and cook, and a dozen working trucks, bulldozers, and other heavy equipment. Apart from the direct benefit of fuel supply, the project assured the transfer of technology/know-how from Fluor Daniel to miners and geologists in Armenia, the identification of private fuel and equipment suppliers which will benefit the larger USGS effort, and a working model for future projects.³⁴ Despite these early hopes, however, the Djadjur coalmine never achieved its target output levels and at the moment is all but inoperative.

Currently, there is no coal production of significance in Armenia.

³⁴ USIA European Wireless File, January 20, 1995.

4. Natural Gas

a) Statutory Framework

The natural gas sector in Armenia is considered to be a natural monopoly. It is regulated by the Public Services Regulatory Commission, an independent regulatory body, which acts pursuant to some government authority transferred to it and to the Law on the Public Services Regulatory Body. The Public Services Regulatory Commission issues and revokes Operating Licences for import, transportation, export and distribution of natural gas. Operating Licences may be granted only to legal entities.

Natural Gas Transportation Licensees have the right to transport natural gas throughout Armenia, to purchase natural gas from the generator (explorer) and/or importer and to sell natural gas to Distribution Licensees or directly to consumers, and to provide dispatch services. Holders of Natural Gas Generation (Exploration), Import and Distribution Licences must comply with the instructions issued by the Central Dispatch Service.

Natural Gas Distribution Licensees are granted the exclusive right, within a defined geographic area, to distribute (sell) natural gas to consumers and take delivery of (purchase) natural gas from the natural gas transportation network. Natural gas distribution licensees must comply with the instructions of the natural gas transportation Central Dispatch Service.

The Public Services Regulatory Commission registers existing energy supply contracts between Energy Sector Operation Licensees, develops and applies energy supply model contracts between Operation Licensees, as well as model contracts for natural gas supply to consumers, and conducts discussions for the settlement of disputes between economic entities within its jurisdiction.

Natural gas prices (tariffs) in Armenia are administered by the Public Services Regulatory Commission. It is specifically authorised to set tariffs for natural gas. Tariff setting principles for natural gas are identical to those for power and heat.

Tariffs are developed by the Operation Licensee and submitted to the Public Services Regulatory Commission for approval. The Public Services Regulatory Commission may either approve or disapprove any tariffs proposed by an Operation Licensee. The Public Services Regulatory Commission must rule about proposed tariff changes within 90 days after submission of the request by the Operation Licensee. New tariffs must be made public and become effective 30 days after public notice.

Operation Licensees must also submit to the Public Services Regulatory Commission information about their activities during the past year and anticipated activities for the current year.

The supply of natural gas may be discontinued or limited and appropriate supply schedules may apply in cases of natural calamity, military acts and major failure of gas supply equipment. The supply of electrical energy, thermal energy, and natural gas to consumers may be discontinued or limited if they fail to comply with their contractual obligations.

b) Imports and Exports, Alternatives and Dependence, Transportation and Transit

Armenia does not have proven reserves nor does it produce natural gas. All of the gas is imported and all imports at present come via Georgia from Russia. In power generation, electricity generated from gas constituted about 25% of total power consumption in the country in 2006. In dry years, its share may reach 40%.

Gas consumption peaked in 1989 at 6.5 billion cubic metres (bcm). Subsequently, it has stayed generally under 2 bcm/year. The following table (Table 20) provides data on gas consumption in recent years.

**Table 20: Natural Gas Consumption in Armenia, 1993-2006
(bcm)**

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Consumption | 2.26 | 1.62 | 1.73 | 1.62 | 1.77 | 1.73 | 0.95 | 1.03 | 1.22 | 1.51 | 1.58 |

Source: ArmRosGazprom CSJC

ArmRusgazprom, the gas transmission and distribution utility in Armenia, is a closed joint-stock company which is 57.6% owned by Russia's Gazprom, 34.7% by the Ministry of Energy of the Republic of Armenia and 7.7% owned by Itera. This ownership structure has been in effect since July 2001. In recent years Gazprom has expressed its will to increase its stake in ArmRosGaz from 45% to 82%.³⁵ ArmRusgazprom has a payroll of over 4,000 employees and reports sales in the range of AMD68 billion (2006).

The Armenian Government decided to achieve complete gasification of the Republic. In order to implement this decision, JSC ArmRosgazprom had practically entirely gasified all settlements in Armenia by the end of 2007. The number of gas subscribers surpassed the level of the soviet times and reached 520,000.

JSC ArmRosgazprom is trying to stimulate gas use as an engine fuel in automobiles in Armenia and is at the moment operating nine (natural) gas filling stations. In addition, there are more than 35 other private gas filling stations in the country.

The sole importer of natural gas to Armenia is ArmRusgazprom, however, there are no legal or other restrictions preventing other companies from importing gas into Armenia.

A change in Russian suppliers, from the Russian independent Itera to state-owned Gazprom, occurred in 2003. In the summer of 2003, Gazprom signed agreements with both Armenia and Georgia designating Gazprom as the countries' predominant natural gas supplier into the future. For Armenia, a 5-year agreement was signed on 17 June 2003.

At the moment, the entire gas transmission and distribution system of Armenia is owned and operated by ArmRusgazprom. The system includes main gas transmission lines, distribution lines, underground gas storage, gas distribution (pressure reduction) stations, gas metering stations, and equipment for corrosion control (cathode protection equipment).

³⁵ Gas Matters, Apr 2006, p. 33.

Armenia was first connected to the gas network of the USSR in 1959 and since then about 2,000 km of transmission pipelines were built (refer to Table 21). The system is designed as a “dead end” one, i.e. there are no compressor stations (CS) in Armenia, and gas flow is supposed to be assured upstream in Russia and Georgia, particularly CS Kvecheti (Georgia).³⁶ There are also over 9,000 km of low-pressure (≤ 12 bar) gas distribution lines.

In a sense, the transmission system actually consists of two sub-systems:

- (i) A “backbone” subsystem consisting of large diameter pipes ($\geq 1,000$ mm) between the Georgian border and Yerevan; and
- (ii) A “secondary” subsystem, consisting of 500-700 branch lines (loop northwest of Yerevan) and a link downstream to Goris, where it branches three ways.

The maximum design capacity for the Georgia-Armenia subsystem is 24.6 Mm^3 (9 bcm/year). The theoretical maximum daily flow rate is determined by the volumetric throughput capacity of CS Kvecheti station (34.2 Mm^3). The maximum design pressure is 55 bars, with maximum nominal operating pressure 49 bars. In fact, the system is operated at pressures well below these limits. Minimum required pressure at any end point in the system is 12 bars.

Considering the consumption of 34.2 Mm^3 as the daily peak rate re-calculating the annual flow rate on the basis of the seasonal loading profile yields an annual transport capacity of about 7.4 bcm/year. However, the current condition of the system only allows maximum daily flows of up to 10 Mm^3 (3.7 bcm/year). This is still sufficiently beyond current demand and gas is delivered to Yerevan at 20 bar-g (much higher than 12 bar-g assumed as minimum delivery pressure).³⁷

In practice, the pressure in the transmission line system is set up at CS Mozdok (Russia), which due to abrupt fall in gas consumption in both Georgia and Armenia is only switched on occasionally when seasonal increase of gas consumption occurs (winter). The next compression stations (CS Chmi in Russia and CS Kvecheti in Georgia) have been out of operation for many years. For these reasons, the inlet pressure at the border of Armenia is at present limited to 15-25 bar instead of 55 bar design pressure, which sharply reduces the gas pipeline capacity.

During the period of the USSR, the gas transmission infrastructure of the Caucasus (Armenia, Georgia and Azerbaijan) was operated as an integrated network. Gas was supplied mainly from Central Asia to Azerbaijan and then on to the pipelines of Georgia and Armenia. The situation changed drastically with the break-up of the USSR and the change in the geo-political outlook in the Caucasus itself. At present the two gas pipelines connecting Azerbaijan with Armenia are shut down and the only route open for the import of gas into Armenia is from the Russian Federation via Georgia. Actual inter-system flows in 1989 (when gas consumption in Armenia peaked) and 2006 are listed in Table 21.

³⁶ Except the compressor station at the Abovyan underground gas storage site, which injects into the storage facility only.

³⁷ INOGATE Project 96.04.

Table 21: Actual Inter-System Gas Flows

| Inter-System Connections | 1989 | | 2006 |
|---------------------------------------|--------------------|------------|--------------------|
| | Bln m ³ | % | Bln m ³ |
| From Azerbaijan | | | - |
| Krasni Most-Alaverdi, D 700 and D 500 | 0.9 | 15.0 | - |
| Kazakh-Yerevan, D 1000 and D 700 | 4.7 | 78.3 | - |
| Yerevan-Ilyichevsk, D 700 | - | - | - |
| Yevlach-Stepanakert-Goris, D 700 | 0.5* | 6.7 | - |
| To Azerbaijan (Nachichevan) | | | |
| Goris-Nachichevan, D 700 | 0.1 | - | - |
| From Georgia | | | |
| Krasni Most-Sev Kar-Berd, D 1000 | - | - | 1.71 |
| Total | 6.1* | 100 | 1.71 |

Note: * Including 0.1 bcm in transit to Azerbaijan.

Source: INOGATE, US Department of Energy

The complete dependency of Armenia on very few suppliers of natural gas, who have also gained control over the operation of the national system and direct access to end consumers in the country, has prompted the Government to look at alternatives. The poor technical condition of the only line that delivers gas to Armenia now is an additional incentive in this respect.

Taking into account the strategic importance of the diversification of the supply routes for gas into Armenia, over recent years negotiations have been actively conducted with Iran for the construction of a pipeline between the two countries. The project is for a 156 km link, with 114 km of pipe to be laid in Iran and 42 km in Armenia. The two sides are also planning to extend the pipeline by at least 137 km at some point in the future.³⁸ Iran will use the pipeline to send approximately 1.1 bcm of gas to Armenia each year. Financial backing is to come from the Iranian side. Teheran is to provide a USD30 million credit at 5% interest for 7.5 years to cover the cost of work on the first 42 km (Megri-Kadjaran) Armenian section of the pipeline.³⁹ The estimated cost of construction for the 114 km section of pipeline in Iran is USD100 million; Armenia is to offset the cost of this credit line by deliveries of electricity.

Armenia is to also pay for gas delivered from Iran by supplying electricity. Most of such electricity supplies are expected to originate at the Yerevan thermal power plant.

At the beginning of 2006, Gazprom signed a 25-year agreement with the Government of Armenia, fixing the price of Russian natural gas at USD110/1,000 m³ until 1 January 2009.⁴⁰ Gazprom had earlier supplied gas to Armenia at USD56/1,000 m³. The agreement also provides for the purchase of the 42 km-long gas pipeline between Iran and Armenia from the Armenian Government by the ArmRosGazprom Company, together with the fifth power unit of the Razdan-5 thermal power station (for USD248.8 million). Armenia has also pledged to enable ArmRosGazprom to

³⁸ ENERGO Central and Eastern Europe/Former Soviet Union, Week 19, 2006, p. 8.

³⁹ ENERGO Central and Eastern Europe/Former Soviet Union, Week 21, 2004, p. 11.

⁴⁰ Former Soviet Union Oil and Gas, Week 14, 2006, p. 17.

commission the laying of another, nearly 197 km-long stretch of the Iran-Armenia gas pipeline. The agreement also calls for Gazprom's share in ArmRosGazprom to be increased to more than 50%.

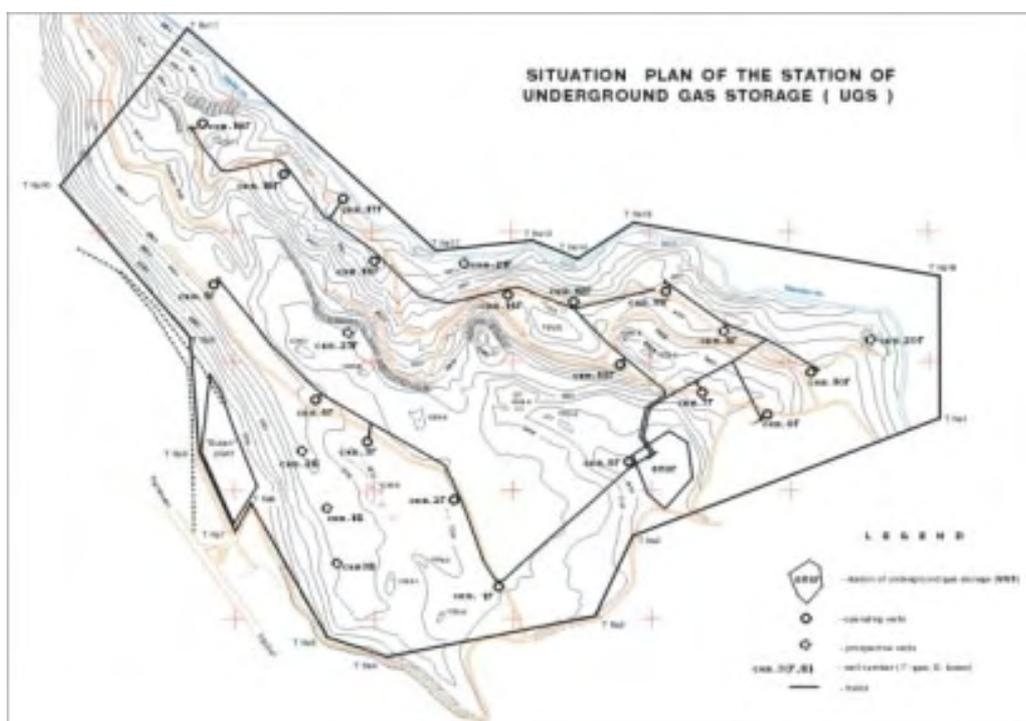
c) Storage

The Abovyan Underground Gas Storage (UGS) facility is located fairly close to Yerevan and occupies a site of 140 hectares (refer to Figure 10). The storage facility is a salt cavern type with a design capacity of 190 million m³. It is used mainly for seasonal regulation of gas supply.

Construction began in 1962 and the facility was commissioned in 1968. In case of complete interruption of imports, the underground gas storage is capable of providing gas to major consumers for up to 1-3 months, depending on the season.

The gas is stored in caverns leached out in underground salt layers. A total of nineteen wells have been drilled. The compressor station has a maximum design injection pressure of 125 bars. Since 1985, maintenance has been poor due to shortage of funds. Further damage was caused by an earthquake in 1988. There have been failures at two wells (N6 and N9) and gas leakages, requiring a decrease in the operating pressure. The compressor station is past its design life. As a result of the above, the maximum capacity of the facility has been reduced from its nameplate capacity of 190 million m³ to about 80-100 million m³.

Figure 10: Abovyan Underground Gas Storage Site Plan



Source: INOGATE

The main installations at the UGS are:

- (i) Underground salt caverns;
- (ii) Loop manifold of wells (gas pipelines) and technological pipelines (water and brine pipelines);

- (iii) Metering and gas pressure reduction units;
- (iv) Compressor room;
- (v) Power supply system;
- (vi) Office building; and
- (vii) Auxiliary equipment.

The results of audits and studies done by JSC ArmRosgazprom show that the funds needed for the reconstruction and the rehabilitation of the existing UGS facilities and capacity are USD27 million.

ArmRosGazprom is implementing a range of measures in order to restore the operational characteristics of the Abovyan underground gas storage facility and to enhance its operational safety. In 2007 alone, the company invested USD5 million of its own and borrowed funds in the facility. This resulted in increasing the facility's capacity up to 120 million m³. During 2008, it was planned to bring its net storage volume to 150 million m³, and in 2013 to 250 million m³.

5. Electricity

In 1997-1998, the Government initiated reform in the electric power sector. As a result of the restructuring of the vertically integrated unitary power system of Armenia, the following closed joint-stock companies were established: power generators; high voltage power transmission network company; power distribution company; account settlement centre; and power system operator.

Privatisation of the sector's companies is proceeding at a lively pace. As of today, all maintenance and repair and construction entities have been privatised, and privatisation of R&D units is about to be completed. Among large power companies, the Vanadzor TPP, the Sevan-Hrazdan HPP cascade, the Hrazdan TPP, and the power distribution company have been privatised. There are no immediate plans to privatise the power transmission company, the settlement centre, the grid operator, the Vorotan HPP system, or the Armenian NPP.

At present, in the electricity trade the practice of direct contracting between generators and the distribution company exists, aiming at subsequent gradual increase in the degree of liberalisation of the market.

a) Generation

Armenia depends on three types of power generation: thermal, hydro, and nuclear; the system also includes transmission and distribution grids. The Government of Armenia has separated the power sector into three sub-sectors: generation, transmission and distribution. Privatisation was carried out first in the distribution sub-sector, transferring into private hands the activities of sale and retail trade in power, bringing a measure of order to collection and securing acceptable conditions for the subsequent privatisation of generating capacity.

Unless investment in repairs, upgrades and new facilities are undertaken, installed capacity is expected to fall by 2010. Available capacity is already well below specification at many hydroelectric and thermal plants. Table 22 shows the shifting mix of power actually generated between 1992 and 2003. The shift from hydro to nuclear and thermal power since 1995 was spurred on by the re-start of Unit #2 at the

Armenian NPP. It was followed by a reduction in the level of generation at the Sevan-Hrazdan HPP cascade, caused by limitations on water use from Sevan Lake, restricting use to irrigation purposes only, with the quantity of water use regulated by special decrees of the Government.

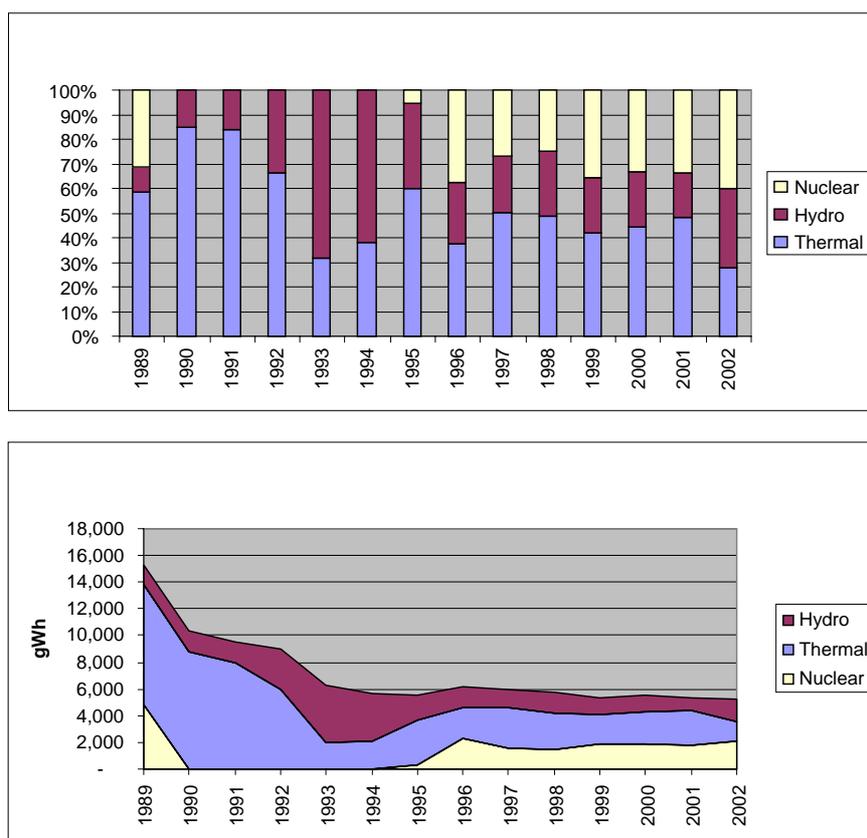
Table 22: Breakdown of Power Stations by Installed Capacity

| Plants | Capacity (MW) | Output 2007 (GW) | Description |
|--------------------------|--|------------------|--|
| Thermal | | | |
| Three plants, dual fired | 1,775 | 1,489 | Fuel is imported natural gas and fuel oil (mazout). Fuel oil use is minimal since 1997. Plants are aging, inefficient and in need of rehabilitation. |
| Hrazdan | 1,110 Section 1: 2x50 and 2x100 Section 2: 3x200 and 1x210 | - | Dry cooling towers, generally condensing type turbines |
| Yerevan | 550 Section 1: 5x50 Section 2: 2x150 | - | Wet cooling towers, condensing and heating (stem extracting) type turbines. |
| Vanadzor | 96 2x12, 1x25, and 1x47 | - | Wet cooling towers, backpressure type turbines, common header type. |
| Hydro | | | |
| Three plants | 1,046 | 1,855 | Current state of plants varies, most need major investment. |
| Lake Sevan cascade | 556 | - | Lake Sevan feeds plants along the Hrazdan river only in irrigation mode. |
| Vorotan River cascade | 400 | - | There are three large plants totalling 400 MW. |
| Small HPP | 90 | - | Dzora HPP (26 MW) and more than 20 small private HPPs. |
| Nuclear | | | |
| | 408 | 2,553 | |
| Metzamor | 408 | | Only Unit #2 is operational. Unit #1 is not in use. |
| Total | 3,209 | 5,940 | |

Source: US DoC ITA, with minor amendments

Should Armenia's dependency on imported fuel rods for the Metzamor NPP be taken into account, hydroelectric power is by far the most important domestic source of energy, providing approximately 30% of electricity in the country. Armenia's largest and longest river is the Araks, which flows to the southeast from Turkey and forms part of Armenia's border with Turkey and Iran before entering Azerbaijan. The most important river for agriculture in Armenia, however, is the Hrazdan, which outlets from Lake Sevan and flows to the southwest, through Yerevan, to merge with the Araks. The proportion of total power generation contributed from each of the three power sources in Armenia (1989-2002) is represented graphically in Figure 11.

Figure 11: Generation Mix Patterns (1989-2002)



Source: World Bank [Julian Lampiotti (ECSSD), Task Team Leader, et al.: *Outcomes of Power Sector Reform in ECA: The Case of Armenia*] – 2003-2005

Almost all hydropower plants are located on just two rivers, the Hrazdan and the Vorotan. Problems with obsolescence and poor maintenance have reduced available capacity at both cascades. Hydroelectric plant capacity ratings are shown in Table 23. At the moment, investment is underway at the cascades for the purpose of restoring their design capacity.

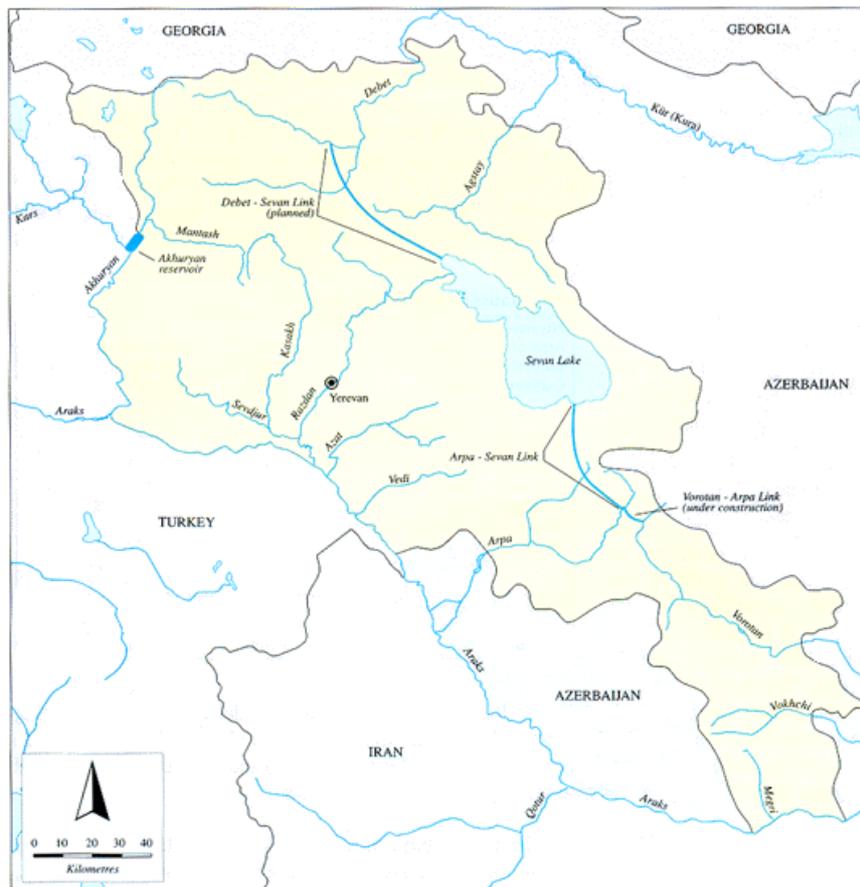
Table 23: Existing Hydroelectric Generating Plants in Armenia (≥ 10 MWe)

| Generating Facility | Location | | Rated Capacity (MWe) |
|---------------------|----------|-------------|----------------------|
| | River | Marz | |
| Arghel | Hrazdan | Kotayk | 224 |
| Shamb | Vorotan | Syunik | 170 |
| Tatev | Vorotan | Syunik | 156 |
| Kanaker | Hrazdan | Yerevan | 102 |
| Atarbekyan | Hrazdan | Kotayk | 82 |
| Spandaryan | Vorotan | Syunik | 76 |
| Arzni | Hrazdan | Kotayk | 71 |
| Yerevan | Hrazdan | Yerevan | 49 |
| Sevan | Hrazdan | Gegharkunik | 34 |
| Dzora | Debet | Lori | 26 |

Source: Utility Data Institute, quoted in US DOE International Fossil Fuel Energy Overview of Armenia

Lake Sevan is an alpine lake (1,900 m above sea level). Many small rivers flow into the lake, but the only outlet is the Hrazdan. Armenia's rivers are shown in Figure 12. In the 1930s, a project was implemented to divert most of Lake Sevan's water into the Hrazdan for irrigation and to generate hydroelectric power. There are six hydroelectric plants on Lake Sevan-Hrazdan River Cascade in centralwest Armenia, including the Sevan plant, which also acts as a water intake structure for the Hrazdan from Lake Sevan. These six power plants are known as the Sevan-Hrazdan Cascade and have a combined nominal generating capacity of more than 500 MW.

Figure 12: Rivers of Armenia



Source: Food and Agriculture Organisation of the United Nations, quoted in US DOE International Fossil Fuel Energy Overview of Armenia

By the 1950s, when the hydroelectric cascade had been constructed, nearly one-third of the lake waters had been drained. In the 1960s, remedial action was undertaken, and a tunnel was constructed to divert water from the Arpa River (a tributary of the Araks River) into the lake; the project was completed in 1980 and the lake stabilised at a low level. Another tunnel was completed in 2003, which feeds water into the lake from the Vorotan River.

The other major cascade of three hydroelectric power plants on the Vorotan River in southern Armenia is newer. It has a combined capacity of about 400 MW and an annual electricity production of more than 1 billion kWh.

Armenia is trying to regain some of the lost capacity by various major refurbishment projects. The Kanaker power plant had been downgraded from its nominal 102 MW capacity down to just 38 MW. A similar situation exists at Arghel, the largest

hydroelectric power plant in the country, where the capacity had to be downgraded from 224 MW to 65 MW. In 1997, the German Government extended a loan of USD13.89 million for the rehabilitation of the generators and electrical part of the Kanaker hydropower plant. Work was carried out and completed on turbines and generators with their associated auxiliaries, as well as gates and penstocks, and control and substation equipment.

The International Energy Corporation (IEC) is expected to receive a EUR15 million (USD17.9 million) credit from Germany's Kreditanstalt für Wiederaufbau (KfW) bank to upgrade the Yerevan hydropower plant (HPP), part of the Sevan-Razdan hydropower system in Armenia.⁴¹

According to the operational lease of the North Vorotan system, IEC agreed to service a debt of EUR18 million (USD21.4 million) extended earlier by KfW for the rehabilitation Units 5 and 6 of the Kanaker HPP, which is also a part of the North Vorotan cascade.⁴²

Within the framework of its investment programme for 2006-2009 IEC plans to invest AMD9,954 billion (USD27 million) in Armenia.⁴³ Out of this amount, AMD8.1 billion will be used for the rehabilitation of the Yerevan HPP, AMD248.2 million will be invested in the Argel HPP, AMD158 million will be invested in the infrastructure of the Arzni HPP, and AMD235 million in the rehabilitation of the Sevan HPP. IEC was established by RAO EES for the purpose of managing the North Hrazdan cascade, which was ceded to Russia as an offset of the debt for supplies of nuclear fuel for the Armenian nuclear power plant.

A new hydroelectric plant construction programme has been proposed by the Armenian Government that would result in the construction of at least three large (i.e., at least 50 MW each) hydroelectric plants, for a combined capacity of about 270 MW (refer to Table 24). Feasibility studies for the Meghri HPP (jointly with the Iranian party) and the Lori-Berd HPP (by Fichtner) have been completed.

In September 2007, an Agreement was signed between Armenian and German Governments on cooperation in the area of the energy sector development. In the framework of that cooperation, several loans are envisaged for energy sector projects, among them Renovation of the Vorotan Hydroelectric Cascade (EUR29 million).

Table 24: Planned Hydroelectric Generating Plants in Armenia (≥10 MW)

| Generating Facility | Location | | Rated Capacity (MW) |
|---------------------|----------|--------|---------------------|
| | River | Marz | |
| Megri | Araks | Syunik | 140 |
| Shnokh | Debet | Lori | 75 |
| Lori-Berd | Dzoraget | Lori | 60 |

Source: Ministry of Energy of the Republic of Armenia

The planned Megri hydroelectric facility is a joint project with Iran and would alone cost more than USD100 million and take about five years to build. The Government of Armenia promotes four main targets of investment in the hydropower sector:

- (i) Rehabilitation of all existing hydroelectric stations;
- (ii) Utilisation of new, economically feasible hydro potential of 270 MW;

⁴¹ ENERGO Central and Eastern Europe/Former Soviet Union, Week 24, 2004, p. 9.

⁴² Ibid.

⁴³ Ibid., Week 48, 2006, p. 11.

- (iii) Construction of small and micro-hydroelectric power stations with a total power of 120 MW with the participation of private investment; and
- (iv) Construction of pumped storage systems with comparatively low expenditure.

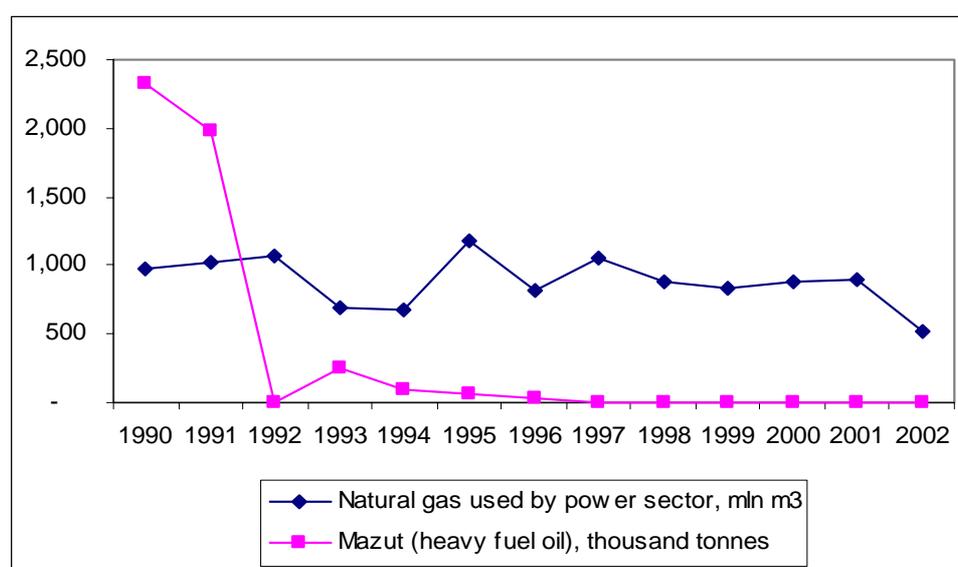
At present there are only three thermal power plants (TPP) in Armenia, all of which have almost exceeded their planned operating life spans and are in need of refurbishment. The largest of these is the 1,100 MW Hrazdan power plant in Kotayk marz. The 96 MW Vanadzor power plant, in southern Lori marz, had a long inactive period before it was privatised by being sold to a private company. A summary of Armenia's thermal-electric power plants is shown in Table 25. Figure 13 illustrates fuel input to power plants.

Table 25: Thermal Electric Generating Plants in Armenia

| Generating Facility | Location (marz) | Technology | Fuel | Configuration | Capacity (MW) |
|---------------------|-----------------|----------------------|-------------------------|---|---------------|
| Hrazdan | Kotayk | Boiler-steam turbine | Fuel oil Natural Gas | Section 1: 2x50 and 2x100 Section 2: 3x200 and 1x210 Dry cooling towers, generally condensing type turbines | 1,100 |
| Yerevan | Ararat | Boiler-steam turbine | Natural Gas | Section 1: 5x50 Section 2: 2x150 Wet cooling towers, condensing and extraction type turbines. | 550 |
| Vanadzor | Lori | Boiler-steam turbine | Natural Gas | 2x12, 1x25 and 1x47 Wet cooling towers, backpressure type turbines, and common header type. | 96 |

Source: Utility Data Institute, quoted in US DOE International Fossil Fuel Energy Overview of Armenia, with some additions and amendments

Figure 13: Fuel Use at Thermal Power Plants



Source: World Bank [Julian Lampietti (ECSSD), Task Team Leader, et al.: Outcomes of Power Sector Reform in ECA: The Case of Armenia]

The following table (lists data on power balances in Armenia (generation, consumption, import and export). For the time being, consumption is still only about a third of historic peak levels, achieved in the late 1980s. It is this low consumption that provides an opportunity for Armenia to be a net exporter of power now, mainly to Georgia. However, in the future the maintenance of a positive net trade power balance will be impossible without major investment in generation.

Table 26: Electricity Generation and Consumption in Armenia, 1995-2006 (TWh)

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|-------------|
| Net Generation | 5.0 | 5.8 | 5.7 | 5.8 | 5.3 | 5.6 | 5.4 | 5.5 | 5.5 | 6.03 | 6.3 | 5.94 |
| Hydroelectric | 1.9 | 1.6 | 1.4 | 1.5 | 2.2 | 1.4 | 1.2 | 1.7 | 2.0 | 2.03 | 1.8 | 1.82 |
| Nuclear | 0.0 | 2.1 | 1.4 | 1.4 | 1.9 | 1.8 | 1.8 | 2.3 | 2.0 | 2.4 | 2.7 | 2.64 |
| Thermal | 3.1 | 2.2 | 2.9 | 2.9 | 2.2 | 2.4 | 2.4 | 1.5 | 1.5 | 1.6 | 1.8 | 1.47 |
| Net Consumption | 4.7 | 5.4 | 5.3 | 5.4 | 5.0 | 5.2 | 5.2 | 5.2 | 5.2 | 5.7 | 5.9 | 5.6 |
| Imports | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.26 | 0.33 | 0.36 |
| Exports | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.8 | 0.7 | 0.7 | 0.6 | 1.02 | 1.16 | 0.76 |

Source: Ministry of Energy of the Republic of Armenia

In thermal power generation, the priorities of the Government's policies are:

- (i) Operation of existing units until completion of their design life;
- (ii) Commissioning of a new 440 MW unit (Unit #5) at the Hrazdan thermal power plant;
- (iii) Refurbishment of existing plants by introducing combined cycle technology; and
- (iv) Development of geothermal sources with private investments.

In 2005 the Japan Bank for International Cooperation (JBIC) had extended a loan worth YEN15.918 billion (USD150.2 million) to fund a power sector project in Armenia. The credit is to cover the cost of constructing a combined cycle thermal power plant (TPP) at a site adjacent to the existing Yerevan TPP. The new facility will be installed with a 200-210 MW (combined cycle unit) gas-fired turbine, 160 MW gas turbine and a 60 MW steam turbine. After modernisation, the plant will produce up to 1.5 billion kWh of electricity every year. The deal calls for the credit to be repaid over a 40-year period, which will include a 10-year preferential interval during which interest rates will not go higher than 0.75% and a repayment period of 8 years from the day that the agreement takes effect. It also provides for the funds to be used to finance the procurement of all machinery, equipment, construction services, civil works and consulting services needed to build the new plant.⁴⁴

The short-run plan is to construct only one 208 MW gas-steam unit of thermal generation that would use natural gas as fuel, and it is to be located at the Yerevan TPP. The estimated cost of construction is USD165 million. The Armenian Energy Ministry signed a contract with Gazprom for the purpose of finalising the construction and rehabilitation of Unit #5 at the Hrazdan TPP.⁴⁵

The Armenian Energy Ministry signed a contract with Gazprom to complete and renovate the fifth power unit of Razdan thermal power plant by 2010.⁴⁶

Nuclear power generation is reviewed below in Section 7 of this chapter.

⁴⁴ ENERGO Central and Eastern Europe/Former Soviet Union, Week 13, 2005, p. 9.

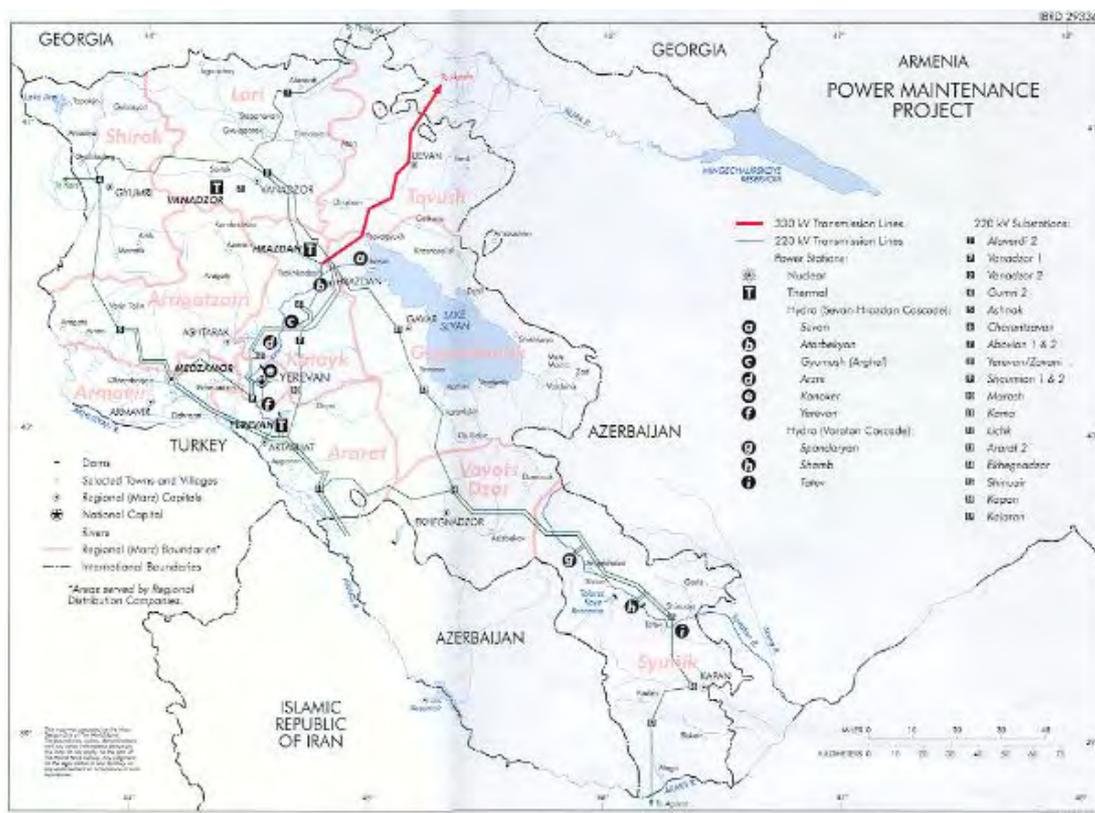
⁴⁵ ENERGO Central and Eastern Europe/Former Soviet Union, Week 23, 2004, p. 11.

⁴⁶ ENERGO Central and Eastern Europe/Former Soviet Union, Week 14, 2005, p. 14.

b) Transmission and Dispatching, Export/Import, and Regional Network Agreements

The electric transmission system of Armenia (refer to Figure 14) is operated by JSC High-voltage Power Grids; the system consists of fourteen 220 kilovolt (kV) substations, 164 km of 330 kV lines, 1,320 km of 220 kV lines, and 3,146 km of 110 kV lines (most of the 100 kV lines have been transferred subsequently into the ownership of the distribution company).

Figure 14: Armenia's Electricity Transmission Grid



Source: World Bank, quoted in US DOE International Fossil Fuel Energy Overview of Armenia

Armenia is part of the Trans-Caucasian Power Pool. However, Armenia's equipment designated for the power pool is no longer functioning due to the geopolitical situation in the region. There are also several transmission lines to neighbouring areas that are not currently being used for the same reasons. These include:

- (i) Azerbaijan – a 330 kV line;
- (ii) Turkey – 220 kV line; and
- (iii) Azerbaijan (Nakhichevan) – a 220 kV line and two 110 kV lines.

Besides, there is a 220 kV line and two 110 kV lines connecting Armenia to Georgia and a 220 kV line to Iran. The second high-voltage (220 kV) line between Armenia and Iran, Agarak-Shinuhair, was commissioned, doubling electricity flow between Armenia and Iran and bringing it to 400 MW.⁴⁷ In 2004, a memorandum for construction of a third high-voltage line between Iran and Armenia was signed. The

⁴⁷ ENERGO Central and Eastern Europe/Former Soviet Union, Week 49, 2004, p. 12.

third line will comprise a 300 km section in Armenia and a 100 km section in Iran. The line will have a 400 kV voltage.

There is also an agreement on the parallel functioning of the power systems in Georgia, Armenia and Iran.⁴⁸ A new 400 kV line will be built between Georgia and Armenia. The construction of the power line will make it possible to transmit up to 400 MW of electricity between the three countries.

Work on the rehabilitation of the 220 kV substations is being finalised. With funds from loans extended by Germany's KfW, the substations at Vanadzor-2, Kamo and Alaverdi-2 have been completely overhauled. Partial rehabilitation works have been finalised at 8 more substations, with loan funds extended by the World Bank. Armenia now has the most modern transmission grid equipment in the region.

At the end of 2001, an Automated Power Control and Accounting System (APCAS) was activated on the wholesale power market and transferred for operation to JSC Settlement Centre, established especially for the purpose of operating the system. APCAS was implemented with the help of funding extended by USAID. With the help of APCAS, full control and accounting of power transmitted on the wholesale power market was achieved for the first time in the post-Soviet region, resulting in a substantial reduction of accounted loss in transmission lines.

With credits of YEN1.33 billion extended by JBIC (Japan), work is due to begin on the phased implementation of a SCADA. The first phase of work is aiming at the modernisation and the enhancing of the communication system between various power system facilities.⁴⁹

With a finance assistance of German Government and KfW Bank, USD20 million credit means according to the protocol dated 12 September 2007 is allocated for renovation of Gyumri-2 substation in the north of Armenia.

c) Distribution and Retail Supply

Distribution and sale is concentrated at the JSC Armenian Power Grids. All shares (100%) of JSC Armenian Power Grids are owned by Interenergo, a subsidiary of RAO EES Rossii. During the last few years, collection rates for amounts due for power consumption have been 100%.

In compliance to agreements reached earlier with JBIC, it is expected to rehabilitate thirteen 110 kV substations by using soft loan funding. The project aims to reduce losses in the distribution networks.

According to the *Law on Energy*, supply (rendering of services) of electric power to a consumer is carried out in compliance to a supply contract, whereby the supplier is bound to supply power on terms and conditions and in a manner provided in the contract, the laws and other legal acts, and the consumer must accept take delivery and pay for it.

The power supply contracts set the terms and conditions for delivery (consumption) in compliance to the laws and other legal acts, and the regulations for supply and use.

⁴⁸ ENERGO Central and Eastern Europe/Former Soviet Union, Week 43, 2005, p. 14.

⁴⁹ ENERGO Central and Eastern Europe/Former Soviet Union, Week 37, 2004, p. 14.

Damage/loss incurred as a result of non-compliance to contract terms and conditions must be compensated by the party at fault in the manner set by the law. The compliance to the terms and conditions of the contract is only controlled by the parties thereto.

According to the rules set by the supply contract, the supplier may discontinue power supply completely or partially, if the consumer has:

- (i) Consumed power under her/his/its control by wilfully tampering with the measuring device in a manner that has impaired the quantity of measured energy; or
- (ii) Consumed power without the measuring device described in the contract or by circumventing the measuring device.

The supplier may discontinue supplying electricity or heat or natural gas to a customer, if payments are not made within the terms set by the Commission. Prior to discontinuing energy supply, the supplier must use all means of notification and warning set by the Commission.

A supplier would reinstate supply to a customer who has committed a violation upon receiving full compensation from the consumer or upon receiving from the consumer of guarantees for the compensation of the loss/damage, on terms that are satisfactory for the supplier.

In cases where a consumer has used energy without a contract (illegal consumption), the supplier must promptly stop the illegal consumption of energy and request compensation of loss/damage in the manner prescribed by the legislation of the Republic of Armenia.

6. Renewable Energy Sources

Under Government Decree No 799-N of 28 April 2005, the Armenia Renewable Resources and Energy Efficiency Fund (ARREEF) was established. It is not-for-profit institution pursuing public interests, an independent legal entity, acting separately from any governmental agency or institution, which performs its activity in compliance with the applicable Armenian legislation and the agreements concluded with its main donors. The Republic of Armenia is the founder of the Fund. The Chairman of the Board of Trustees is the Prime Minister of Armenia. The World Bank took active participation in establishing ARREEF by providing a USD20 million loan through the Global Environmental Facility and a USD6 million grant. The EBRD provided a USD7 million loan, and the Gafeschyan Family Fund another USD3 million loan.

The main objectives of the Fund are to facilitate investments in energy efficiency (EE) and renewable energy (RE) sectors and promote the development of EE and RE markets in Armenia.

The Fund shall pursue its objectives through active participation in fields related to policy-making, removal of barriers, creation and development of opportunities for financial sector entities, development of energy services, as well as through other activities targeted towards the improvement of national energy security, reduction of dependence on imported fuels, and reduction of energy consumption in the economy.

Since its establishment, ARREEF has been involved in detailing the potential of hydro resources and developing a scheme of small HPPs, studying possible directions to advance the production of solar photovoltaic cells, and studying possibilities to produce bioethanol on the basis of topinambur (*Helianthus tuberosus*).

In 2006, a programme for the refurbishment of existing HPPs and the construction of new small HPPs was successfully started by using a loan from the German bank KfW.

Due to legislative support to electricity production on the basis of renewable energy sources (refer to Art. 59(1) of the *Law on Energy*) and favourable tariff policy, the number of small HPPs has rapidly grown in the recent years (reaching 52, with installed capacity of 65 MW, generating 209 million kWh/year), as well as the number of small HPP under construction – 53 at the time of reporting.

a) Biomass and Waste

Biomass and waste have only marginal domestic importance as household fuel. However, the use of biomass to generate fuel gas is growing at a fast rate. Several such units have already been constructed and are now operational.

The Japanese Government intends to invest USD4.5 million in construction of a thermal power station that runs on gas emitted from waste in Armenia. The Ministry of Environmental Protection has already approved the 1.5 MW power plant construction project. The station is to run on methane, formed at Yerevan's biggest landfill, which receives up to 340 tonnes of waste daily.⁵⁰

b) Wind

To determine the wind energy potential in some of the regions of Armenia, in 1999 the Government of the Netherlands extended a grant to Armenia for monitoring wind energy (ArmNedWind programme).⁵¹ Five stations were launched at Pushkin, Selim and Karaghach passes, in the village of Ardanish (Lake Sevan), and at Lake Arpi. The project was implemented in 1999-2002. From results of the works conducted, a large amount of data on wind energy potential has been accumulated.

In 2000, SolarEn LLC undertook jointly with the US National Renewable Energy Laboratory (NREL) a resource investigation to assess the wind energy potential, search for sites for the construction of wind power plants, and prepare a wind energy atlas of Armenia. Fourteen monitoring stations were set in different regions of Armenia.

The results of studies conducted by NREL indicated that more than 1,000 km² of Armenia's territory has good to excellent wind resource potential.

More detailed additional studies are needed to assess the wind resource potential by accounting for existing infrastructure and access to the wind generators' sites. However, as a rule-of-thumb, economically feasible sites would only be 8-10% of the total (400-450 MW total capacity), should the possibility of using existing infrastructure and linking to existing power lines also be taken into account.

⁵⁰ ENERGO Central and Eastern Europe/Former Soviet Union, Week 24, 2004, p. 14.

⁵¹ <http://www.minenergy.am/> as of 2 February 2007.

The pilot project for a 2.6 MW wind power station on the Pushkin Pass, where total resource is estimated at around 20 MW was carried out with the technical and financial assistance of the Government of Iran. The wind power station was commissioned in November 2006.

Within the framework of the grant project, a power station with capacity of 2.6 MW was constructed at the Pushkin Pass comprising 4 wind stations. The wind stations generate power at wind speed from 3 mph to 25 mph, and operate at a rated capacity (660 kW) when wind speed is at least 13 mph.⁵²

Each power station is equipped with a transformer substation (690 V/10 kV) which connects to a 10 kV power line. Sanir, an Iranian company assembled and constructed the wind power stations. In order to connect the station to the power line JSC High-Voltage Network constructed a substation (10 kV) with an 8.3 km air line. The expected production is around 5 million kWh/year.

Currently, there are two active wind power projects in Armenia. A 50 MW wind power farm project is also under development by SolarEn in the Zod region although negotiations are underway to resolve financing issues. Design output would be about 120 million kWh/year.

Italian private investors are finalising monitoring the wind potential at the Karakhach Pass, and the company has already addressed the Public Services Regulatory Commission in order to get a licence for constructing a wind power station with a capacity up to 90 MW.

It should be noted that all electricity (power) produced during 15 years at a wind power plant, from the time of obtaining a licence to generate power, must be purchased in compliance with the rules of the power market (see Article 59(1) of the *Law on Energy*) and for a tariff calculated in accordance with the methodology of described in this report.

c) Geothermal

The Germachpur Geothermal Field is located within the Sunik volcanic highlands. The highlands are a typical case of recent volcanic activity, with graphic calderas, ash cones and lava flows on the slopes of the Sunik highlands, extending in a wide strip between the rivers of Vorotan, Terter and Akera.

Geological and geophysical studies were undertaken in 1987-1990, resulting in a report entitled *Exploration Aiming at the Identification of Geothermal Sources in the Northwest Part of the Sisian Region*.

The studies provided evidence of a geothermal anomaly and grounds for expecting the discovery of flowing heat media that would make the construction of a geothermal power station a commercially feasible project.

In the period of May-August 2004, on the initiative and with funding from the Ministry of Energy, the Institute of Geophysics and Engineering Seismology of the

⁵² <http://www.minenergy.am/> as of 2 February 2007.

National Academy of Sciences of the Republic of Armenia conducted the following comprehensive investigations:⁵³

- (i) Electrical survey in modification of AMTS and MTS (audio- and magnetotelluric survey) in the volume of 172 f. t. by four geophysical profiles, with general length of 17.7 km;
- (ii) Gravimetric survey;
- (iii) Magnetic exploration;
- (iv) Geological survey; and
- (v) Hydro-geochemical and geothermal surveys.

The purpose of these geophysical investigations was to prove the presence of a geothermal anomaly identified earlier, to determine the properties and elements of its bedding, as well as to reveal the proven pre-requisites for the presence of mobile heat carriers. The successful solution of these issues helped identify the location for the first exploratory well, provide a justification for its depth up to 2,500 m and, thereby, to minimise the risk of drilling works.

According to *Decree No 1586-A 26 October 2006*, a Memorandum of Understanding (MoU) was signed with America Corporation SA indicating that the company was to undertake all foreseen investigation drilling works and provide a budget estimate for the project. The MoU was unlimited, with the stated objective of power station(s) with a collective capacity of up to 50 MW, if such capacity was acceptable, being constructed over the following 10 years.

The World Bank agreed to finance studies of other promising geothermal energy areas in Armenia, particularly in an area called Eralbur, near Lake Sevan basin.

7. Nuclear Energy Sector

a) Management and Oversight Bodies

The government regulatory body for the nuclear energy sector in Armenia (Armgosatomnadzor, ANRA) was established by *Government Decree No. 573* in November 1993. The functions of this body included the licensing of operators of nuclear energy facilities, and control over issues related to nuclear safety. ANRA reported directly to the Government of Armenia and was independent from any institutions responsible for developing and using nuclear energy. During its establishment and start-up, ANRA received financial and technical aid from organisations such as IAEA, NRC and TACIS.

By virtue of *Government Decree No. 70* dated 19 February 2000, the function of regulation was also assigned to ANRA. According to its new statute, ANRA was responsible for organising and implementing government oversight and control of the use of nuclear energy, and also to perform regulatory functions in the nuclear energy sector.

By virtue of *Government Decree No. 452* dated 24 May 2001, ANRA was also authorised to perform the government functions of regulating and assuring the integrity of sources of ionizing radiation, and protection from the harmful impact of radiation from such sources.

⁵³ <http://www.minenergy.am/> as of February 2, 2007.

The status of ANRA changed as a result of the adoption of *Government Decree No. 912* dated 27 June 2002, by virtue of which ANRA was included in the structure of the Ministry for the Protection of the Environment of the Republic of Armenia. *Government Decree No. 2183* adopted a new statute for ANRA. As a result, the body received a new name – the State Inspectorate for Nuclear and Radiation Safety Regulation of the Use of Nuclear Energy at the Ministry of Environment of the Republic of Armenia. In compliance with its new statute, the basic function of ANRA is to perform government regulation of the use of nuclear energy for the main purpose of ensuring the protection of the population, the employees of the nuclear industry, and the environment, from the harmful impact of radiation.

The Department of Atomic Energy at the Ministry of Energy of the Republic of Armenia is responsible for assuring the safe operation of the Armenian nuclear power plant (NPP). The Department works in close cooperation with the relevant national and international organisations.

Since 1996, the Nuclear Energy Safety Council of the President has been acting in Armenia. It was established pursuant to an agreement with the EBRD. The main task of the Council is to annually submit reports to the President on the *de-facto* nuclear safety status at the Armenian NPP. The Council consists of reputable international experts who are well known in the nuclear energy industry globally. The members of the Council consider all relevant documents and organise meetings in which the relevant experts participate before decisions are made.

On 1 March 1999, the President signed the *Law on the Use of Nuclear Energy for Peaceful Purposes*, adopted by the Armenian National Assembly on 1 February 1999. This law outlines the procedures for export, import and storage of nuclear and radioactive materials, and radioactive waste. It requires the licensing of organisations dealing with nuclear energy, forbids the import of radioactive waste, and prohibits the export of nuclear and radioactive materials, radioactive waste, nuclear equipment, and nuclear technology to countries that have not signed the appropriate international agreements. The law provides for radioactive waste disposal at special facilities. The law may form the legal basis for the development of a nuclear code in the future.⁵⁴

Armenia actively cooperates with the international community in the nuclear energy sector, particularly in the matter of prevention of weapons of mass destruction (WMD) proliferation. Export control is carried out by the Prime Minister, who must personally sign licences for the export of nuclear material and dual purpose technologies. In this process, the following agencies also participate:

- (i) The Government Export Control Commission (est. 1993), which assesses requests for export licences and informs the Government on its findings on such requests; and
- (ii) The Government Commission on Arms Control and Disarmament (est. 1997), which is headed by the deputy minister of foreign affairs and is responsible for Armenia's policy regarding international treaties and agreements on WMD.

Armenia participates in the following international and bilateral agreements in the area of nuclear energy:

- (i) *Minsk Accord on CIS Export Control Coordination* (26 June 1992);
- (ii) *The Nuclear Non-Proliferation Treaty* (as a non-nuclear state, 15 August 1993);

⁵⁴ Centre for Non-proliferation Studies at the Monterey Institute of International Studies.

- (iii) Member of IAEA (27 September 1993);
- (iv) *Agreement on Safeguards with the IAEA* (5 May 1994); Armenia was the first country with an operational NPP to sign the Additional Protocol under the 93+2 programme of the Agreement of Safeguards (provisionally applied until the Agreement comes into force); and
- (v) Nuclear Suppliers Group (as an observer).

b) Facilities

The major facilities related to nuclear energy in Armenia are the NPP at Metzamor, the Yerevan Institute of Physics and the Analitsark instruments plant. The Metzamor NPP has two units of VVER-440 type. Due to the specific seismic features its location, basic design improvements were made to the V-230 project, not only during construction, but in the reactor facility design as a whole. As a result, the project received a new serial number (V-270). The design life of each unit is 30 years.

The Armenian NPP was commissioned in 1976, and initial criticality was achieved at Unit #1 on 22 December 1976, and at Unit #2 on 5 January 1980.

In the aftermath of the 1988 earthquake, the Government of the former Soviet Union decided to shut down the Armenian NPP. Unit #1 was shut down on 25 February 1989 and Unit #2 on 18 March 1989.

In April 1993, the Government of Armenia decided to restart the Armenian NPP. Unit #2 was considered to be the safer of the two thus it was restarted on 5 November 1995.

Debts in arrears for supplies of nuclear fuel delivered but not paid were the key issue in the agreement between the Governments of Armenia and Russia reached in October 2003. As a result, an agreement was signed on 18 September 2003 between INTER RAO EES and the Armenian Ministry of Energy. INTER RAO EES assumed the functions of a financial manager of the Armenian NPP. INTER RAO EES is obliged to supply fresh nuclear fuel to the power plant. In particular, Russian experts are now responsible for the management of cash flows at the plant. The plant itself, however, remains in the ownership of the Republic of Armenia.

Armenian and Russian experts believe that the reactor can be operated until 2016, taking into account the 6-year period during which operations at the Armenian NPP were discontinued. However, the EU insists on decommissioning the plant, since the reactor is of first-generation design and does not meet modern EU nuclear facilities safety standards. In the meantime, additional safety features are being installed at the plant with technical and financial assistance from the US, EU and other European countries, as well as loans from Russia, and the Republic of Armenia's budget and surcharges included for this purpose in the tariff for electricity produced at the NPS. In particular, the US Department of Energy has already allocated for the implementation of such measures (USD35 million), and the EU has provided EUR20 million.

The Armenian NPP produces 35-40% of Armenia's electric energy. In 2005, the Armenian nuclear power plant generated 2.716 billion kWh of electricity, 13.1% more than in the previous year. The plant set an absolute record in electricity output since

being put back into operation in 1995. The growth in production has been attributed to several factors, including the reduced duration of repairs at the plant in 2005.⁵⁵

The Government of Armenia has maintained the same stance regarding the decommissioning of the Armenian NPP, which is that the plant may be decommissioned prior to the expiration of its design life provided the following conditions are met:

- (i) Energy security of the country does not fall below its current level;
- (ii) Power produced at the NPP is substituted by energy of equal value in terms of quantity and operational mode (load); and
- (iii) Decommissioning of the plant does not lead to impairment of the social status of the population as a result of a sharp increase in electricity tariffs.

According to obligations undertaken by the EU in March 2004, steps are made for the provision of EUR100 million to Armenia for the purpose of decommissioning the Armenian NPP and the development of alternative power generation facilities. Armenia is included in the lists of certain EU funds as a recipient of EU funding for power sector projects. According to an agreement signed in Yerevan in March 2004, the EU was to extend over the next year EUR16 million (USD24 million) and part of this money was earmarked for the decommissioning of the Armenian NPP.⁵⁶

The European Commission intends to spend EUR5-7 million (USD6.07-8.5 million) between 2006 and 2007 for securing the safety of the Armenian NPP.⁵⁷ The Armenian NPP was commissioned in 1980; operations were discontinued in 1989 due to political reasons. Due to a serious energy crisis, operations resumed in November 1995. The plant is fitted with a soviet-era first-generation VVER-440 reactor. Unit #2 of the Armenian NPP produces up to 40% of electricity in the country. Since 1993, more than USD80 million has been invested in improving safety at the Armenian NPP.

IAEA has put forward two options for the development of the power sector of Armenia. The first one foresees the construction of a new NPP, and the other one foresees the substitution of the NPP by alternative sources of energy. Analysis provides evidence that both options would be of approximately the same cost, about USD1,000-USD1,200/ kW of installed capacity. IAEA experts believe that the construction of a new NPP is the better option due to environmental reasons.⁵⁸

The Yerevan Institute of Physics has a 6 GeV synchrotron. The Institute claims a nominal payroll of 1,400 employees but experiences severe financial difficulties and has all but ceased to function.

The Analitsark plant makes analytical and testing devices for nuclear power plants. Clients include the Leningrad (St.-Petersburg) NPP and the Severodvinsk complex serving the Russian navy, as well as facilities in the Baltic countries, China, Greece, Iran, Pakistan, Turkey, and Yemen.

The new spent nuclear fuel storage at the Armenian NPP will be used to store spent fuel until 2016.⁵⁹ Armgosatomnadzor believes that the Armenian NPP will be in operation until that time. The new storage will be constructed with funding from the Government's budget and is expected to be commissioned in 2007. The spent fuel can be safely kept for 50 years. Should the railroad leading across Abkhazia become open by that time, Armenia will be able to deliver the spent fuel to Russia for reprocessing.

⁵⁵ Ibid., Week 02, 2006, p. 14.

⁵⁶ ENERGO Central and Eastern Europe/Former Soviet Union, Week 21, 2004, p. 10.

⁵⁷ Ibid., Week 43, 2005, p. 14.

⁵⁸ Ibid., Week 28, 2004, p. 13.

⁵⁹ Ibid., Week 18, 2005, p. 13.

The NPP uses about 100 fuel units per year. The first storage (commissioned in 2000) is now almost full and contains about 600 units of fuel.

According to the *Amendment to the Law on Energy* adopted in 2006, the nuclear energy sector is open to the private sector. However, to carry out operations in the sector, a licence from the relevant authority is needed.

8. District Heating

The information in this section is based on the findings of the report on the District Heating Strategy Plan for the Republic of Armenia, developed by Consulting Engineers and Planning (COWI) and Ramboll (Denmark), under contract with the Thermosupply Programmes Project Implementation Unit of the Ministry of Finance and Economy of Armenia (2002) and partially funded by the World Bank. The report contains important insights regarding the restructuring and commercialisation of the district heating sector, as well as policy recommendations for its implementation.

In the late 1980s, the district heating (DH) supply system of Armenia consisted of 55 systems producing about 20 million Gcal per year. Years of blockade made fuel supply difficult, the facilities have deteriorated as a result of neglect and disrepair, and also damage caused by an earthquake. For these reasons, only 2-3 DH systems are still in operation, producing about 1 million Gcal of heat per year. At this time, only about 10% of the population has access to DH (as compared to 35% in 1988).

The current policy of the Government is to encourage rehabilitation (where viable) and the construction of new, modern systems. The reason is that a flexible DH system is on a par cost-wise with the cheapest alternative (heating by wood and waste), but is more advantageous in terms of emissions and pollution; therefore DH is a real option even for the lowest-income families. Compared to electricity, currently used for heating by many families, DH is about 4 times more efficient.

By virtue of amendments to the *Law on Energy*, smaller systems with output of less than 5 Gcal/hour have already been deregulated and are outside the mandate of the Public Services Regulatory Commission, so that they could operate in a competitive market environment on sound commercial principles. This policy has already led to the construction of new decentralised DH system units, typically operating on LPG, with rated output of 15-100-200 kW, which fits the requirements of several homes or apartments.

Where larger units are planned or slated for rehabilitation, the strategy is to encourage the establishment of condominiums. The number of such condominiums exceeds 600, including over 4,000 buildings with some 185,000 housing units. Admittedly, there are significant difficulties associated with the “revival” of DH in condominiums:

- (i) Condominiums are limited in their ability to pay for collective actions;
- (ii) Residents of individual or entire blocks of condominiums refuse to pay due to low quality of service;
- (iii) Some housing units are empty or leased; and
- (iv) Lower income condominium residents are reluctant to participate.

There is also need to: develop the contractual framework between condominiums and DH service providers; regulate the terms of access for condominiums to DH facilities for repairs and maintenance (including inside private home units); and to streamline the billing system from condominiums to private users and the collection system, etc. The Government is looking at ways to resolve these issues. To this end, the

Government established a Commission for the Refurbishment of DH Systems. Measures include the tendering-off of boiler rooms with rated at a capacity of up to 1 MW, the provision of flexible credit terms and the establishment of rules that encourage cogeneration, where feasible.

The DH strategy is differentiated by geographic areas and categories of users, depending on where DH can be implemented with the greatest ease. Despite the small size of the country, there are substantial regional differences in Armenia in terms of heating season length: in the north, it can be up to 4,800 degree-days whereas in Yerevan it is about 2,350 degree-days. The strategy for DH, which is currently under development, aims at securing the survival of systems over the next two years, their stabilisation during the next 4-6 years, and full-scale deployment over a period of 25 years.

For municipally-owned systems (most of the 55 DH systems built before 1988 fall in this category), the following policies may be best to follow:

- (i) Development of new forms of contracts to be signed by entities (condominiums and others), including a minimum set of controlled parameters (e.g., feed water temperature) and sanctions in cases of non-payment (e.g., switch off supply).
- (ii) Partial pre-payment;
- (iii) 100% measurement of heat supply;
- (iv) Two-part tariff (at least 25% fixed part + variable part); and
- (v) Flexibility in terms of “guaranteed” minimum heat supply, particularly during the period of “survival” (e.g., lower allowable temperature of feed water, shorter heating season, removal of heat radiators in some rooms, etc.).

For decentralised DH and individual heat supply, the construction of small units is encouraged, particularly using gas. Where gas is not available, the use of modern hard fuel boilers is promoted.

The DH strategy takes into account the fact that many families cannot participate in DH systems without some kind of temporary support. The Government is looking at phasing out the indirect subsidies offered so far to DH users and introducing various direct assistance schemes, such as, the “points” system that offers support to low-income families. Such support may be used to cover the fixed part of the tariff. The estimated cost of this programme is about 7% of the total cost of the support programme for low-income families. Regulation will continue only for large-scale systems, while tariffs for the services of smaller systems will be set by negotiations between the suppliers and the users of the services.

The UN Development Programme and the Minister of Environment of the Republic of Armenia signed, in 2005, an agreement for the implementation of a four-year programme designed to remove obstacles to energy productivity in the systems of heat and hot water supplies in cities.⁶⁰ The joint programme of the Global Environmental Fund, UNDP and the Armenian Government aims to reduce heat losses in heat and hot water supply systems in Armenian cities. The Yerevan office of UNDP extended a USD3 million grant to the programme. The tariffs for heat supply have not yet been set, but the Minister of Environment believes that the implementation of the new heat and hot water supply system will lead to about 35% reduction of bills for DH services.

According to the Action Plan of the Government, investment in 2007 in the energy sector of Armenia will include, in particular, the DH sector in cities, the construction of heat and electricity generation units at the DH facilities in Yerevan, the rehabilitation of power transmission and distribution lines, electricity transmission facilities, and the implementation of alternative energy systems.

⁶⁰ Former Soviet Union/Central Europe, Week 03, 2005, p. 13.

ATTACHMENT 1

EXCEPTIONS OF ARMENIA IN THE “BLUE BOOK”

MEASURES

Constitution of the Republic of Armenia of July 1995.
Law on Real Estate Property of January 1996.

SECTOR

National Economy.

LEVEL OF GOVERNMENT

National.

DESCRIPTION

Foreign natural persons, stateless natural persons and foreign legal persons do not enjoy the right to own land on the territory of Armenia.

PHASE-OUT

No plans at present.

OTHER EXCEPTIONS

None.