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A Guide for Investors in Belarus, Bulgaria, Kazakhstan, the Russian Federation, and Ukraine

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Foreword

During the last ten years, eastern and western partners have been working together to introduce energy efficiency improvements in Central and Eastern Europe and in the Commonwealth of Independent States (CIS). Governments have led this initiative because policy reforms are needed to help create new market conditions. These reforms and subsequent restructuring launched by each country have also been supported by technical assistance programmes and later by investments from international development banks.

The Energy Efficiency 21 Project has provided a stimulating forum and network for pursuing this complex process. Financing energy efficiency projects appeared early as one of the main bottlenecks to increasing trade and cooperation. As a result, the project has focused on increasing skills in financial engineering and developing new financing mechanisms.

This book is one of a series of publications that review the efforts made in promoting and financing energy efficiency improvements in selected economies in transition. The present book describes the case of Belarus, Bulgaria, Kazakhstan, the Russian Federation, and Ukraine. These are the five participating countries in the project entitled *Energy Efficiency Investment Project Development for Climate Change Mitigation* (ECE-CIS-99-043) supported by the United Nations Foundation (UNF) and the United Nations Fund for International Partnerships (UNFIP). We are deeply grateful to Gaudenz Assenza, Mikael Brodin, and Ana Villarreal for the preparation of this evaluation under a co-financing agreement with the UNF, the UNFIP, and the Norwegian Ministry of Foreign Affairs.

The books in this series are structured into four parts. The first part reviews the economic conditions for promoting energy efficiency, describing the basic features of each country, analysing the constitution and the political situation, the main economic indicators, privatization policy and the investment climate. In the second part, the national energy sector is described for each country. The third part is focused on the financing instruments and projects in the selected countries. The climate change mitigation national policies and the Joint Implementation projects are briefly presented in the last chapter of the publication.

A greater commitment will be needed from the private sector to deliver the energy efficiency products and services required to achieve the ambitious goals of the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Economic Commission for Europe (UNECE) environmental conventions. Market formation and the commercialization of environmental technologies are crucial because only the private sector can provide the investments needed.

I look forward to continued progress in consolidating the partnerships that have emerged during the last few years of the Energy Efficiency 21 Project between governments, business, and the financial community. The success of this collaboration will become increasingly crucial to sustaining economic prosperity and environmental well being in the years ahead.

Paolo Garonna
Acting Executive Secretary
United Nations Economic Commission for Europe

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List of abbreviations

AIJ	Activities Implemented Jointly
CCI	Climate Change Initiative
CDM	Clean Development Mechanism
CENEf	Centre for Energy Efficiency, Russia
COP	Conference of Parties to the UNFCCC
CIS	Commonwealth of Independent States
EBRD	European Bank for Reconstruction and Development
ERU	Emission Reduction Units
ET	Emissions Trading
GHG	Greenhouse Gas
JI	Joint Implementation
NGO	Non-Governmental Organisation
NIB	Nordic Investment Bank
NOPEF	Nordic Project Export Fund
OECD	Organisation for Economic Co-operation and Development
OPEC	Oil Producing and Exporting Countries
RES	Renewable Energy Sources
RUSDEM	Demonstration Zones of High Energy Efficiency in the Russian Federation, Association
tce	Tons of coal equivalent
toe	Tons of oil equivalent
UN ECE	United Nations Economic Commission for Europe
UN FCCC	United Nations Framework Convention on Climate Change

Preface

In the transition economies of Central and Eastern Europe and the Former Soviet Union, substantial economic and environmental benefits can be gained from implementing measures in energy efficiency in heat and power supply. The energy efficiency sector is particularly attractive because it has a potential for combining economic gains with environmental improvements, thus overcoming the widespread perception that there is an inevitable trade-off between the economy and the environment. At the same time, there are serious barriers to effective implementation of energy efficiency investment schemes. The energy infrastructure in all five countries suffers from many years of neglect as to maintenance and modernization, and is currently in need of major investments to reach the level that will be demanded by societies aspiring for the economic and environmental standards enjoyed by their western neighbours.

As one of three sub-regional projects under the umbrella of the UNECE Energy Efficiency 21 project, the Energy Efficiency Investment Project Development for Climate Change Development[1] addresses market formation activities in economies in transition. The objective of this project is to accelerate energy efficiency market formation activities in five countries – Belarus, Bulgaria, Kazakhstan, the Russian Federation, and Ukraine. Greater participation of private sector investments is required in three key areas: municipal lighting, hospitals and district heating. The activities include capacity development and training for private and public officials on the local level to identify, develop and implement energy efficiency investment projects; assistance to municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support investment projects; and the development of energy efficiency investment proposals for potential investment by commercial banks, private companies and financial service companies.

This book was developed as one of several outputs from the project. It contributes to private and public sector skills development by providing municipal authorities and national administrators with information on various aspects of economic, institutional and regulatory reform, and by describing the barriers confronting potential investors. This guide is designed to facilitate the decision-making process leading to possible investments in energy efficiency measures. The book covers not only traditional ways of managing investments in this sector, but also future prospects related to Greenhouse Gas Emissions Trading and Joint Implementation (JI). By providing in-depth information on pilot activities carried out in several countries, this book is designed to reduce some of the uncertainties of investment in this area.

An overview is given of the status of energy supply and distribution mechanisms of selected sectors in the five countries that are covered by this project, and a description is made of the financial mechanisms for energy efficiency projects and emissions reduction investments in the same sectors. Illumination of streets and highways, district heating, and hospital heat and power supply are with few exceptions a direct responsibility of municipalities in the countries covered by this book, and therefore, a key focus is the potential for investments with regard to public entities.

[1] The project "Energy Efficiency Investment Project Development for Climate Change Mitigation" is part of the Energy Efficiency 21 (EE21) programme implemented by the United Nations Economic Commission for Europe (UNECE).

The book primarily addresses readers within management and administrative decision-making in charge of district heating, municipal lighting, hospital heating and power supply, but also other energy-related sectors with similar characteristics and needs, wanting to attract external capital to their projects. In addition, managers of foreign or domestic funds may find the contents useful in their search for profitable energy efficiency investments.

The information contained in this book has been gathered from a large number of sources, most of which are available in the public domain. All efforts have been made to ensure the veracity and accuracy of the information. However, the level of reliability, transparency, and public disclosure of many institutions in these countries does not conform to international best practice and the quality of data sources varies significantly. Since in many cases it is difficult to verify the accuracy of data, it is necessary to be alert and critical in evaluating the information.

The present United Nations book has been prepared under UNECE's Energy Efficiency 21 Objective 2, which is to promote energy efficiency investments to meet the criteria of the UNFCCC Kyoto Protocol and for Joint Implementation (JI/AIJ) offers. For further information about the EE21 Project, please contact:

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1 TRANSITION ECONOMIES: COUNTRY CASE STUDIES

Gaudenz Assenza, Mikael Brodin, and Ana Villarreal[2]

This chapter provides an introduction to each of the five countries covered by this project: Belarus, Bulgaria, Kazakhstan, the Russian Federation, and Ukraine. The investment climate for foreign companies is described, together with each country's administrative structure, political party system, economic indicators, and attempts to reform the economy.

1.1 Belarus

1.1.1 *Introduction*

Located between Poland and Russia, the Republic of Belarus covers an area of 207,600 square km with a population of over 10.3 million people. After seven decades as a constituent republic of the Soviet Union, Belarus attained its independence on 25 August 1991. However, the national holiday remained on 3 July, the day Minsk was liberated from German troops in 1944. Belarus retains closer political and economic ties to Russia than any other former Soviet republic. To formalize these ties, both countries signed a treaty on 8 December 1999 creating a two-state union. This included the merger of currency systems, unified policies on tax, customs, and borders, defence cooperation, and a common securities market.

According to the former Prime Minister Gennadiy Novitskiy, Belarus seeks to maintain a socially oriented market economy as the basis for its economic development. This model combines private initiative and competition with an active role of the state in securing social protection for the population.[3] The economy, however, remains largely centrally planned with state-run industries accounting for approximately half of the GDP.

Belarus has seen little structural reform since 1995. The "market socialism" policy provided the state the right to maintain control over prices and currency exchange rates, as well as the entitlement to intervene in the management of private enterprises. According to official statistics, Belarus has experienced significant economic growth in recent years. However, independent analysts have claimed that the GDP growth figures are boosted by the accumulation of non-competitive goods in inventories, which is enabled by credits to the debt-ridden state industrial sector.[4] A balanced assessment of the economic situation suggests that the economic crisis continues, albeit in a less dramatic form than in the early 1990s.

[2] The authors gratefully acknowledge the assistance of William Christensen, Tatyana Gourbo-Novik, Inna Gritsenko, Emilia Istrate, Milka Janakieva, Michal Jurásek, Iryna Korzhyk, Fedor Molochko, Oksana Nyshta, Iryna Payosova, Jana Slavina, Jiří Šmoldas, Vladimir Tarasenko, Vladimir Voitekhovich, and Robert Zbíral in drafting different sections of this chapter.

[3] EBRD, not dated/a.

[4] BDG, not dated.

Exacerbating the economic problems were two consecutive bad harvests in 1998 and 1999, as well as persistent trade deficits. Despite this, the *Social and Economic Development Programme for 2001-2005 and until 2010* foresees annual growth rates between five and eight percent.

In 1997 the inter-bank currency exchange was nationalized and the natural demand/supply ratio disappeared, resulting in the emergence of unofficial exchange rates. By the end of 1999, the National Bank had completely liberalized the trade of hard currency and exempted the Belarusian commercial banks from obligatory selling of hard currency to the National Bank. The National Bank also lifted all restrictions on the volume of hard currency bought and sold among Belarusian banks.[5] In March 2000, however, new rules were introduced that obliged most legal entities to sell 30 percent of their foreign currency revenues from exporting goods and services at the Belarusian Currency and Stock Exchange.[6]

Serious changes in state policy towards privatizing the public sector and attracting foreign investors occurred in 2001 and 2002. This will be discussed in more detail in sub-chapters 1.1.4 and 1.1.5. Close relations with Russia, which are designed to lead to reunion, are likely to influence the pattern of economic development in coming years. Primary industrial products include machine tools, tractors, trucks, and consumer durables. The majority of employees work in the industrial and agricultural sectors. The net emigration rate is 2.54 migrants/1000 people (2004 estimate). Emigration is more common among young people. The most popular destinations are the USA, Canada, and Germany. As for demographic trends, Belarus has one of the lowest population growth rates in the world, minus 0.11 percent.

1.1.2 *Constitution and political parties*

According to its first constitution established on 30 March 1994, Belarus is a republic with a directly elected President. The Chief of State, the Head of Government, and the Council of Ministers compose the executive branch. The President appoints the Prime Minister and the Deputy Prime Ministers. The legal system of the country is based on civil law, suffrage is universal, and the minimum age required for voting is 18. The first elections took place in two rounds on 23 June and 10 July 1994, appointing Aleksandr Lukashenko as president for a five-year term. According to the 1994 constitution, the next elections should have been held in 1999. Lukashenko extended his term to 2001 by means of a referendum in November 1996.

The Organization for Security and Cooperation in Europe Advisory and Monitoring Group in Belarus (OSCE AMG) was established in 1997 to assist Belarusian authorities in promoting democratic institutions and in fulfilling other OSCE commitments. After the elections of 2001, the International Limited Election Observation Mission (ILEOM) of the OSCE acknowledged the gradual emergence of a pluralist civil society. This is considered to be the foundation for the development of democratic political structures, representing all segments of the population. The legislative branch is made up of the Bicameral Parliament or Natsionalnoye Sobraniye. The Parliament consists of the Council of the Republic (Soviet Respubliki) with 64 seats and the Chamber of Representatives (Palata Predstaviteley) with 110 seats. The judicial branch is made up of the Supreme Court and the Constitutional Court. The

[5] Embassy of the United States of America in Belarus, not dated.

[6] Ministry of Foreign Affairs of the Republic of Belarus, not dated.

[7] OSCE Advisory and Monitory Group in Belarus 2001.

president appoints and has the possibility of dismissing the judges of the Supreme Court and half of the judges of the Constitutional Court. The Chamber of Representatives appoints the remaining half. The Committee for State Security (KGB) and the Ministry of Internal Affairs (MVD) share law enforcement and internal security responsibilities. Both report directly to the President. According to the law, the President has the right to subordinate all security bodies to his personal command.

According to an estimate for the year 2000, Belarus has 18 political parties, 39 national trade unions, 18 confederations of associations, as well as 153 international and 709 national non-governmental organizations. There are also 15 trade unions of enterprises, institutions and organizations and 955 local NGOs in the country, according to the Ministry of Justice. All political parties and NGOs are subject to re-registration every few years, a measure that resulted in a drastic decrease of their number. After the 1999 re-registration campaign the number of political parties dropped from 27 to 19, and the number of national NGOs from 1164 to 709.[8] The most influential opposition parties are the United Civic Party (UCP), the Belarusian Social Democratic Party (BSDG), and the Belarusian Popular Front (BNF).[9]

1.1.3 *Economic indicators*

One of the key economic institutions is the National Bank of the Republic of Belarus (NBRB). Established in 1991, its provisions state that the Belarusian Constitution, Banking Code, laws, and regulatory legal acts of its President shall guide the National Bank. Its main objectives are protecting the Belarusian rouble and ensuring its stability. This includes guaranteeing its purchasing power and exchange rate stability relative to foreign currencies. The National Bank also aims at developing and strengthening the banking system and ensuring effective, reliable, and secure functioning of the payment system.[10] To attain these objectives, the National Bank formulates and implements national monetary policy.

A number of international organizations, including the IMF, have continuously urged Belarusian officials to tighten the monetary and crediting policy and to introduce structural reforms. In response, the Belarusian side has set forth the following objectives:

- To increase growth rates of output and sales of goods and services;
- To ensure a steady positive trade balance of goods and services;
- To enlarge the share of foreign trade turnover in cash transactions and, accordingly, reduce non-cash settlements;
- To increase foreign currency inflows to the accounts of exporting enterprises;
- To increase foreign investment inflows to Belarus, including foreign direct investment;
- To prevent capital flight.

[8] BelaPAN 2000.

[9] Interview with Vladimir Nistyuk 2002.

[10] NBRB 2001.

In 2002, the efforts to strengthen the banking system aimed at increasing stability, expanding and improving banking services, as well as protecting the interests of depositors and creditors. Over the course of three years the state intended to retire from the body of bank shareholders and reduce its participation share in their authorized funds.

According to the government, it is vital to attract foreign investments in the banking system with a view to building up authorized funds and expanding the resource base. The authorities are planning a series of measures to enhance the attractiveness of the Belarusian banks in the eyes of domestic and foreign investors. The plan provides for the implementation of such steps as elimination of restrictions on the establishment of foreign banks and their branches. Raising the willingness of households to keep their savings in Belarusian banks and improving the banks' credit portfolios are also necessary.

One of the most important targets in improving banking supervision is establishing a system of economic standards designed to prevent systemic crises. It is envisaged that a comprehensive audit of leading banks by authoritative international companies will be undertaken. International Accounting Standards (also at the enterprise level) will be introduced and insolvent banks will be restructured. According to the National Bank of Belarus, the most important goals in developing the national payment system are as follows:

- Improvement of the banking system liquidity management and minimization of the share of non-effected payments in the payment turnover;
- Enhancement of operational efficiency of the automated system of inter-bank settlements (ASIS) with a view to streamlining payments processing and ensuring interaction with associated settlement systems, as well as its reliability and safety;
- Continuation of activities aimed at integrating the payment systems of Belarus and the Russian Federation.[11]

Table 1.1 GDP trends in Belarus

	1999	2002	2003
GDP at market prices (current $)	12.1 billion	14.7 billion	17.5 billion
GDP growth (annual %)	3.4	5.0	6.8
GDP real growth rate (annual %) [12]	316.8	45.0	28.7

Source: World Development Indicators Database, April 2005.

[11] NBRB 2001.

[12] CIA 2004.

[13] World Bank 2000b.

[14] CIA 2004.

Table 1.2 Macroeconomic indicators in Belarus [15]

	2001	2002	2003	2004	2005	2010
GDP, production (billion roubles[16])	740	780	826	878.9	937.8-940.4	1315.4-1381.7
Annual GDP deflator, %	142	122	120	117	115	134
Average annual GDP increase, %	5.2	5.4	5.9	6.4	6.7-7.0	7-8

Source: Social and Economic Development Programme for 2001-2005 and until 2010.

Foreign exchange policy: The government of Belarus expects that the Belarusian rouble will depreciate both against the Russian rouble and against the US dollar. It also anticipates that inflation rates will remain in double digits. In order to ensure a minimum level of foreign exchange supply at the Belarusian Currency and Stock Exchange (OJSC) auctions, mandatory sales of foreign exchange proceeds will be retained.[17]

The programme that aims at creating a monetary union between Belarus and Russia includes the following steps:

- Before 1 January 2001, the exchange rate was determined by supply-demand market mechanisms. Russia provided a stabilization credit of $100 million;
- Starting from 1 January 2002, the Belarusian currency was pegged to the Russian rouble;
- In 2005, the Russian rouble is scheduled to become the common means of payment;
- By 2008 the new monetary unit of Belarus and Russia is scheduled to be launched.[18]

The first two steps have been fulfilled. However, the National Bank of Belarus is expressing doubts concerning the schedule of the programme, since many decisions take too much time to ratify. Russia's foremost worry is, meanwhile, the rampant inflation in Belarus and the differences in monetary and crediting policies and instruments between the two countries.[19]

Inflation: Although the inflation rate in Belarus has steadily decreased in the past few years (see Table 1.3), it remains fairly high in comparison with other CIS countries. According to the National Bank of the Republic of Belarus, Belarus experienced the highest inflation rate among the CIS countries with a 47 percent rise in the consumer price index in 2002 (January-February 2002 against January-February 2001). Russia, in comparison, scored 17.7 percent and Armenia 0.6 percent.[20] The government continues to exercise price control as a means of reducing inflation. However, plans are being made for shrinking the share of monetary factors in price

[15] Ukrainian government 2002, 104.

[16] Bulk cost indicators in comparable 1998 prices, financial indicators in the prices of the corresponding years. All indicators take into account the 2000 denomination.

[17] NBRB 2001.

[18] IFS, not dated.

[19] IFS, not dated.

[20] NBRB 2001.

increases. Measures such as price liberalization, reduction of cross-subsidies, and increases in the cost recovery of housing and communal services have been announced.

Table 1.3 Inflation (%, by the end of each year, 1999–2003)

1999	2000	2001	2002	2003
317	185	80	45	29

Source: World Development Indicators database, 2005.

Foreign trade: In 2004, Belarus' total turnover stood at $25.04 billion, including $13.57 billion in imports against $11.47 billion in exports.[22] The main trading partners of Belarus are the CIS countries. In 2004, Russia alone accounted for 49.1 percent of Belarus' exports and 65.8 percent of its imports. Other important trade partners in 2004 included the United Kingdom (9.4 percent of exports), Germany (7.1 percent of imports and 4.2 percent of exports), Poland (4.4 percent of exports), and Ukraine (3.1 percent of imports). Export and import commodities include machinery and equipment, mineral products, chemicals, and metals. A characteristic feature of Belarusian foreign trade is its persistent current account deficit. The country's current account balance in 2004 was estimated at $-1.119 billion.[25]

Government budget balance: In 2004, the revenues of the consolidated government budget constituted $3.326 billion. Budgetary expenditures totalled $3.564 billion, including capital expenditures estimated at $180 million.[26] One of the problems facing the state budget is the procrastination in tax payments that industrial taxpayers resort to. High inflation creates economic incentives for the delay, since the money loses some of its value before the tax debt is settled. As a result, the budget deficit is likely to grow and the general instability of the financial system is becoming tangible.[27] The IMF has already expressed concern about budget performance in connection with inflation. The reaction was triggered after the announcement of a 0.4 percent of GNP budget deficit from January to March 2002. Another issue that raises international concern are off-budget funds. The opposition, the United Civil Party for example, accused the government of running business and not paying taxes to the official state budget. The authorities have not denied that off budget funds exist.[28] The IMF suggested that Belarus should liquidate them and include all state revenues and expenditures in the state budget.

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[21] National Center of Legal Information of the Republic of Belarus, not dated.

[22] The figures are calculated on an exchange rate basis (not in power parity terms).

[23] Presidency of the Republic of Belarus, not dated.

[24] Presidency of the Republic of Belarus, not dated.

[25] CIA 2005.

[26] CIA 2005.

[27] National Center of Legal Information of the Republic of Belarus, not dated.

[28] United Civil Party, not dated.

Debt, IMF loans, and World Bank projects: In 2003, the foreign debt of Belarus amounted $2,658.8 million (see Table 1.4). A series of events since 1995, have prevented the successful implementation of World Bank projects in Belarus and led to a slowdown in assistance. These include maintenance of price controls and stalled policy reforms in key areas such as agriculture, enterprise restructuring, trade, and exchange rate liberalization. In total, the World Bank lent $193 million to Belarus since 1992. This figure includes $120 million for transforming economic policy, $42 million for reforming agriculture, $23 million for the energy sector, and $8 million for public sector management.

Table 1.4 External debt 1999–2003

	1999	2000	2001	2002	2003
Present value of debt (mill $)	886.3	804	819.3	858.3	2,658.8

Source: World Development Indicators database, 2005.

In 1995 the World Bank suspended all programmes of new credits for Belarus. From a $170 million loan, the Bank had already allocated $115 million. The remaining $55 million would be distributed once Belarus restarted privatization and converted state-run enterprises into joint-stock companies. Moreover, the exchange rate is to be freed and monetary and credit policies must be as tight as required by IMF guidelines.[29]

The exchange rate policy change in September 2000 allowed the Bank to proceed with the $22.6 million Social Infrastructure Retrofitting Project. Another important World Bank/IMF activity took place in April 2002, when the World Bank and the IMF sent a mission to the government, the Ministry of Economy, and the Ministry of Finances. The aim of the mission was to monitor state/government expenditure. The recommendations of the mission reflected the above-mentioned advice.

1.1.4 *Investment climate*

According to the EBRD, Belarus has so far shunned market mechanisms and private ownership. To provide revenues to the state, emphasis has been placed on prioritized sectors such as chemicals, petrochemicals, precision tool making, radio electronics, the automotive industry, and woodworking. Factors such as state involvement in private sector operations, price and wage controls, foreign trade restrictions, and slow privatization have kept foreign direct investment (FDI) flows at low levels.[30] Both the government and foreign investors agree that Belarus offers a number of considerable advantages to potential investors. These include its central location, a well-educated and inexpensive work force, a low crime rate, and an easy access to the Russian market. The government of Belarus welcomes foreign investment, which is seen as a source of hard currency. On 9 October 2001, the Investment Code of the Republic of Belarus, a comprehensive document reforming regulations on foreign investment, came into

[29] World Bank, not dated/a.

[30] EBRD, not dated/a.

force. Foreign investors evaluated this document as aligned with international standards.[31] According to the Investment Code, businesses with foreign investment are legal entities with a foreign investment component of no less than $20,000. It also establishes that the state guarantees rights to property and to remit profits abroad. Investments cannot be nationalized without complete and timely compensation. This means compensation must include interest payment calculated on the basis of LIBOR rates since the date of nationalization.

On 31 December 2003, the Presidium of the Council of Ministers of the Republic of Belarus approved the Action Programme of the Republic of Belarus' Government to attract foreign investment. This programme aims at improving the investment climate through a series of measures that includes: addressing inflation, depreciation, tax and price policies, cross subsidizing policies, customs, investment legislation, among others. Foreign investments in Belarus may be made in the following forms:

- Shared participation in enterprises established jointly with Belarusian legal entities or individuals;
- Setting up enterprises completely owned by foreign investors;
- Acquisition of rights to use land, natural resources, as well as other property rights;
- Any other form of economic or other activity, which does not contradict the legislation effective on the territory of Belarus.[32]

The most common forms are joint ventures and wholly foreign-owned businesses. Investment projects are eligible for government support in the form of tax and import tariff benefits, guarantees, and even funding. Such financial support can be issued to private investors as a credit, provided they meet the following criteria:

- Private investors contribute at least 20 percent of the necessary funding;
- The due diligence conducted by the government on an investment project results in a positive conclusion;
- Necessary products/services are supplied through tender bids.

The government can sign an Investment Agreement with the foreign or domestic investor, ensuring proper government support, if the project is of particular importance for the Belarusian economy. Such agreements need clearance from the Belarusian president. The Investment Code also introduces concessions, a new form of investment in Belarus. It refers to natural resources, water, forest, land, and other objects owned exclusively by the state. The government plans to change economic guarantees between 2002 and 2010, encouraging investment and concession agreements and introducing project-financing modalities.

The government has also developed the *National Programme for Attracting Investments*, which is aimed at improving the general investment climate. An important step in that direction is the draft agreement on investment climate assessment with the US rating agency Standard &

[31] Interview with Mr. Stefan Koletic 2002.

[32] Presidency of the Republic of Belarus, not dated.

Poors.[33] The Ministry of Foreign Economic Relations has created the Belarusian Foreign Investment Promotion Agency (BFIPA) to promote Foreign Direct Investment (FDI) flows to the country. The purpose of this agency is to lend assistance to potential foreign investors. The agency works with relevant government bodies and regional administrations to provide investors with the data required for investment appraisals.[34] The code has substantially improved the legal environment for investments. However, adjustments in tax, credit, currency and customs legislation are yet to be made. Furthermore, the law does not always guarantee the cooperation on the part of the local authorities. The law contains no explicit discriminatory provisions against foreign investors. On the contrary, they are entitled to certain benefits. In 2002 the government instructed ministries to attract foreign investments. This is believed to drive officials to work more actively in developing investment projects and privatizing industries.

Despite these legal reforms, in practice the government still tends to favour state-run enterprises over private domestic and foreign firms. According to foreign investors, the main risks derive from the banking system, which is at an early stage of development. Belarus is still mostly a cash-based economy and portfolio investment is virtually unknown. Among the issues that raise concern are: an inconsistent record of credit repayment, high interest rates, and low bank capitalization. The Bank System Development Concept is expected to gradually pave the way for changes, but they will take time to become effective.

[33] BDG, not dated.

[34] EBRD, not dated/a.

1.2 Bulgaria

1.2.1 *Introduction*

The Republic of Bulgaria is ranked fifteenth in size among European countries with 110,994 sq km territory. The three largest cities are Sofia, Plovdiv, and Varna. Sofia, the capital, is the only city with more than one million inhabitants. Bulgaria's population has significantly decreased in the last decade. From 1992 to 2001, the population shrank from about 8.5 million to less than 8 million. In July 2004 the population was estimated at 7.5 million. Reasons for this decrease are a low birth rate, aging, and emigration.[35]

Before 1990 Bulgaria was under strong Soviet political and economic influence and was an active participant in the Council of Mutual Economic Assistance (CMEA). This established the outline for the economic development of the country. This approach included strict planning and specialisation of production in fields exposed to limited external competition. In 1989, the country followed the general wave of changes within the Central and Eastern European countries, establishing democracy and a free market economy. Both internal and external factors such as the Yugoslavia crises slowed down Bulgaria's development compared to other former socialist countries, delaying reforms and economic improvement.

The Bulgarian Socialist Party, successor of the Bulgarian Communist Party, won the first free parliamentary elections held in June 1990. The policy followed by this party was not entirely committed to reforms, leading to the previously mentioned delay in structural reforms, especially in terms of privatization of state assets. Bulgaria was later governed by a changing coalition of democrats and socialists. In 1995 the Socialist government in power led the country into a devastating economic crisis. It was characterised by hyperinflation, the collapse of the banking system and state enterprises, as well as significant deterioration of the living standards. This led to social discontent and resignation of the Socialist government.[36]

The democratic coalition United Democratic Forces won the next general election in May 1997. The caretaker government of Stefan Sofianski – later, in 2003, re-elected mayor of Sofia – managed to restore stability by introducing a currency board agreement. The democrat government, headed by Ivan Kostov, kept this stabilisation trend and managed to engineer what the World Bank has called a 'remarkable turnaround'[37] improving macroeconomic conditions in the country. New economic policies were introduced and a determined EU orientation was declared. This government was the first to make successful steps in accelerating the privatization process and attracting large FDI flows. Although the Kostov government was strongly criticised by the population for the high social cost of its measures and of corruption, mainly in privatization practices, this was the first Bulgarian government after 1989 that managed to stay in power until the end of its mandate.

The latest parliamentary elections of June 2001 brought the National Movement of Simeon II to power. This new movement was established by Simeon Saxe-Coburg Gotha, son of former Bulgarian King Boris III and Queen Joanna. Crowned at the age of 6 after the sudden

[35] Ministry of the Environment and Waters and Energoprojekt PLC 1998, p. II-3.

[36] IEA 1999a, 121-122.

[37] World Bank 2001b, ix.

death of his father, he lost his throne and was forced into exile in 1946. Fifty years later he came back, formed his party, and became Prime Minister of the Republic of Bulgaria on 24 July 2001. He heads the present government until elections in 2005. His administration continues the previous government's efforts towards reforms, meeting EU accession requirements, and completing major privatizations.[38] A key policy objective, NATO membership, was obtained on 29 March 2004.

Bulgaria started negotiations for EU membership in December 1999. In June 2004 Bulgaria finished negotiating the terms of accession scheduled for 2007. The European Commission confirmed in October 2004 that Bulgaria is making progress towards joining the EU in 2007. The country has received the status of functioning market economy and obtained satisfactory results in the adoption of EU legislation. Bulgaria still needs to improve its administrative capacity and fight corruption. Accession could be delayed if commitments made during negotiations are not met.[39]

1.2.2 *Constitution and political parties*

The Constitution of the Republic of Bulgaria, adopted on 12 July 1991, is the supreme law that sets the fundamental principles of the Bulgarian state. The country is a parliamentary republic, in which power is exercised through the legislative, executive, and juridical bodies specified in the Constitution.[40] The National Assembly (Narodno Sabranie) is granted exclusive legislative authority and parliamentary control. It is a one-chamber parliament with 240 seats. The population elects its members directly for a term of four years. Any member of the National Assembly, or the Council of Ministers, has the right to introduce a bill. The National Assembly's role is to adopt and amend laws, including the state budget bill and budget report. It also passes resolutions, declarations, addresses, and is the only agent eligible to establish taxes.

The head of the Bulgarian state is the President. According to Bulgarian Constitution this person shall embody 'the unity of the nation and shall represent the state in its international relations'.[41] The Vice President assists the President. Both are elected directly for a period of five years. The Council of Ministers is the executive state body that heads the implementation of domestic and foreign policy. It also exercises overall guidance over the state administration and the armed forces. The Prime Minister coordinates and bears the responsibility for the overall policy of the government. Pursuant to the laws, the Council of Ministers imposes further rules and regulations by adopting decrees, ordinances, and resolutions. Each Minister may issue rules, regulations, instructions, and orders.

The country's territory is divided into municipalities and regions. Citizens participate in the municipality government through their elected bodies of local self-government and directly through a referendum or a general meeting of the population. Municipalities are legal entities with the right to ownership and independent municipal budgets. Each municipality has a mayor and municipal council. A region is an administrative territorial unit following regional

[38] European Commission 2001b, 16.

[39] Gherghisan 2004.

[40] Republic of Bulgaria National Assembly 1991.

[41] Republic of Bulgaria National Assembly 1991, Chapter Four Article 92 (1).

policy. It is governed by a regional governor and supported by regional administration. The governor is appointed by the Council of Ministers and its functions include ensuring the implementation of state policy on a local level, keeping national and local interests in harmony, and exercising due administrative control.

The judicial branch in Bulgaria is made up of the Supreme Court of Cassation, the Supreme Administrative Court, the Supreme Judicial Council, and the Constitutional Court, as well as courts of appeals, courts of assizes, courts-martial, and district courts. The Supreme Court of Cassation is the supreme judicial authority in the Bulgarian court hierarchy. It oversees the precise application of the law by all other courts. The Supreme Administrative Court exercises supreme judicial supervision in matters of administrative justice only. It expresses its views on the legality of the acts established by the law, the Council of Ministers, and individual ministers.

The Supreme Judicial Council has wide administrative responsibilities in operating Bulgaria's justice system. According to the Constitution and the Law on the Judiciary, the Supreme Judicial Council is the highest representing and governing body of the judicial system. It consists of 25 members elected for five-year terms, including the chairmen of the two Supreme Courts, the Chief Prosecutor, and 22 other judges, prosecutors, and investigators.[42] It elicits, promotes, demotes, reassigns, and dismisses judges, prosecutors, and investigating magistrates. The Chairman of the Supreme Court of Cassation, the Chairman of the Supreme Administrative Court, and the Chief Prosecutor, are appointed and dismissed by the President of the Republic on a motion from the Supreme Judicial Council. They are assigned for a period of seven years and not eligible for a second term in office.

Chapter Eight of the Bulgarian Constitution deals with the Constitutional Court, which consists of 12 judges appointed for nine-year terms by the President, the Supreme Court of Cassation, and the Supreme Administrative Court. The main functions include providing interpretations of the Constitution and the constitutionality of the laws passed by the National Assembly. It also surveys the compatibility of the Bulgarian Constitution and the domestic legislation with international agreements concluded by Bulgaria prior to their ratification, or those in which Bulgaria participates. The court also deals with issues of constitutionality of political parties and associations, as well as the legality of elections of the President, the Vice President, and the National Assembly members. The Constitutional Court acts on an initiative of no less than one-fifth of all members of the National Assembly, the Council of Ministers, the Supreme Court of Cassation, the Supreme Administrative Court, the Chief Prosecutor, and the President.

The Constitution and the Law on the Judicial System provide for the immunity from prosecution of the judiciary (judges, prosecutors, and investigators) from all but serious crimes. These latter are defined as those leading to more than five years of imprisonment. According to the Open Society Institute, the reform of the judiciary became a central political concern following the elections in June 2001. On 1 October 2001, the Government published the *Strategy Paper on the Reform of the Bulgarian Judicial System* aiming at incorporating European standards in the justice sector, thus contributing to the successful preparation for EU membership. Key objectives include improving human resources, administration and physical infrastructure of the judiciary, as well as promoting equal access to justice and more effective protection of citizen's rights.

[42] European Commission 2001b, 18-19.

Politics in the Republic of Bulgaria are based on the principle of political plurality. According to the Constitution, all political parties should express the citizens' political will and serve in its development. No party following 'ethnic, racial, or religious lines' are allowed to exist.[43] The Law on Political Parties manages the creation, dissolution, rights, duties, property, and activities of political parties. The political parties with the strongest political influence in Bulgaria are those represented in the Parliament. The elections for the 39th National Assembly were held on 17 June 2001 and the seats were distributed in the following manner.[44]

- Coalition National Movement Simeon the Second (Oborishte) – 120 mandates;
- Coalition United Democratic Forces (People's Union) – 51 mandates;
- Coalition for Bulgaria (Social Democrats) – 48 mandates;
- Movement for Rights and Freedoms (Eurorama) – 21 mandates.

1.2.3 *Economic indicators*

Two major current features of the Bulgarian economy are the lack of an active monetary policy conducted by the Central Bank and the attachment of its currency to the Euro. The first years of transition after the Soviet regime brought a drop in production, a rise of inflation, and a general deterioration of the country's economic conditions. In late 1996 and early 1997, the country was in a severe economic crisis. In order to stabilise Bulgaria's financial system, a currency board regime was introduced in July 1997.

The currency board is 'a monetary authority which provides 100 percent foreign currency backing to its domestic currency in circulation, and the opportunity of exchanging without any limitations domestic currency for foreign currency at an exchange rate fixed by the law'.[45] In 1997 the lev (BGL) was tied to the German Deutsche Mark at a rate of 1,000 BGL to one Deutsche Mark (DM). In 1999 the BGL was divided by 1,000 introducing the new lev (BGN) that was attached to the Euro at a rate of BGN 1 per €0.51129.[46]

The Currency Board Arrangement (CBA), in combination with other reform measures in the fiscal, banking, and real sectors, proved to be decisive in stabilising the economy. Macroeconomic conditions improved and confidence in the economy was gradually restored. However, the CBA mechanism deprived the state from making significant investments. In this sense the currency board 'disciplines the government because it is no longer able to borrow from the central bank'.[47] Availability of capital for decentralised publicly owned entities in Bulgaria was and continues to be limited. Multiple needs of investment in the Bulgarian economy compete for scarce public funds. Both local capital and foreign direct investments, although increasing, are insufficient to satisfy these requirements.

The currency board introduced an entirely new order in Bulgaria's banking system, especially in the Central Bank. The new normative base was defined by two bank laws

[43] Republic of Bulgaria National Assembly 1991, Article 11.

[44] Republic of Bulgaria National Assembly 2001.

[45] World Bank, not dated/b.

[46] European Commission, not dated.

[47] Miller and Petranov 2001, 66.

promulgated in 1997 — the Law on the Bulgarian National Bank (BNB) and the Law on Commercial Banks. The first altered the structure of the BNB and significantly limited its functions and possibilities to influence monetary policy. The function of the currency board was to introduce strict control over money supply. The role of the BNB was limited to central banking and supervision of the other commercial banks in the country. In that sense, 'the responsibilities and goals of BNB have not changed much, but under CBA the methods used to achieve these goals have changed radically'.[48] Under the currency board, policy makers have no direct control over the monetary base. The BNB became a passive actor in the market, since it did not conduct active monetary policy.

The currency board's stabilisation effect was observed in the improvement of the country's economic indicators. Before the crisis, Bulgaria had recorded two years of positive GDP growth — 1.8 percent in 1994 and 2.9 percent in 1995. However, during 1996 and 1997 the GDP growth rate dropped to minus 10.1 percent and minus 6.9 percent respectively.[49] Annual inflation increased from 32.7 percent in 1995 to 311.6 percent in 1996 and exceeded 540 percent in 1997 (see Table 1.5). The currency board was introduced in July 1997 and within less than one year positive GDP growth rates were recorded. In 1998, the trade and pricing policies were liberalised and the state control on agricultural and food product prices was eliminated.[50] All prices were liberalised, with the exception of household power consumption and industrial central heating utilities. The Bulgarian economy achieved annual growth of 4 percent and 1 percent inflation in 1998. The economic performance of Bulgaria during 1999 was negatively affected by the conflict in Kosovo, as all direct transport corridors from Bulgaria to the EU pass through Yugoslavia. In spite of the large volumes of direct losses estimated in US$95 million, Bulgaria managed to achieve real GDP growth of 2.4 percent and inflation of 6.2 percent.[51]

Table 1.5 Inflation (%, by the end of each year, 1991–2004)

1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
473.6	79.5	63.8	122	32.7	311.6	547.7	1.0	6.2	11.4	4.8	3.8	5.6	6.1

Source: Bulgarian National Bank, *Macroeconomic Review* and World Factbook, 2005.

The pace of economic recovery gained further momentum in 2000. GDP growth was over 5 percent, the highest annual rate during the transition period. Annual inflation was 11.4 percent. According to preliminary data, in 2000 the consolidated deficit slightly exceeded 1 percent of the estimated GDP. The current account deficit had been, however, covered by growing FDI whose annual inflow reached one billion US$, exceeding 8 percent of the estimated GDP.[52]

In 2001, 2002, and 2003, GDP growth was 4.1 percent, 4.9 percent, and 4.3 percent respectively. Other favourable indicators include a rise in foreign direct investment,

[48] Miller and Petranov 2001, 51.

[49] Bulgarian Foreign Investment Agency 2002, 8.

[50] Bulgarian Foreign Investment Agency 2002, 9.

[51] Bulgarian Foreign Investment Agency 2002, 9.

[52] Bulgaria Online 2001.

establishing a record in 2003 of US$ 1,419 million. Annual inflation for 2001, 2002, and 2003, was 4.8 percent, 3.8 percent, and 5.6 percent respectively.

Table 1.6 Bulgarian macroeconomic indicators 1996–2003

	1996	1997	1998	1999	2000	2001	2002	2003
GDP (billion BGN)	14.43	17.43	22.42	23.79	26.75	29.71	32.34	34.41
GDP (billion $)	10.4	10.2	12.73	12.95	12.57	13.6	15.65	19.86
Real GDP growth %	-9.4	-5.6	4.0	2.3	5.4	4.1	4.9	4.3
Annual Inflation	311.6	547.7	1.6	7.0	11.3	4.8	3.8	5.6
Budget Deficit (% of GDP)	-10.3	-2.9	1.3	0.2	-0.6	-0.6	-0.6	0
External Dept (% of GDP)	97.0	100.4	85.5	84.2	88.9	78.3	65.1	59.5
Balance of Payment (million $)	-724	1205	-95	96	137	389	n.a.	n.a.
Current Account (million $)	164	1046	-61	-652	-702	-888	-827	-1666.3
Current Account (% of GDP)	1.6	10.3	-0.2	-4.8	-5.5	-6.5	-5.3	-8.4
Trade Balance (fob-fob) (million $)	122	321	-381	-1081	-1176	-1568	-1594	-2474
Export fob (million $)	4689	4809	4193	4006	4825	5107	5692	7439
Import fob (million $)	4568	4488	4574	5087	6000	6674	7287	9912
FDI (million $)	109	505	537	818	1003	689	905	1419

Source: Bulgarian National Bank, *Macroeconomic Review*, June 2004.

Bulgaria's participation in international trade agreements insures free movement of goods and services within a market of 550 million consumers from EU, EFTA, CEFTA, Turkey, Macedonia, Croatia, Israel, and Estonia.[53] The participation in these agreements was a gradual process. The country signed the Europe Agreements in March 1993, in force since 1995, with the aim of reducing and eliminating custom duties on industrial goods between Bulgaria and the EU countries starting in January 2002.

In 1993 Bulgaria signed an agreement with the European Free Trade Association (EFTA), gaining preferential terms and conditions for trade with Switzerland, Norway, Island, and Liechtenstein. The country became member of the World Trade Organization in December 1996. Since 1 January 1999 Bulgaria also participates in the Central European Free Trade Agreement (CEFTA). This agreement imposes gradual liberalization of industrial and agricultural goods trade with Poland, Czech Republic, Slovakia, Hungary, Romania, and Slovenia. Liberalization of industrial goods was completed on 1 January 2002 for industrial goods. Trade of agricultural goods remains limited for this and all other agreements. Bulgaria also signed an arrangement with Turkey and with Macedonia, imposing a gradual reduction of custom duties until 2005.[54] Agreements were also signed with Estonia, Croatia, and Israel.

[53] Bulgarian Foreign Investment Agency 2002, 41.

[54] Bulgarian Foreign Investment Agency 2002, 14.

Table 1.7 Territorial structure of Bulgarian trade in 2003

Region	Export 2003		Import 2003		Trade 2003	
	Eur Million	%	Eur Million	%	Eur Million	%
EU	942.3	56.6	4753.3	49.5	5695.6	50.6
EFTA	13.5	0.8	118.9	1.2	132.4	1.2
Other OECD countries*	237.8	14.3	1034.5	10.8	1272.3	11.3
Balkan countries**	107.8	6.5	79.4	0.8	187.2	1.7
CEFTA countries	98.1	5.9	763.2	7.9	861.3	7.6
CIS and Baltic (former USSR) countries	64.6	3.9	1718.9	17.9	1783.5	15.8
Other countries	201.7	12.1	1132.4	11.8	1334.1	11.8
TOTAL	1665.7	100	9600.6	100	11266.3	100

*Includes Australia, Canada, New Zealand, USA, Turkey, and Japan.

**Includes Albania, Bosnia and Herzegovina, Macedonia, Croatia, and Serbia and Montenegro.

Source: Bulgarian National Bank as cited by the InvestBulgaria Agency, 2004.

The government is aiming at stimulating and increasing export through new free trade agreements and a reduction of custom duty rates. There are currently arrangements in different stages of preparation with Lithuania, Latvia, and Morocco.[55] The export and import volumes for 2003 amounted to € 1.67 billion and € 9.6 billion respectively. Hence the total Bulgarian foreign trade in 2003 amounted to € 11.27 billion. Bulgaria's most important trading partner is the European Union. Data for 2003 show that the € 5.7 billion trade with the EU constituted 50 percent of the country's overall trade. Bulgaria's largest trade partners in the EU are Germany, Italy, Greece, France, Belgium, and the UK. The country mainly exports food and manufactured goods such as wine, meat, fruits, vegetables, tobacco, leatherwear, and clothes. Bulgaria imports from the EU technology-intensive products such as machinery and different types of equipment.[56]

The Commonwealth of Independent States and the Baltic countries, all former USSR republics, is the second most important trading partner of Bulgaria with 15.8 percent of the total trade volume. From these countries, Russia and Ukraine are the largest trading partners. CEFTA countries Poland, Czech Republic, Slovak Republic, Hungary, Romania, and Slovenia, account for 7.6 percent of total trade.[57] Foreign trade with OECD countries amounts to €7.1 billion, which represents 63.1 percent of the total trade.

The structure of the Bulgarian GDP by economic sectors during the period 1996–2001 is showed in the table below. With the exception of 1997, the service sector has contributed more than half to Bulgaria's GDP, followed by the industry sector providing about 30 percent. In 2002 the service sector contributed 59.7 percent to GDP, the industry sector 27.8 percent,

[55] Bulgarian Foreign Investment Agency 2002, 14.

[56] European Commission 2001b.

[57] Bulgarian Foreign Investment Agency 2002, 12.

and the agriculture sector 12.5 percent. Although the agriculture sector makes the lowest contribution to the GDP, Bulgaria's location and climate are favourable for agricultural development. About 44 percent of the Bulgarian territory is cultivated land. The restitution of ninety-nine percent of agricultural lands to their former owners has been carried out, eliminating this obstacle for the development of the agricultural sector. It is considered that agriculture may turn into one of the economy's priority branches. Indeed, agriculture, tourism, and the food industry have been declared key sectors of the Bulgarian economy. It is believed that they have the strongest potential to generate considerable economic growth.[58]

Table 1.8 Structure of GDP by sectors (1996–2004)

	1996	1997	1998	1999	2000	2001	2002	2003	2004*
Services	54.2	45.9	50.7	55.5	57.0	57.9	59.7	57.5	58.4
Industry	30.7	27.9	30.5	28.2	29.1	28.5	27.8	30.7	30.1
Agriculture	15.1	26.2	18.8	16.3	13.9	13.6	12.5	11.7	11.5

Source: NSI as cited by the Ministry of Economy and World Factbook, June 2005. *Estimate.

Bulgaria is a member of the International Monetary Fund (IMF). The first agreement of Bulgaria with the IMF was signed in 1991 with the objective of curbing inflation, stabilising the national currency, and assuring growth of the private sector until 1995.[59] During the economic crisis in 1997, another three-year agreement with the IMF was concluded. This marked the introduction of the above mentioned currency board as well as urgent fiscal and structural stabilisation reforms. The stand-by agreement amounted to $530 million.[60] Another stand-by arrangement was negotiated in 2001 between Bulgaria and the IMF. This was done after the successful completion of the Extended Fund Facility programme of September 1998 consisting of $860 million.[61] Until 2002 the government succeeded in maintaining a tight fiscal order and budgetary balance in accordance with its commitments under the three-year programme with the IMF.

Table 1.9 External debt 1996–2004

	1996	1997	1998	1999	2000	2001	2002	2003	2004*
Gross ext. debt (bill $)	9.6	10.4	10.9	10.9	11.2	10.6	11.2	13.2	16.1
As % of GDP	97.0	100.4	85.5	84.2	88.9	78.3	71.9	66.7	41.9

Source: BNB as cited by the Ministry of Economy and World Factbook, June 2005. *Estimate

Bulgaria receives significant financial support from the European Community in the fields of economic and structural reform and modernisation of public institutions. Bulgaria benefits

[58] Bulgarian Foreign Investment Agency 2002, 9-10.

[59] Bulgarian Foreign Investment Agency 2002, 87.

[60] Bulgaria Online 2001.

[61] European Communities 2001b, 30.

from all three pre-accession instruments for the applicant countries of Central and Eastern Europe: the PHARE programme for institution building, economic and social cohesion, the SAPARD programme for agricultural and rural development, and ISPA for infrastructure projects in the fields of environment and transport. For the period 2000–2002, the total indicative financial allocations for Bulgaria amounted annually to €100 million from PHARE, €53 million from SAPARD, and between €83 and €125 million from ISPA. In total, Bulgaria receives around €300 million a year in Community grants, which is equivalent to over two percent of its GDP. In addition to its annual PHARE allocation, Bulgaria receives additional PHARE funding in the context of the understanding reached in November 1999 on early closure dates for units 1-4 of the Kozloduy NPP. The additional PHARE funding amounts to €200 million over the period 2000-2007. [62]

1.2.4 *Privatization policy*

According to the Privatization Agency of the Republic of Bulgaria, the privatization process is nearly completed. As of 30 November 2004, from a total of 2,973 enterprises slated for sale, only 95 are still waiting for buyers.[63] The process of denationalization in Bulgaria started in 1992 with the adoption of the Transformation and Privatization of State-Owned and Municipality-Owned Enterprises Act. The privatization pattern applied in Bulgaria included two programmes – Mass Privatization and Cash Privatization. The Mass Privatization programme consisted of distributing vouchers among the population with the intention of creating a culture of shareholding and a sense of ownership and equal access. Citizens were also allowed to acquire shares of enterprises at auctions organised by the Centre for Mass Privatization. The first auction was held in October 1996 and the selling of state minority shares lasted until 2001.

In the process of Cash Privatization, large investors were allowed to negotiate with different institutions responsible for the privatization of state-owned enterprises. These included the Privatization Agency, the branch ministries, and, in the case of municipal assets, the municipalities. However, management-employee buy-out teams were given preferential conditions for participation in the process. They were offered the right to buy 20 percent of the capital share of a privatized company at a preferential price, the right to extend a payment, or the right to pay with compensatory instruments issued in the process of restitution.[64]

In general, privatization moved slowly until 1997 and then significantly accelerated. As of 30 November 2004 the total number of concluded privatization deals since 1 January 1993 is 5,181 of which 2,878 are entire enterprises and 2,303 self-contained facilities.[65] These deals amount $9,739 million from which $4,597 million are payments agreed on deals, $1,170 million are dues commitments or dues paid by the buyers, and $3,972 million are investment commitments.[66] In total, 169 deals were signed with foreign investors. The majority of

[62] European Commission 2001b, 8-12.

[63] Privatization Agency 2004.

[64] Apostolov 2002.

[65] Privatization Agency 2004.

[66] Privatization Agency 2004.

privatization deals in the period 1993-2001 concerned the following sectors: industrial (32.6 percent), trade (23.1 percent), agriculture (12.4 percent), and tourism (10.7 percent).[67]

Privatization deals in 1993 represented only 0.6 percent of state assets subject to privatization. By the end of 2004 this figure reached 86.95 percent, representing 57.41 percent of all state-owned assets. Privatization has resulted in the expansion and the strengthening of the private sector in Bulgaria. In 2002, the private sector generated nearly 73 percent of GDP. This may be interpreted as a result of the acceleration in privatization of state-owned assets.

Table 1.10 Structure of GDP by ownership 1996–2002

	1996	1997	1998	1999	2000	2001	2002
Public Sector	44.1	36.6	37.6	36	30.4	28.3	27.3
Private Sector	55.9	63.4	62.4	64	69.6	71.7	72.7

Source: National Statistic Institute as cited by the Ministry of Economy, 2003.

The acceleration of the privatization process since 1997 was regarded as a positive step, but it was also a source of notorious corruption practices. This imposed the need for amendments in the privatization strategy. Such amendments in the Privatization Law were made in November 2000 in order to increase the transparency of privatization procedures and to reduce the incentives provided to the management-employee buyouts.[68] Further changes in the strategy and legislation were made with the Law on Privatization and Post-Privatization Control. It came into effect 23 March 2002 and replaced the old Privatization Law of 1992. The changes introduced by this Act were oriented towards making the privatization process more effective and transparent. Almost all state-owned companies were offered for sale, except for some monopolies or key institutions. The exceptions included regional utility companies, airports, seaports, free trade zones, the Bulgarian Post, the NPP Kozloduy, Bulgargaz, and the Bulgarian Stock Exchange.[69]

The Privatization Agency was appointed as the sole body capable of selling state-owned property. This excluded the ministries from representing the State in privatization deals, which was common practice at the time. The privatization method of negotiations with potential buyers was considered a non-transparent procedure and potential source of corruption. It was therefore removed. Thus, the methods for privatization included public offering, public auction, publicly announced tender, centralised public auction, and acceptance of tender offer. All preferences were eliminated and equal rules for investors were introduced.[70] The Law also provided for the establishment of the Post-Privatization Control Agency, a new body to supervise the fulfilment of the buyers' obligations under concluded privatization contracts.[71]

The privatization plan for 2004 announced the objectives of selling 119 majority packages, 45 self-contained facilities, and 100 minority packages. According to the Privatization Agency,

[67] Apostolov 2002, 28.

[68] European Commission 2001b, 68-69.

[69] Apostolov 2002.

[70] Apostolov 2002.

[71] Bulgarian Foreign Investment Agency 2002, 28-31.

as of 30 November 2004, 139 majority packages, 64 self-contained facilities, and 1,113 minority packages were sold. The financial effect of these deals in 2004 amounted to $1.9 billion from which $1.3 billion are payments agreed on deals, $89 million are dues commitments, and $509 million are investment commitments.[72]

As of 30 November 2004, there are 95 enterprises (majority packages) for sale. According to the Privatization Agency, 'some 20 companies from the energy sector are forming the most specific and demanding group of projects under preparation'. The privatization plan for 2005 adopted on 7 October 2004, announced the objective of selling 45 majority packages, 20 self-contained facilities, and 167 minority packages. The expected revenues from these deals would amount to BGN 450 million in cash and BGN 300 million in non-cash payment instruments.[73]

The telecommunication sector has undergone significant reforms in recent years. The Bulgarian Telecommunication Company (BTC) had exclusive rights over the provision of telephone services until 2002. The contract for the sale of 65 percent of the BTC shares was concluded between the Privatization Agency and Viva Ventures holding, Austria on 20 February 2004. The value of the transaction exceeded € 1.1 billion.[74] The sale of the remaining 35 percent is expected through public offering of shares at the stock exchange. In relation to mobile phones, its network has demonstrated rapid growth with over 1.5 million subscribers. There is one NMT450 operator, Mobikom, and two GSM providers. Mobiltel was the first to obtain a GSM licence, valid until 2014. The second GSM licence was granted to the Greek OTE Company Globul, applicable until 2016. Thus, competition was introduced in the Bulgarian GSM market.[75] The possibility of a third GSM licence is under consideration.[76]

There are some companies that remain out of the scope of privatization. These enterprises include those engaged in territorial cadastre operations and water and sewerage utilities. Airports, ports, the national electricity transfer system, the company charged with the maintenance of the railway network, some specialised hospital establishments, and medical dispensaries.[77]

A privatization procedure is triggered once a potential investor declares an interest. Each company selected for privatization is treated separately by the Privatization Agency and by an appointed team of experts. After filling out a declaration of confidentiality, the investor buys a set of forms and documents including detailed corporate information and legal analysis of the enterprise at stake. Offers should include the purchase price, means of payment, taking on or payment of debts, investments, number of new jobs to be created, and a five-year business plan of support. The decision of the Privatization Agency on selection of the buyer is based on the comparison of the submitted offers and negotiation. The Executive Director of the Privatization Agency and the investor sign the final contract.[78]

As a rule, under the privatization process, the Privatization Agency executes the functions of a sales agent. It assumes the leading role and coordinates the preparation and

[72] Privatization Agency 2004.

[73] Privatization Agency 2004.

[74] Privatization Agency 2004.

[75] European Commission 2001b, 72-73.

[76] Bulgarian Foreign Investment Agency 2002, 12.

[77] Apostolov 2002.

[78] Bulgarian Foreign Investment Agency 2002, 51.

implementation of projects. The branch ministries however, retain their competence in transactions with very large or strategic enterprises. In such cases, consultants are nominated to participate in the preparation and marketing phase of these companies. Working groups are comprised of representatives of the Privatization Agency and branch ministries. The sale strategies they develop are subject to approval by the Council of Ministers and in some crucial cases by the Parliament.[79]

1.2.5 *Investment climate*

The total volume of foreign direct investments (FDI) in Bulgaria made during the period of transition (1992–2004) is estimated at nearly $8.2 billion. From this total, $2.26 billion or 26 percent were obtained from privatization. The rest of the investments were made as greenfield projects, additional investments in companies with foreign participation, reinvestments, and joint ventures (see table below).

Table 1.11 Bulgarian foreign direct investment inflow 1992–2004

YEAR	VOLUME IN $ million		
	Privatization	Other*	Total
1992	-	34.4	34.4
1993	22	80.4	102.4
1994	134.2	76.7	210.9
1995	26	136.6	162.6
1996	76.4	180	256.4
1997	421.4	214.8	636.2
1998	155.8	464.2	620.0
1999	226.7	592.1	818.8
2000	366	635.5	1001.5
2001	29	784	813
2002	136	769	905
2003	370	1049	1419
2004**	297.5	901.1	1198.6
Total	**2261**	**5917.8**	**8178.8**

* Includes greenfield investment, additional investment in companies with foreign participation, reinvestment, and joint ventures. ** January–June

Sources: Bulgarian Foreign Investment Agency, Bulgarian National Bank, 2004.

In sum, FDI through greenfield projects, joint ventures, reinvestments, and additional investments in already acquired enterprises exceed the FDI through privatization. For the period of 1992–2004, Greece and Austria were the main investors with 13.4 percent and 11.8 percent of FDI respectively. Other important investors were Netherlands with 8.9 percent, Germany with 8.7 percent, Belgium and Luxembourg sharing 8.4 percent, and Italy with 8.2

[79] Apostolov 2002.

percent of FDI. These countries together with Hungary, Switzerland, the USA, and Cyprus contribute 79 percent of Bulgaria's FDI.[80] FDI distribution by sectors was as follows in 2002: 50.1 percent in industry, 19.5 percent in finance, 16.1 percent in trade, 4.2 percent in tourism, and 4.8 percent in infrastructure and construction.[81]

The Foreign Investment Agency, recently renamed InvestBulgaria Agency, was established in 1995 to assist foreign investors. It is a governmental body within the Council of Ministers in charge of the activities of state institutions in the field of foreign investment promotion. It provides foreign investors with up-dated information on the investment process, legal advice, coordination with other institutions, and contacts with local partners. In addition, there is an advisory Council on Foreign Investment and Financing established as a consultative body of the Prime Minister. Members of the Council are representatives of the largest foreign investors, consulting companies, banks, and international organisations. They discuss the policy for promoting foreign investment, as well as measures to improve the investment environment in the country.[82]

Bulgaria has progressed in its efforts to develop and implement a market-oriented industrial policy. The programme 'Industry 2002' of the Bulgarian Government systematises the priorities of the economic policy in the industrial sector. It aims at improving the business environment, attaining sustainable economic growth and macroeconomic stability, while keeping the currency board regime. The Bulgarian Ministry of Industry defines the sources for growth as 'investments, export, and gradual increase of internal consumption'.[83]

Bulgaria's continual adherence to the currency board arrangement may be considered a guarantee of stable macroeconomic conditions, as well as of confidence in the Bulgarian national currency. Bulgaria's political and financial stability and improving macro-economic performance are widely acknowledged. In spite of recent regional conflicts in Southeast Europe, Bulgaria has proved itself a centre of stability. This reduces the country's risk of loosing investments and makes it more attractive to foreign capital.

Additionally, changes in tax legislation have also improved investments. Direct business taxation in Bulgaria follows a downward trend. Since 1 January 2002 the corporate profit tax rate was significantly reduced to 15 percent. Thus, in terms of income tax and corporate tax rates Bulgaria has been recognized as the most competitive location in Central and Eastern Europe. The present Government has announced its intention to continue the trend of gradual reduction of taxes in the medium term. An increase is expected on some indirect taxes such as excise duties, according to relevant European directives. The present tax legislation treats local and foreign investments equally.

The business climate index Estat is based on a survey among 400 entrepreneurs and their evaluation of the business conditions in the country. The main barriers they pointed out were tough administration procedures, the tax system, and corruption. Eighty-five percent of them considered that the legislative base is volatile. Seventy-five percent suggested that the majority of entrepreneurs were ready to give a bribe in order to skip long administrative procedures.

[80] InvestBulgaria Agency, not dated.

[81] Bulgarian Foreign Investment Agency 2002, 9.

[82] Bulgarian Foreign Investment Agency 2002, 22-25.

[83] Bulgarian Ministry of Industry 2002.

Nevertheless, the business climate is evaluated as neutral and improvement is expected.[84] The present government's efforts are directed to address all the above-mentioned shortcomings. In the field of anti-corruption, for example, the Council of Ministers adopted a national Strategy for Combating Corruption in October 2001. It addressed four main areas of anti-corruption activities: those related with the institutional and legal environment, the judiciary, the economy, and the cooperation between government institutions, non-governmental organisations, and the mass media.[85]

Facing the tax and judicial systems is among the main difficulties that foreign investors encounter in Bulgaria. Entry and exit in the market place is also subject to improvement. The central administration procedures to start a firm are accompanied by a large number of licensing regimes that make enterprise establishment difficult. This affects small and medium-size companies in particular. Although diminishing in number, these requirements impose a significant burden on enterprises in terms of time and money. Although the general business climate has been getting a better review recently in the EU's Regular Reports, the EU recommends strengthening the judiciary, enforcing the regulatory framework, addressing the weak performance of land market, and improving the licensing, tax, and customs regimes.[86]

Although the majority of bank assets are private and foreign ownership is considerable, financial intermediation is still inefficient. Access to credits is not easy, especially for long-term credits. Difficulties are greater for small enterprises. The capital market, in turn, remains underdeveloped with a very low turnover on the Bulgarian Stock Exchange. Regarding infrastructure, the low quality of roads, railways, and ports is considered a problem reducing the economic competitiveness of Bulgaria. Nevertheless, with the support of EU funds, the infrastructure has improved in the last few years as well as the investors' view of it.[87]

Foreign investments are protected against expropriation. According to Article 17 of the Constitution, forcible expropriation of property may be envisaged only in case of extremely important state needs, which cannot be met in another way. The Law on Foreign Investments provides for compensation, given the foreign investor's consent, in the form of another immovable property in the same location, in another location, or with cash. The compensation equals the immovable property's market price on the day of the expropriation.[88] Article 4 of the Foreign Investment Act postulates that foreign investments already made in the country will not be negatively affected by subsequent legislative amendments. The provisions of the Law, however, may not be applied to investors from states, which do not provide reciprocal treatment vis-à-vis nationals. In all cases foreign investors are assured compensation for expropriation and free repatriation of earnings received in relation to their investments.[89]

According to Article 22 of the Bulgarian Constitution, foreign nationals and legal entities may not directly acquire land ownership rights. If foreigners inherit land in the country, they are obliged to transfer land ownership to local natural or legal persons. These should be done within three years after the inheritance becomes effective. This clause is currently a subject of

[84] Capital News 2002.

[85] European Commission 2001b, 20.

[86] European Commission 2001b, 28-37.

[87] European Commission 2001b, 33.

[88] Bulgarian Foreign Investment Agency 2002.

[89] IEA 1999a, 129-130.

debate in Bulgaria. The consensus among political parties states that it is necessary to change these rules for EU accession. Other major amendments to the Constitution would concern the judicial system. However, in order to change the Constitution, a due procedure for Constitutional amendments must be triggered.[90]

Although foreigners cannot own land directly, the Foreign Investment Law allows acquisition of land by Bulgarian locally owned and registered companies with foreign participation. This is irrespective of the percentage of foreign participation in the enterprise. Hence, foreign persons can acquire full land ownership rights by setting up or joining a company registered under Bulgarian legislation. Some cases may be considered under special review by the respective authorities. Upon an investor's request, the Foreign Investment Agency may provide special institutional support. It may propose the competent authorities (regional governors or municipal councils) to transfer limited property rights (right to build and right to use) on real estate, with the view to implement a priority investment project. The same procedure applies to those projects acknowledged as priorities by the Council of Ministers.[91]

No additional restrictions are applied to foreigners. There are international treaties in which Bulgaria participates that provide more favourable conditions for foreign investment. Such terms have primacy over local rules. Such examples are the treaties for protection of foreign investments and the agreements for double taxation regulations. Bulgaria has established a liberal regime for profit and capital repatriation. There are no restrictions on the repatriation of foreign investment earnings, capital, and interest. Foreign investors can freely purchase foreign currency and transfer it abroad upon presentation of receipts for paid taxes in specific cases — income generated through an investment, liquidation quota resulting from the termination of the investment, proceeds from the sale of the investment, a sum received after the enforcement of a writ of execution, and so on.[92] Any amount above BGN 5,000 (or its foreign exchange equivalent) taken out of the country should be declared at customs. Both Bulgarian citizens and foreigners may take up to BGN 20,000 (or its foreign exchange equivalent) out of the country without documentation. For transfers above BGN 20,000 a prior approval of the BNB is necessary. Payments abroad made by businesses (or self-employed business people) can only be executed through bank transfers. Those exceeding BGN 20,000 must be supported by documentation showing the need and purpose of such payments.[93]

Establishment of enterprises with foreign investment: Under Bulgarian legislation there are no limitations as to the share of participation or the volume of investment of foreign persons. An enterprise with domestic or foreign investment is required to take the form of business

[90] Dnevnik News 2002c.

[91] Bulgarian Foreign Investment Agency 2002.

[92] Bulgarian Foreign Investment Agency 2002, 23-25.

[93] The foreign exchange regime is based on the principle of freedom of concluding transactions, actions and payments. Transfers are governed by the Foreign Currency Act (effective as of 1 January 2000); the regulation on export and import of Bulgarian Leva and foreign currency in cash, precious metals and stones (1999); the regulation on trans-border transfers and payments (1999); and the regulation on registration by the Bulgarian National Bank (BNB) of transactions between residents and non-residents (1999).

Bulgarian Foreign Investment Agency 2002, 87.

organisations specified in the Bulgarian Commercial Code. These are: private limited companies, single-owner private limited liability companies, public limited companies, general partnerships (unlimited partnerships), limited partnerships, public limited partnerships, and sole traders.

Table 1.12 Types of business organisations in Bulgaria

	OOD	AD
Description	**Limited Liability Company**	**Joint Stock Company**
Capital	Minimal authorised capital – 5000 BGN Formed by quotas (shares) of the members (shareholders)	Minimum authorised capital BGN 50,000*, divided into shares, paid in cash or in kind
Shares	At a value of at least 10 BGN or any higher value divisible by 100	The shares may be either registered, bearer or preference shares
Founders/Owners	One or more persons, including foreign natural or legal persons	One or more persons, including foreign individuals or legal persons
Liability to creditors	Limited to the amount of the capital the member has subscribed	Limited to the extent of the AD's assets
Management	One or more managers and General meeting of members (held at least once a year)	A board of directors (one-tier management system) or a general meeting, supervisory board and managing board (two-tier management system) and General meeting of shareholders (held at least once a year)
Registration	Entry into the commercial register of the relevant district court. Upon registration at least 70 percent (3500BGN) of the capital and at least one-third of each member's quota must be paid up (in cash or in kind). Information about the new OOD is promulgated in the State Gazette.	Record in the commercial register and promulgated in the State Gazette. At least 25 percent of the value of each share must be paid up on foundation and the board should have been elected prior to application for registration.
Requirements for activity	Annually preparation of balance sheets and financial documentary Registration at the National Statistic Institute, the National Insurance Institute, the tax and customs authorities	

* A higher minimum capital is required for establishment of bank insurance companies, investment companies etc.

Source: Bulgarian Foreign Investment Agency, Bulgarian Business Guide, April 2002.

Another option for business activity of foreign investors in Bulgaria is opening branches, representative offices, or joint ventures. Natural foreign persons, foreign legal, and foreign non-legal entities can start a branch in Bulgaria, provided they are registered abroad and entitled to conduct business activities under their national law. The branch itself is not a legal entity but it must prepare balance sheets and keep account books. In order to register a branch, the foreign investor must prepare and present an application and other necessary documents to the district court on its location. No authorised capital is needed to obtain entry into the commercial register. The requirements to open a representative office are almost the same, the difference being that since representative offices should not engage in economic or commercial activities, they register at the Bulgarian Chamber of Commerce and Industry. The permitted activities are marketing and contacting clients and partners in the country. A Joint

Venture is any company that is jointly established by a Bulgarian and a foreign partner. The share of participation of the latter is not limited. Joint ventures must take one of the forms of business entities under the Bulgarian Commerce Act.

Any company that makes a primary offering of shares, or registers its shares for trading on an organised securities market, is obliged to register as a public company. General partnerships are founded by at least two partners who bear joint and unlimited liability. If partners are foreigners, they should have permanent residence in Bulgaria. Each partner may participate in the management of the business unless the articles of partnership provide otherwise.

A limited partnership's management is the responsibility of one or more general partners who bear unlimited liability. Other partners bear limited liability to the extent of their financial contribution. Both the general and limited partnerships must be recorded at the district court and entered in the commercial register. A transitional entity between a joint-stock company and a limited partnership is called partnership limited by shares. It has general partners and limited partners, whose liability is limited by the extent of their shareholding. A cooperative society is another form of legal entity in Bulgaria. It is a voluntary organisation without fixed capital, encompassing at least 7 members. All of them have rights to participate in the business and to share its profits. To participate in a cooperative society, foreign persons should have permanent residence in Bulgaria. Any capable individual, Bulgarian or foreigner, having permanent residence in the country, can register for business activity as a sole trader.[94]

[94] Bulgarian Foreign Investment Agency 2002.

1.3 Kazakhstan

1.3.1 *Introduction*

The Republic of Kazakhstan was the last of the Soviet republics to declare its independence, achieved on 16 December 1991. The break-up led to a number of economic problems such as high inflation and a drastic fall in production. However, over the last few years the country has experienced significant economic progress. Prices have been liberalized, restrictive budgetary and monetary policies are being implemented, and a stable currency has been introduced. Institutional reform has begun, including large-scale privatization and granting concessions for subsoil activities to foreign investors.

Kazakhstan is the second most important country of the CIS in terms of oil and gas reserves. New discoveries in the northern Caspian Sea Region will make Kazakhstan one of the world's largest exporters of oil, provided the country finds ways to reach the market. Kazakhstan is landlocked. Historically, the Russian pipeline system has been used for petroleum export to the Baltic region and the Black Sea. Large efforts are being made to enhance the distribution infrastructure and new pipelines are currently under consideration.

The population of Kazakhstan amounts to 16.7 million. The country is located in Central Asia bordering the Caspian Sea, Russia, Turkmenistan, Uzbekistan, Kyrgyzstan, and China. Its major cities include its capital since 1998 Astana, as well as Almaty, Karaganda, and Shymkent. Kazakh is the state language, but Russian is widely used. Kazakhs amount to approximately 53 percent of the total population, Russians 30 percent, and Ukrainians 4 percent. In terms of religious orientation, 47 percent are Muslims and 44 percent are Russian Orthodox. The country is divided into 14 administrative regions, 158 administrative districts, 84 cities, 2456 rural districts or villages, and 7071 rural settlements.

1.3.2 *Constitution and political parties*

The political system in Kazakhstan is based on universal suffrage for citizens over the age of 18 for presidential and Majlis elections. The bicameral parliament consists of a 77-seat lower house (Majlis) and a 39-seat upper house (the Senate). The Senate is elected partially by the regions and partially by the president. The current president, Nursultan Nazarbayev, was first elected December 1991 and re-elected 1999. The next presidential election is scheduled to take place in 2006.

The national government consists of the Council of Ministers, which is headed by a Prime Minister appointed by the president. Recently, there have been calls for a clearer separation of power and a faster democratization process. The political opposition is mainly represented by new political and social movements, like the so-called 'Democratic Choice of Kazakhstan'. This movement calls for decentralization and separation of powers, an independent judiciary, a freely elected parliament, as well as democratic local and regional organs.

1.3.3 *Economic indicators*

Following a number of difficult years after the breakdown of the Soviet Union, Kazakhstan experienced economic growth from 1996 to 1997. However, it failed to sustain the trend as a result of the 1998 Russian financial crisis and the decrease in world oil prices. In 1999, the currency went through a major devaluation and monetary and financial discipline policies were introduced, resulting in real GDP growth of 2.7 percent. The GDP growth rate increased to 9.8 percent in 2000 and 13.2 percent in 2001. These rates have made Kazakhstan the fastest growing economy in the former Soviet bloc.[95]

The Kazakh government has actively supported foreign investments since independence. Since the beginning of the 1990s, it attracted approximately $13 billion into the oil and gas sector. Foreign Direct Investment (FDI) amounts to 9 percent of GDP. For 2000, total net FDI amounted to $1.35 billion. In the first half of 2001, FDI amounted to $2.13 billion, 81 percent for the oil and gas sector. USA is the largest investor with 47 percent of FDI. Domestic investments are also rising fast, amounting to $3 billion in 2001.

Fiscal and monetary discipline has been a focal point for the government the last few years. Consumer price inflation fell below 7 percent in 2001, compared to 9.8 percent and 18 percent in the two preceding years. The aim for 2003-2004 is to reduce inflation to the range of 4-6 percent, a target developed in discussions with the IMF.

As of 2001, about 50 percent of Kazakh imports and 25 percent of exports are with Russia. Other important trade partners are the US, Uzbekistan, China, Turkey, UK, Germany, Ukraine, and South Korea.

1.3.4 *Privatization policy*

Kazakhstan has made significant progress in privatization. Current figures suggest that more than 60 percent of the country's GDP now comes from the private sector. Nevertheless, the speed at which the privatization has been carried out has led to a series of concerns. These include issues such as low returns for the government in exchange of the privatized assets, lack of regulatory framework concerning the activity of privatized objects, and allegations of corruption regarding sales.

The most important government bodies in charge of the first phase of the privatization process were the Ministry of Finance, the State Property Committee, and the Ministry of Energy, Industry and Trade. The State Property Committee has been the entity responsible for privatization in the second phase of privatization starting 1993. It has the ownership rights to state assets. However, the President and the Prime Minister have the power to make final decisions throughout the process.

Predominantly private, foreign equity has found its way to the country's power sector. A major barrier to increased FDI is the lack of transparency in granting licences to companies in the energy sector. This could be overcome by means of open and competitive tender procedures, rather than negotiating sales between two parties. There have been no invitations or involvement of the public or the domestic corporate capital. The former monopolist Kazakhstanenergo was transformed in 1997 into the Kazakhstan Electricity Grid Company

[95] Financial Times 2001.

(KEGOC). Its power generation facilities were privatized. The distribution companies however, are still in the process of privatization.

1.3.5 *Investment climate*

The Law on Foreign Investment adopted in 2001 sets the principal guidelines regulating foreign investment activity in Kazakhstan. It provides foreign investors with guarantees and the right to equal protection under the law. The law deals with investments by foreign legal entities, foreign nationals, stateless persons, foreign states, and international organizations. It also considers the investments from Kazakh legal entities controlled by foreign investors, as well as Kazakhstan citizens who permanently reside abroad. These latter must have the right to carry out business in their country.

The Law on Foreign Investments protects investors from adverse changes in domestic legislation for a period of ten years. This includes expropriation, illegal actions, and actions outside the competence of state agencies and officials. The law provides guarantees for damages resulting from armed conflicts, civil unrest, and other risks. It also includes other benefits for investors such as free disposition of income from investment activity and unlimited foreign currency operations.

The Law on State Support for Direct Investments addresses specific prioritized sectors of the economy. These are industrial infrastructure, processing industries, facilities in the capital Astana, housing, tourism, agriculture, and the social sphere. If investment activities are carried out within these sectors, the investor may be eligible for benefits and preferences. These may be offered in the form of state grants, land and property tax exemptions for a period of up to five years, income tax exemptions for a period of five to eight years, and exemptions from customs duties on imported equipment. These privileges are subject to a contract with the Committee on Investments.

Foreign exchange regulations are fairly generous to non-resident legal entities, including branches and representative offices of foreign legal entities. Residents are subject to a number of restrictions such as requiring a National Bank licence to open a bank account in a jurisdiction outside Kazakhstan. Other restrictions state that all payments between residents must be made in Tenge and that operations in foreign exchange must be carried out through authorized banks.

1.4 The Russian Federation

1.4.1 *Introduction*

The Russian Federation, one of the fifteen former members of the Union of the Soviet Socialist Republics (USSR), is the largest country in the world with a land area of 17,075,400 square km. It is also one of the five most populated nations in the world counting approximately 146 million citizens. In addition, and despite years of gradual decline and several recent crises, Russia's considerable technical, military, and industrial inheritance from the USSR continues to place it among the world's developed countries.

After the dissolution of the USSR in 1991, Russia became a democracy. The head of the state is the President, elected for a four-year term at a referendum. Suffrage is universal for citizens 18 years of age or older. Russia's political situation has been characterized by conflict among different branches of power and struggles between the so-called 'centre' (federal government) and the regions. Simultaneously, Russia's economy has represented a downward spiral. The centralized system of state production was largely dismantled. However, efforts to replace the former socialist command economy with a market-oriented system of private enterprises have been rather chaotic. This has led to a series of crises and defaults, which Russia has been experiencing throughout the last decade.

Due to its cold climate and immense territory, Russia is not evenly populated. Sub-arctic frosts of Siberian tundra, volcanic activities, and earthquakes on Kamchatka and Kurils, make these regions extremely difficult to inhabit. Most of the population is concentrated in big cities. In the west, large cities include the Russian capital Moscow and St. Petersburg, often referred to as the northern capital. In Siberia cities like Yekaterinburg, Irkutsk, Vladivostok, and Yakutsk are also very populated.

The energy sector has played a central role in Russian economy. In the past, it supported the development priorities of the industrial sector. Due to the abundance of its resources, the energy sector was and continues to be a major source of foreign exchange earnings. It currently provides around half of the foreign trade revenue for the state budget. The over-industrialised structure of the economy, the country's abundant energy resources, and very low energy prices, resulted in the high-energy intensity of the Russian economy. It is at least twice as high as western countries with a similar climate. After the collapse of the Soviet Union, power generation and consumption in the Russian Federation has decreased.

Russia's self-sufficiency in fuels and power generation places the country in a good position for future economic growth and development. However, Russia is also one of the countries that depends the most on energy. The International Energy Agency of the Organisation for Economic Co-operation and Development (OECD) estimated that in 1993 the country took 4.46 tonnes of oil equivalent (toe) to produce $1,000 of Russia's GDP. Higher than the average of other OECD member countries, which is 0.23 toe to produce $1,000 of GDP.

1.4.2 *Constitution and political parties*

Russia's official Independence Day corresponds to the date when the Declaration of Sovereignty was made by its Parliament. This is known as Verhovnyi Soviet and took place on 12 June 1990. However, the country did not become fully autonomous until after the final collapse of the USSR on 25 December 1991. Since the adoption of the present Constitution on 12 December 1993, Russia is organized as a federation consisting of 89 federative entities.[96] Each federative entity is an equal part of the federation, although some specific rights have been granted to certain entities, particularly to the republics and autonomous regions.

Legislative power rests on the bicameral parliament known as the Federal Assembly, which consists of the State Duma and the Federation Council. The State Duma is considered to be the 'lower house' of parliament. It is made up of deputies elected from a combination of single-mandate districts throughout Russia and national party lists. Unlike the USSR, Russia is a multi-party system. The State Duma has the primary responsibility of enacting laws. In most cases these must be then reviewed and approved by the Federation Council, the 'upper house'. Once the legislation has passed through both houses of the Federal Assembly it requires the President's signature. The latter may veto legislation. Current issues under discussion in the Federal Assembly include reforms on taxes, pension, land, judiciary, and banking. The Duma is also reconsidering Russian insolvency legislation in order to offer investors more guarantees.

The Russian Constitution has pronounced political pluralism in the country. Since the official registration of non-communist parties became possible in 1991, a political kaleidoscope, vast and difficult to sort, was formed. The most important parties include: communist party Edinstvo (Unity), Otechestvo-vsya Rossia (Fatherland-Entire Russia), Soyuz pravih sil (the Union of Right Powers), Yabloko (the Apple), and the Liberal Democratic Party of Russia (LDPR). All these parties are currently represented in the State Duma. Political scientists classify Russian political parties into four main groups: pro-western democrats, nationalist patriots, and left and right centres.

The executive power rests upon the elected president and the government. The president appoints the head of government, generally referred to as the prime minister, with the approval of the State Duma. The State Duma can render a vote of no confidence in the government, to which the president must respond by appointing a new prime minister. After three successive votes of no confidence in the government, the president may dissolve the government, dissolve the State Duma, or call for new elections. Both the president and the government can promulgate decrees and resolutions. These latter are subordinated to the laws enacted by the Federal Assembly. However, the power to issue decrees is broad in areas where the Federal Assembly has not enacted a law. The presidential decrees are essentially treated as laws.

The government bureaucracy consists of numerous ministries, state services, and agencies. They can issue normative regulations within the sphere of their competence. Other institutions are independent from the government. The Central Bank of the Russian Federation is an example of such institutions. It actively participates, sometimes in absence of relevant laws, in shaping Russian legislation and policy on currency regulation and control.

[96] 'The subjects of federation' include 21 republics, 49 provinces, six territories, two independent 'cities of federal significance', i.e., Moscow and St. Petersburg, one autonomous province and ten autonomous regions.

The Russian judiciary consists of three legally separated systems of courts: constitutional, arbitrage, and general jurisdiction. Constitutional courts can review the conformance of laws and normative acts with the constitution. Arbitrage courts solve economic disputes between enterprises. Arbitration courts may settle disputes only when parties decide to do so. The courts of general jurisdiction solve all other disputes. Each system has a Supreme Court, which can issue clarifications and summaries on their practice.

The efficiency and effectiveness of the judicial system is diminished by the caseload on the general jurisdiction courts, the changing legislation with continual gaps, and low salaries for the judges. The same may be said about the system of enforcement of judicial decisions. Therefore, international arbitration continues to be the preferred approach for investors in case of dispute. The country's short history of democratic and free elections began in 1996.

1.4.3 *Economic indicators*

For more than 70 years Russia, like all republics of the USSR, was a command economy. Since the Soviet regime collapsed, Russia's economy displayed a descending tendency. Russia has been trying to change its centralised system for a market-oriented economy and to achieve sustainable economic growth. Privatization was suggested and adopted as a possible measure to attain these goals. However, it had a series of negative effects. Russia's large industries were divided and this lead to insufficient employment, disproportional allocation of resources, decrease in production, and 'non-payment' crises. The State had great difficulties in collecting taxes, and the lack of resources made it unable to help subsidise its producers.

In the power and energy sector, the crisis led Russian enterprises, governmental bodies, as well as other former republics to a multimillion-dollar debt. The situation was boosted by the financial crisis of August 1998. A month of default for the Russian rouble led a large number of foreign and domestic firms to failure, especially in large cities. The Russian crisis was further aggravated by a decline in world prices for oil; a resource Russia relies on for export.

By the end of 1999, Russia had achieved some progress and its GDP finally showed a positive trend. An important increase in international oil prices in the second half of 1999 was of great help. Increased revenues helped Russia pay some of its debts and made it possible to draft a non-deficit budget in 2001. However, the combined effects of the collapse of the rouble and the creditworthiness of Russian financial institutions in 1998 resulted in a steep decline of foreign investments. Although the rate of foreign investment in Russia is slowly recovering, the unsatisfactory investment climate is still a main problem to address.

Table 1.13 GDP trends in Russia

	1999	2002	2003
GDP at market prices (current $)	195.9 billion	345.6 billion	432.9 billion
GDP growth (annual %)	6.4	4.7	7.3
GDP real growth rate (annual %)	72.4	15.7	14.4

Source: World Development Indicators Database, April 2005.

Inflation: One of the main consequences of Russia's transition into a market economy was the inflation and devaluation of the rouble, the national currency. It peaked in 1992 and in August 1998 with an inflation rate of 38 percent in the first months after each crisis. Due to inflation, the lion share of Soviet enterprises became insolvent and about 40 percent of the population fell below the poverty line. The 'August' financial crisis led to the collapse of a large number of banks and financial institutions. The Government of Russia introduced a currency corridor and stopped the devaluation of the national currency. The inflation rate has steadily decreased in the past few years, estimated at 11.5% in 2004 (See Table 1.14).

Table 1.14 Inflation (%, by the end of each year, 1999–2004)

1999	2000	2001	2002	2003	2004*
72	38	16	16	14	11.5

Source: World Development Indicators database and World Factbook, 2005. *Estimate

Foreign trade: Energy natural resources represent about 40 percent of Russia's exports. Other major exports include: petroleum, petroleum products, gas, wood products, metals, and chemicals. Due to its ageing equipment and insufficient industry, Russia has to import machinery, equipment, consumer goods, and medicines. In 2004 merchandise exports accounted for $162.5 billion, while imports constituted $92.91 billion. The country's total turnover was $255.41 billion in 2004. Russia's main trade partners in 2004 were Germany (7.8 percent of exports and 14 percent of imports), Belarus (8.6 percent of imports), Ukraine (7.7 percent of imports), and the Netherlands (6.5 percent of exports).[97]

Internal and external debt: Russia's economy is burdened by a large state debt, which is mainly external. The policies from 1995 to 1998 lead the state debt to $150 billion in 1999, a figure which represented almost 90 percent of the Russian GDP. The debt service was impossible for the country, which had to resort to debt restructuring schemes. However, the country's external debt remains high (See Table 1.15).

Table 1.15 External debt 1999–2004

	1999	2000	2001	2002	2003	2004*
Gross ext. debt (bill $)	150	148.08	146.73	148.6	184.2	169.6

Source: World Development Indicators database and World Factbook, 2005. *Estimate

1.4.4 *Privatization policy*

After the collapse of the Soviet Union, Russia started privatization in order to move towards a market economy. Privatization was understood as the acquisition of state and federal property by the private sector on a chargeable or non-chargeable basis. The Federal Law on

[97] CIA 2005.

Privatization of State and Municipal Property of 2001 currently manages the privatization of state property in Russia. It applies to all state property divestments, with the exception of:

- Land and natural resources;
- State and municipal housing resources;
- State and municipal property located outside the territory of the Russian Federation, and in the cases provided in Russia's international treaties.

According to this law, privatization is carried out according to the principles of equality among investors and transparency of state and municipal authorities' activities. The law does not contain any restrictions on foreign investors' participation in state acquisition or municipal property. Among the possible means of privatization available are the acquisitions of:

- State and municipal property at an auction;
- The equity of an open joint-stock company (OAO) at a specialized auction;
- The equity of an OAO in state property outside Russian territory;
- The equity of an OAO via trade organizer at an equity market;
- State and municipal property as a result of a public offer;
- State and municipal property sold without price declaration;
- The equity of an OAO as a result of asset management.[98]

On 2 August 2001, the Government of the Russian Federation reviewed the draft *Project of Privatization of State and Municipal Property in the year 2002*. The projects' priorities are:

- Continuing structural reforms in the economy;
- Securing timely and complete receipt of the scheduled revenues from privatization in the federal budget;
- Preserving state participation in the management of certain enterprises, with the purpose of maintaining national security and safeguarding the rights and legal interests of its citizens;
- Stirring up equity market and attracting investment into the Russian economy.

The privatization of state and municipal property would be based on a series of principles. These include planning, openness of decisions, and transparency of procedures, as well as employing individual means of privatization that depend on market conditions. The Russian

[98] In Russia, the concept of "asset management" was long mixed up with the concept of "trust". However, this anglo-american legal system institute could not be adopted in Russia. In Russia, when an asset management is established, the real proprietor (settler of asset management) does not lose his property rights, and the asset manager does not become a proprietor, but can, under the agreement with the settler of asset management, have certain rights of possession, usage and management of the property in question.

Federation Government approved the project in January 2002. This project's objective was to privatize 40 percent (about 600) of OAO and 6 percent (about 150) of state unitary enterprises in the Fuel and Energy Complex in 2002. The media reported that the privatization of a share holding 19.68 percent of Slavneft Oil Company and 5.9 percent of Lukoil would be among the large-scale projects of the year. Projects would be primarily targeted at foreign investors. Finalizing the privatization of the coal industry is also expected.[99]

1.4.5 *Investment climate*

During the last decade Russia has progressed towards having a free market economy. At this stage, it now needs to regenerate its economy by rebuilding its industry based on new technologies and winning a place in the world market. Internal resources of the country are insufficient and borrowed funds are required to reach stipulated goals. It is therefore very important for the country to create a favourable investment climate.

The investment climate in the country has been unfavourable due to the recurrent financial crises of the last decade. According to statistics, the total capital outflow during the 12 years of reforms was $130–140 billion. The capital inflow ranged between $10–15 billion, from which loans constituted almost half of the figure[100]. A recent article in the Petroleum Economist comments on low capital flow: 'what is holding investment back is the lack of certainty for the investor in receiving its returns. The lack of certainty is caused by the western view that political instability exists and by the lack of certain key facets of a market economy'.[101] Political instability, the incapacity of the state to guarantee property rights and fulfilment of contractual obligations, non-payments, and a heavy tax burden contribute to low investment rates.

Table 1.16 Investment volume by sources of financing (billions of roubles)

	1995	1996	1997	1998	1999
Investments in fixed capital, total in billions roubles	267,0	376,0	408,8	402,4	525,0
Dynamics of investment to the previous year, %	90,0	82,0	95,0	93,3	100,0
Deflator index	272,7	171,8	114,5	105,5	131,0
Enterprises, billions of roubles	208,8	300,4	324,2	339,7	434,3
Internal Assets	167,5	238,1	248,6	243,9	326,0
Attracted assets, including:	41,3	62,3	75,6	95,8	108,3
Foreign direct investment	10,0	11,0	2,2	8,8	11,5

Source: Investment Climate in Russia, 2000.

While Russia offers good opportunities for returns, investors need to find ways to hedge or mitigate risks. The country is endowed with rich natural resources. However, investors need to overcome underdeveloped or unavailable infrastructure, political unpredictability, occasional

[99] MFK Bank 2002.

[100] Expert Institute et al 1999.

[101] Petroleum Economist 1999.

macroeconomic instability, inadequate financial, tax, and legal systems, and a low level of compliance with the law. Due to the high oil prices in world markets, Russia is no longer critically dependent on foreign investment. The energy efficiency sector receives few funds. Two key challenges remain: the improvement of investment conditions and better distribution of information concerning the considerable opportunities available for making a profit in the energy efficiency sector.

1.5 Ukraine

1.5.1 *Introduction*

Ukraine's latest presidential elections have opened an opportunity for remarkable change in the way the country is governed. Elections took place on 21 November 2004 but were invalidated by the Ukrainian Supreme Court. Presidential elections were repeated between Victor Yushchenko and Viktor Yanukovzch on 26 December 2004. Victor Yushchenko was elected president with 51.99 percent of the votes and is chief of state since 23 January 2005. Prime Minister Yulia Tymoshenko is in power since February 2005.[102]

Ukraine declared its independence from the Soviet Union on 24 August 1991 and emerged as a new state on the political map of Eastern Europe. Ukraine borders Russia, Belarus, Poland, Slovakia, Hungary, Romania, Moldova, and the Black Sea. The area of Ukraine is 603,700 square km of which 70 percent are lowlands, 25 percent highlands, and 5 percent mountainous regions. The main Ukrainian river is the Dnieper, one of the longest European rivers and a main source of hydroelectric power for Ukraine. Ukrainian is acknowledged as the sole official language.

Due to favourable climatic conditions, agriculture has played an important role in Ukraine's history, although not as important at present as the industrial sector. The total volume of industrial production in 2001 reached 155.9 billions Griwna (UAH), about 90 billion more than the agricultural production. The most important agricultural sub-sectors are grain, corn, oil-fat, livestock, and beet-sugar complexes. In 2001, 39.7 million tonnes of different sorts of grains were collected. Low internal prices and external demand stimulated its export growth. It has been predicted, that the country could export up to 12 million tonnes of grain, becoming one of the five world leaders in the sector. However, Ukraine faces a problem of land erosion that has already affected 40 percent of its total territory, about 80,000 hectares.

Ukraine is rich in natural resources such as iron ore, coal, non-ferrous metals, oil, gas, mineral salts, and hydropower. Eight thousand potentially profitable oil and gas fields in Ukraine have been detected. More than 300 oil and gas fields have been developed with significant outputs. The number of operational extraction wells exceeds 4,400 units. However, Ukraine is a net energy importer. Its domestic extraction covers 22 percent of the demand for natural gas and 10 percent of the demand for crude oil. The country's main suppliers are Russia (crude oil and natural gas), Turkmenistan (natural gas), and Kazakhstan (crude oil). [103]

Ukraine has developed a varied industry concentrated near cities such as Kiev, Zaporozhye, Dnepropetrovsk, Dnyeprodzerzhinsk, Odessa, Kharkov, Lviv, and Myckolayev. The main Ukrainian ports are Odessa, Sevastopol, Myckolaev, Kherson, and Kerch. From the total industrial output of 2001, 22.6 percent proceeded from the metallurgy sector, 15.6 percent from the production and distribution of electricity, gas, and water, 12.3 percent from the extraction industry (including the extraction of energy materials, which was 8.1 percent),

[102] CIA 2005.

[103] BISNIS, not dated.

6.8 percent from the chemical and petrochemical industry, 1.5 percent from the light industry, and 17.8 percent from the food industry and processing of agricultural products.

1.5.2 *Constitution and political parties*

After independence, Ukraine proclaimed a course towards a democratic society based on the rule of law. Although Ukraine declared its independence in 1991, the country's new constitution was not adopted until 1996. Under this constitution, the executive, legislative, and the judicial branches of the government are recognized. However, the constitution established the fundamental rights of freedom of speech, assembly, religion, and private property. It also provided for a more independent judiciary, promising more efficient legal protection for investors.

The legislative branch is represented by a unicameral parliament with 450 seats known as the Verkhovna Rada. Half of the seats is elected in single-mandate districts and represents a territorial constituency. The other half is elected proportionally from political party lists. Deputies are elected for four-year terms. The latest elections were held on 31 March 2002 and the next will be held on March 2006. According to the information agency UNIAN, the highest fraction in the Verkhovna Rada has a pro-presidential block 'For a United Ukraine' (26.4 percent), the next one is the Yushchenko opposition block 'Our Ukraine' (25.1 percent), the Communist party received 14.7 percent of seats (comparing with 25 percent in the previous parliament), the opposition block of Yulia Tymoshenko has five percent; the same number of seats has the Socialist party, while Socialist Democratic Party of Ukraine (United) received 3.8 percent. The rest of seats is distributed between non-party deputies.

The prime minister is appointed and dismissed by the president, although the prime minister's appointment is subject to parliamentary approval. As head of the executive branch, the prime minister leads the Cabinet of Ministers. The prime minister nominates and the president appoints the members of the Cabinets of Ministers. The prime minister can also be removed by a majority vote in the Verkhovna Rada. Should the prime minister be removed, the entire Cabinet of Ministers would resign.

The Ukrainian government and economic and legal reform is primarily dependent on the president's support. The president is the commander-in-chief of the armed forces and may veto legislation. The Verkhovna Rada can override presidential vetoes by a two-thirds vote. Under the new constitution, Ukrainians elect their president every five years.

Political parties do not have a long history in modern Ukraine. There are over 100 registered political parties, most of them being very small with no significant political base. In order to take part in parliamentary elections many of these small political forces have united into blocks. Six of them have obtained the necessary 4 percent of the votes and received seats in the new parliament.

Ukraine has signed and ratified a number of international agreements. The country has also inherited rights and duties in international agreements previously signed by the former Ukrainian Soviet Republic. These agreements include the International Covenant on Civil and Political Rights, the Vienna Convention on the Law of Treaties, the Convention on the Continental Shelf, the Convention on the Physical Protection of Nuclear Material, and the Statute of the Council of Europe. The country has also ratified the Convention for the Protection of Human Rights and Fundamental Freedoms, the Convention of the World Meteorological Organization, the Charter of the United Nations, the Convention on Long

Range Transboundary Air Pollution, the Protocol to the Convention on Long Range Transboundary Air Pollution on Long Term Financing of Cooperative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP), the Convention for the Protection of the Ozone Layer, and the Protocol on Substances that deplete the Ozone Layer. Other international agreements signed but not ratified by Ukraine include the Framework Convention on Climate Change, the Energy Charter Treaty, the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects, and the Convention on Environmental Impact Assessment in a Transboundary Context. Reforms are currently taken place in order to harmonize the national legislative base with the international law.

1.5.3 *Economic indicators*

Ukraine suffered from a deep economic recession from 1991 to 2000, when the economy registered a real GDP growth of 5.8 percent. Industrial output, disposable income, and consumer spending all grew by double-digit figures. In 2001, GDP grew by 9 percent, investment being the most rapidly growing component.[104] The investment growth rate in capital assets was estimated at 20.8 percent. This was partly initiated by what was referred to as a 'fiscal experiment', the creation of better conditions for the metallurgy industry. Metallurgical enterprises began to receive higher profits, leading to investment growth. However, this situation cannot be assured as stable because these enterprises could face the problem of low external demand for their output. In 2002 and 2003, GDP growth was of 4.1 percent and 8.2 percent respectively. Growing industrial and agricultural exports to Russia and Europe have advanced the economy.

In 2001 there was an increasing growth rate of money aggregates. The National Bank of Ukraine lowered the interest rate from 27 percent to 12.5 percent. Official foreign reserves increased to $3.1 billion.[105] The official rate for unemployment in 2003 was 3.7 percent, a figure that does not include a large number of unregistered and underemployed workers. Ukraine's foreign trade during 2003 is estimated at $47.21 billion, including exports of $23.63 billion and imports of $23.58 billion. The main exports commodities include ferrous metals, fuel and petroleum products, machinery, and transport equipment. Imports commodities were composed mainly of energy, energy equipment, power machines, and chemicals. In 2003, 17.8 percent of Ukraine's exports were for Russia, 5.9 percent for Germany, 5.3 for Italy, and 4.1 percent for China. About 35 percent of Ukraine's imported goods came from Russia, 9.4 percent from Germany, and 7.2 percent from Turkmenistan.[106]

The inflation rate in 2003 was of 5.2 percent. Since the introduction of the currency Hrivna in 1996, Ukraine has shown a tendency to decrease annual inflation rate, with the exception of the 1998 Russian financial crisis that influenced the Ukrainian economy. In 2003, the industrial production growth rate was 15.8 percent. Moreover, a positive balance of payment characterized 2001. This means that the net difference between exports and imports of goods, services, and income, combined with the net difference between unilateral transfers

[104] Ministry of Economy of Ukraine, not dated.

[105] National Bank of Ukraine, not dated.

[106] Ministry of Finance of Ukraine 2002.

between Ukraine and the rest of the world remained positive. Even though there was a slow-down in the privatization processes in 2001, foreign investment inflows increased from $3.88 billion in 2000 to $4.4 billion. Positive changes in Ukrainian portfolio investments included Moody's increased rating of long-term foreign debt of Ukrainian government from CAA1 in 2000 to B2 in 2002.

According to the IMF, in the third quarter of 2001 Ukraine received $290.8 million of the EFF loan, the Extended Fund Facility set up by IMF to give medium-term assistance to IMF members. The country also paid the IMF a $63.2 million loan. At the end of September 2001, the aggregate debt of Ukrainian government amounted to UAH 63.3 billion, which represents about 31 percent of GDP. This figure is made up of an UAH 20.7 billion internal debt and an external debt equivalent to $8 billion. In December 2001, a bilateral agreement was reached between Ukraine and Germany on debt restructuring for the amount of $295.5 million over a 12-year period.[107]

In the beginning of 2000, the National Bank of Ukraine introduced a floating exchange rate of national currency and abandoned the currency corridor. From 2000 to 2003 the exchange rate has remained stable. The National Bank intervened slightly on the open market in order to decrease the volatility of the exchange rate that is present under the pure float.

1.5.4 *Privatization policy*

The notion that privatization is already finished is currently widespread in Ukraine. Indeed, for the majority of the population the privatization was finished when their apartments and garden-plots were privatized and the privatizing certificates were used to buy shares in some enterprises. The attitude towards privatization was positive and only minor criticism was heard in Ukrainian mass media. However, the privatization process was far from perfect and not as transparent as required. A recent survey, conducted by the German Advisory Project on Privatization in Ukraine,[108] showed that Ukrainian privatization was implemented ahead of the corresponding institutional reforms. In the view of international experts, the first ten years of privatization can be called ambiguous due to insufficient transparency.

Privatization officially started in the end of 1991 with the development of the national plan of enterprises, land, and housing stock privatization. In 1992 the State Property Fund (SPF)[109] was established. The SPF announced one to one and a half years for small business privatization and four to five years for middle and large companies. The scope of the privatization and the list of objects for privatization were to be stated by the government. In spite of the legislation that had been prepared for the purpose, the government did not gain enough momentum to conduct reforms as required. Privatization met strong bureaucratic and parliamentary resistance and was suspended in 1994. In November 1994, a presidential decree launched a new voucher-based mass privatization programme. Until 1995, about 1,200 medium and large enterprises were privatized through an employee buyout programme, whereby employees' buyouts were converted to ownership.

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[107] International Monetary Fund, not dated.

[108] German Government Advisory Project on Privatization in Ukraine 2001.

[109] State Property Fund of Ukraine, not dated.

Massive privatization began in 1995 with the distribution of privatization vouchers that could be exchanged to shares in enterprises among citizens. Almost 45 million vouchers were issued, three times more than the amount of registered shareholders. According to the German Advisory Group Project on Privatization in Ukraine, the ensuing privatization vouchers market was 'black', non-transparent, and non-institutionalized.

The May 2000 privatization law quite radically altered the situation. The new programme provided for cash-based privatization via open tenders of large blocks of shares and controlling interests in strategically important enterprises. Additionally, this law banned privileged privatization to employees. The new policy facilitated the generation of UAH 2.73 billion ($390 million) in privatization revenues in 2000, which exceeds the value of privatization revenues received during the preceding nine years. Most of the privatization revenues in 2000 came from the sales of large machine buildings, metallurgy enterprises, and oil refineries.

New standards for transparent privatization schemes in Ukraine, also open for international investors, were set by the privatization of six regional energy companies (*oblenergos*) in 2000 and 2001. In order to provide a high level of transparency in compliance with international standards, a working group was created consisting of Ukrainian, US, and EBRD (European Bank for Reconstruction and Development) officials, an investment advisor, Credit Suisse First Boston, and the Ukrainian State Property Fund. As a result, Ukraine sold six energy distribution companies for $160 million to strategic investors from the U.S. (AES) and Slovakia (East Slovak Energy Works). Since 1998, the German Advisory Project on Privatization in Ukraine provides technical assistance to the government of Ukraine in order to transmit German experiences in privatization.

According to the *State Privatization Programme for 2000-2002*, on 15 January each year the SPF should publish the list of enterprises proposed for sale. The list should also include the amount of shares to be sold and the amount of shares to remain state property. According to the State Budget of Ukraine for 2001, about UAH 5.7 billion in revenues (equivalent to $1.1 billion) were expected, but only 43 percent of this amount was collected due to complications during the privatization process. However, in 2004 the target of privatization set at UAH 5.3 billion reached UAH 9.415 billion, according to the SPF.[110] The new president Viktor Yushchenko has announced that the results of privatization in Ukraine will be reviewed, for some could have been carried out in an illegal manner.[111]

1.5.5 *Investment climate*

Economic reforms in Ukraine have been slower than in other Eastern European countries. Ukrainian government officials have stated that their goal is to create a free market economy and seek foreign investment. The Law on foreign investment procedure adopted on 19 March 1996 is the basic legislative document determining the conditions relevant for foreign investment such as:[112]

[110] Ukrsotsbank 2005.

[111] Russia Journal 2005.

[112] Ministry of Economy and the European Integration of Ukraine 1996.

- Foreign investment cannot be nationalized;
- Foreign investors have the same rights and possibilities as domestic investors;
- Foreigners can invest in any objects that are not prohibited by law;
- Investment can be made in any form, including currency, property, shares, bonds, intellectual property rights, and know-how.
- Outputs of enterprises containing foreign investments do not apply for licensing and quotas if they are certified as production of their own output.
- Companies with foreign investments are to pay taxes according to existing legislation. However, projects with foreign investments performed in fields of state priorities can receive a facility regulation.
- Moreover, a special regulation can be established on particular territories, creating Free Economic Zones. The creation of such zones is a policy element aiming at generating investments in particular regions of Ukraine in order to accelerate their social and economic development.

Although the Ukrainian government has developed and adopted legislation on foreign investment regulation, real mechanisms for attracting foreign capital inflow are insufficient. A survey conducted by IFC entitled 'Ukrainian Enterprises in 2000' revealed that firms of all sizes agree that taxation — both the overall tax burden and the administration of the tax regime — ranks as the most serious barrier to investment. General macroeconomic conditions were the second major obstacle, followed by anti-competitive behaviour, including discriminatory practices, and a non-level playing field. Another problem faced by investors is insufficient property and intellectual property rights. The United States put an embargo on Ukrainian exports as reprisal for intellectual property rights violations. Domestic and foreign direct investment are encumbered with a number of structural barriers. Ukraine's complex and contradictory tax systems — as well as the overall high tax rates — are considered as a major deterrent to investments by foreign and domestic businesses.

While the government attempts to pass new legislation to improve the independence and professionalism of the judiciary, courts remain weak and subject to political and other pressures. Allegations of unfair rulings in commercial cases are common. Although private land ownership is stated in Ukraine's constitution, the country lacks a land code laying out the legal foundations of private property as well as the foundations of a land market. The legal basis for corporate governance is weak and minority shareholders might have difficulties to protect their interests. Rules leading privatization would need to be more consistently and transparently applied in order to attract the foreign direct investment necessary to privatize and revitalize Ukraine's former state enterprises.

2 THE DEVELOPMENT OF THE NATIONAL ENERGY SECTOR IN TRANSITION ECONOMIES

Gaudenz Assenza, Mikael Brodin, and Ana Villarreal[113]

This chapter focuses on energy efficiency activities in three key sectors: district heating, hospitals, and municipal lighting. A description of these activities is provided while paying special attention to the particularities of the national energy sector development. The EE-21 project countries share the legacy of a planned economy, which continues to characterise the energy sectors. However, these countries have chosen different approaches to energy reform. Belarus still relies on significant state control of the energy sector, while the authorities of Kazakhstan decided already in the early 1990s, soon after the breakdown of communism, to welcome private ownership. Bulgaria continues reforms through privatisation of distribution companies, keeping certain parts of the sector under state control. Russia is gradually moving towards a larger role for private initiatives. There are plans to restructure the electricity sector according to the Nordic model in order to support competition in production and distribution. Ukraine has chosen an incremental approach to privatisation and a larger role for market forces in some fields, while retaining state control in fields defined as natural monopolies.

2.1 Belarus

2.1.1 *General characteristics of the energy sector*

Energy efficiency is one of the most relevant issues for Belarus. The country depends on Russian gas for fuel of 95 percent of its electricity generation and spends about US$ 1.8 billion for gas purchase annually from a US$ 13 billion GDP. Until recently, Belarus received gas from Russia at a price three times lower than European countries. However, in 2004 Russia raised its fee from US$ 36 per ton to US$ 46.7 per ton, increasing by nearly 25 percent fuel, heat, and electricity prices. In 2003, the consumption of gas and electricity per capita was almost twice the European average. In February 2004, the Russian gas company Gazprom cut off gas supplies in Belarus for 24 hours, resulting in the announcement of a campaign to

[113] The authors gratefully acknowledge the inputs supplied by William Christensen, Tatyana Gourbo-Novik, Inna Gritsenko, Emilia Istrate, Milka Janakieva, Michal Jurásek, Iryna Korzhyk, Fedor Molochko, Oksana Nyshta, Iryna Payosova, Jana Slavina, Jiří Šmoldas, Vladimir Tarasenko, Vladimir Voitekhovich, and Robert Zbíral in drafting different sections of this chapter.

economize resources by the Belarusian Government. In order to diminish its dependence on Russian gas, the Government is encouraging energy saving and the consumption of local fuel such as peat and firewood.[114]

The electricity demand is 33 billion kWh. Although the Belarusian electricity sector possesses sufficient generating capacity to cover the country's need of electric energy, it imports about 7 billion kWh from Russia and Lithuania. The energy sector is highly centralized; almost all electric power sources belong to the state-owned company 'Belenergo'. The World Bank suggests that 'Belenergo' enters a new system of economic relations, creating the competition necessary to attract investors.[115]

Investments are needed in order to renew worn-out and obsolete equipment, a main problem in the energy sector. Deteriorated gear is accident-prone, subject to technical failures, and inefficient production. More than 60 percent of boilers, 70 percent of turbines, and 45 percent of power plant pipelines have exhausted their technical lifetime. The World Bank calculates that it is necessary to invest at least US$ 350 million annually; four times the amount of current investments.[116]

According to the Global Environment Facility in Belarus, heating and hot water are mainly supplied through district heating systems. These can be large combined heat and power (CHP) systems or large boilers used only for heat, both operated by the state energy company "Belenergo". The Ministry of Communal Services operates smaller heat-only boilers for the same purpose. There are 10,000 boiler houses with a capacity inferior to 10MW owned by other Ministries, state and private industrial enterprises, schools, hospitals, and sanatoriums.[117]

There are two petroleum refineries in Belarus, both with a degree of refinement of 50 percent. Mozyr Petroleum Refinery is an open joint-stock company of Belarusian and Russian capital and a production capacity of 16 million tonnes of crude oil per year. Novopolotsk Petroleum Refinery has a capacity of 25 million tonnes per year. Both enterprises are being reconstructed in order to increase their refining to 80 percent and reduce their capacity to 8 million and 12 million tonnes per year respectively.

Energy supply: Total consumption of all energy carriers, including light oil products and energy for raw materials, is approximately 34.2 million tce. This includes 33 billion kWh of electric energy and 72 million Gcal of heat. As mentioned before, the country is dependant on Russian gas supply and preferential sale rates. Gas has a 75 percent share of the fuel balance in Belarus, while other countries do not exceed 30 percent. The Government is encouraging the use of local fuels such as oil, peat, and firewood for its energy supply. The World Bank calculates that the consumption of local fuel should be increased by 300 thousand tonnes. Boiler houses will be used for firewood or peat and a thermal power plant to work on waste wood is planned to operate in 2006.[118] The *National programme on energy saving and renewable energy utilisation for the years 2001-2005* was developed in order to promote an economic transition towards energy saving and extended use of renewable energy. According to the Global

[114] World Bank, not dated/c.

[115] World Bank, not dated/c.

[116] World Bank, not dated/c.

[117] GEF Belarus, not dated/b.

[118] World Bank, not dated/c.

Environment Facility in Belarus, there are serious plans to increase the use of wood waste as fuel in Belarus within this programme.[119]

Annual oil extraction is 1.8 million tonnes and is predicted to decrease to 700 thousand tonnes by 2015. Residue reserves of industrial oil are 63 million tonnes, whereas reserves are estimated at 190 million tonnes. The volume of peat reserves is 4.3 billion tonnes and its annual production is 2 million tonnes. Eighty percent of peat is deposited in agricultural areas. The volume of industrial wood consumed annually is 5 million cubic metres; in the future this figure will rise to 12 million cubic metres. The annual growth of wood in Belarus is 25 million cubic metres. The estimated wood waste potential that can be used for fuel is 6 million cubic metres in solid wood.

Belarus also has 11 billion tonnes of combustible shale and 150 million tonnes of brown coal reserves. However, it is rather inexpedient to produce these fuels due to their low calorific value, high humidity, and ash content. Unconventional and renewable energy sources such as hydro, wind, and solar energy, biomass, and solid domestic waste can bring an additional one million tce per year. In 2000, Belarus imported a total of 29.3 million tce. The structure of the import was as follows: 7.2 billion kWh of electric energy including cross-flow, 17.1 billion cubic metres of natural gas, 12 million tonnes of oil, 120 thousand tonnes of LN gas, and 600 thousand tonnes of coal.

Transmission infrastructure: Belarus has a ramified system of transmission facilities of various voltages that was once a part of the unified energy system of the Soviet Union. This includes 753 km of 750 kV electricity transmission lines, 3,739 km of 330 kV, 2,281 km of 220 kV, and 16,156 km of 110 kV. These lines can transmit energy in the following directions:

- Russia – up to 1,000 MW;
- Lithuania – up to 1,000 MW;
- Ukraine – up to 600 MW;
- Poland – up to 300 MW.

In 2000 a total of 10 billion kWh of electric energy was imported and 2.8 billion kWh exported in these directions — including cross-flow. Belenergo possesses a total of 4.4 thousand km of heat networks. In one-pipe terms, the Ministry of Housing and Communal Services administers a 5.7 thousand km network.

Oil is delivered to Belarus through the oil pipeline Druzhba. The pipeline has an annual production capacity of 135 million tonnes and consists of two branches. The annual capacity of the southern and northern branch is 65 million tonnes and 70 million tonnes respectively. Four main high-pressure gas pipelines with annual production capacity of 110 billion cubic metres facilitate mainline transportation and transit of natural gas. The latter is distributed through low and medium-pressure pipelines.

Energy demand: The structure of energy demand changed substantially in the 1990s. Municipal and domestic demand grew to occupy a larger percentage of energy consumption.

[119] GEF Belarus, not dated/b.

In 1990, the industrial sector consumed 55.1 percent of electric and 53.8 percent of heat energy. In 1999, the consumption was of 47 percent and 34.8 percent accordingly. In 1990, the municipal sector accounted for 18.8 percent of electric and 28.9 percent of heat energy. In 1999, the demand was of 30.3 percent and 50.2 percent respectively. Energy consumption in households and street lighting has grown from 7.6 percent in 1990 to 16.7 percent in 1999.

From 1990 to 1999, heat energy consumption decreased from 110 million Gcal to 72 million Gcal. In the same period, electric energy also decreased from 49 billion kWh to 33 billion kWh. A drastic drop in energy consumption can be observed from 1990 to 1995. The following four years show a more stable demand, despite the growth in production, due to energy saving policies and improved use of energy resources. According to the Government, this policy decreased the energy intensity of GDP by 22.4 between 1995 and 1999. According to the National Energy Saving Programme for 2001-2005, this tendency should be preserved.[120]

Regulatory bodies: The Council of Ministers administers the Ministry of Energy directly and through the Ministry of Economy. The Ministry of Energy administers the companies Belenergo, Beltopgaz, and Beltransgaz. Belenergo's functions are to produce and supply electric energy and 45 percent of heat energy. The Ministry of Communal Services, industrial enterprises, and other institutions supply the remaining amount of heat energy.

Beltransgaz is responsible for the administration of gas service pipelines, the supply of natural and LN gas as well as solid fuels, and the production of peat. The company administers gas mainlines and lead-outs, compressor plants, gas-distributors, and filling stations. The major oil supplier is Belneftehim, which is not part of the Ministry of Energy. This company owns the oil pipeline Druzhba, the two petroleum refineries of Mozyr and Novopolotsk, a network of product pipelines and filling stations, and a number of chemical enterprises. As a rule, the enterprises of the energy sector are part of the state monopoly. However, some of the enterprises are privatized. In 2002 six large chemical enterprises that belong to Belneftekhim embarked on the privatization process.

Tariff system: Tariff levels have been an important political and economic issue. Every year the Ministry of Communal Services and the Belenergo group submit proposals to the government, urging it to raise energy and especially heat tariffs for household consumers. The social protection policy has prevented the raise of tariffs, as they were required. Nevertheless, over the last few years heat tariffs have increased by 20 to 30 percent per year. In 2002, the heat tariff for household consumers increased from $4.5 to $6.5 per Gcal. In January 2003, heat tariffs raised to $8.7 per Gcal.

The Ministry of Economy regulates electricity tariffs for consumers. There are two sorts of tariffs. The one-part tariff charges the electrical energy consumed, while the two-part tariff covers the consumed energy and an additional charge for the grid net connection. The energy tariffs are unified across the country and are differentiated by consumer categories. There are 14 consumer categories. Two-part tariff payers are industrial consumers with an installed capacity of 750 kVA or greater. The monthly charge for the installed grid capacity amounts to $3.6/kW, whereas the energy is priced at $0.034/kWh. The electricity tariffs in Belarus in January 2003 were as follows.

[120] Ukrainian government not dated.

Table 2.1 Electricity tariffs in Belarus in 2003 (US cents/kWh)

Industrial consumers with installed capacity less than 750 kWA	4.2
Electrified railway transport	4.2
Electrified city transport	3.4
Agricultural production needs	3.4
Non-industrial consumers	1.3-4.2
Electric energy for heating and hot water supply, daytime tariff	13.2
Electric energy for heating and hot water supply, night-time tariff	2.6
Urban household consumers	3.3
Country-side household consumers	2.3

Heat energy is charged according to one-part tariffs, which are differentiated regionally, and consumer categories. There are 9 categories. It is essential to note that the tariffs depend not only on consumer categories, but also on the supplier and the place in the country where the consumers are located. The tariffs vary from $4.5 to $50/Gcal. As an example of price segmentation, Table 2.2 describes heat energy tariffs ($/Gcal) for various consumer categories in Minsk, charged by Minskenergo, one of the local heat and power manufacturers and distributors that is part of the Belenergo concern (1 Gcal=1.16 MWh). The tariffs do not include VAT of 20 percent, which is added to heat energy bills.

Table 2.2 Heat tariffs in Belarus in 2003 ($/Gcal)

Industrial consumers	11.7
Other consumers	25.7
Budget organizations	25.7
Communal services	11.7
Housing	8.7
Greenhouses	4.5
Hotels	25.7

Note: new tariffs are to be approved by a Cabinet (Council of Ministers) Regulation.

There is minimal or no application of market mechanisms. The Ministry of Economy determines natural gas tariffs for all consumer categories. However, market prices have been established for other fuels such as oil for light or fuel, liquefied gas, and solid fuels. Household consumers pay a market price for light oil products, but a subsidized price for all other fuels.

Subsidies: In order to defray the losses in which heat and electric energy suppliers incur due to low tariffs paid by various consumer categories, Belarus has introduced a system of direct subsidies and cross subsidies. Direct subsidies from city budgets are used to cover part of the expenses of non-Belenergo heat suppliers under the condition that the established consumer tariffs are not enough for energy production and/or transport. The subsidy is meant to raise incomes to the tariff valid for the region where the energy source is located. In the same way, fuel suppliers get a subsidy for the fuel sold to household consumers at a price lower than its cost. Until recently, subsidies to household consumers constituted 55 to 60 percent of the cost

of heat and electric energy production. They were 1.2 US cents for 1kW/h and $6.8 for one Gcal. However, since January 2003 household consumers pay the market price for their electricity. Subsidies for heat were reduced essentially to approximately $2.6 per Gcal.

The major problem of the tariff establishing policy is cross subsidizing. This term refers to when some categories of customers, such as industrial consumers, have to pay more to cover the constituent of those who pay less — household or other consumers. The percentage of consumers entitled to benefits has reached 58.1 percent. Cross subsidizing entails a number of negative consequences:

- It hampers the implementation of market mechanisms and blocks investments in the energy sector;
- It does not create incentives for energy saving among household consumers, who use more than 50 percent of all heat energy;
- Excessive heat tariffs force industrial consumers to disconnect from heat-and-power plants and build their own boilers, sidetracking potential investments in retrofitting. Heat-and-power plants, in their turn, cannot use energy in an efficient way once large industrial consumers decide to abandon their services;
- High tariffs lead to high production costs and thus low economic competitiveness.

Efforts are being made to change the cross subsidizing policy. In July 2002, electric energy tariffs were doubled. Liquefied fuel and heat energy tariffs also increased.

Taxation: There is a general tax policy for energy companies, as for all other companies in Belarus. All taxes that are levied on a company are tied to the following indicators:

- Deductions for the social security fund, the Chernobyl fund, and the employment fund should be made from the total amount of wages paid by contracts. This deduction amounts to 40 percent of the wages paid through contracts;
- VAT (20 percent) deductions to various trust-in funds (4.5 percent), excises on goods such as alcohol or petroleum are calculated based on their sales value;
- The amount of profit determines the amount of profit tax, real estate tax, and transportation tax (a total of 30 percent of all profits);
- Other taxes included in production costs such as land and ecology taxes, deductions for the innovation fund, and fees for waste disposal;
- An income tax is levied on the salary paid to natural persons; from 9 to 30 percent. A maximum income tax is deducted from incomes exceeding $4,000 per year;
- Large investment projects initiated by foreign investors may be exempted or receive certain tax benefits (VAT, profit tax) by the Government of Belarus, for a determined period of time and according to the Government's procedures;
- Imported goods are subject to custom charges and VAT depending on their nature. Customs on energy, heat engineering, and automatic equipment are usually from 5 to

15 percent. Based on the Presidential Decree # 11 of 19 April 2002, all goods and equipment brought into the country through contracts, out of the proceeds of loans granted on government security, are free from VAT, customs dues, and excises;

- Based on the same Decree, all non-repayable foreign help registered in the Department of Humanitarian Activities of the President's Administration is exempted from customs, VAT, and profit tax. Grants from official registered international organizations that have signed intergovernmental agreements, such as the UN, the World Bank, and TACIS are tax and customs free.

Investments can also be made though one of the six existing Free Economic Zones (FEZ). These are Minsk, Brest, Gomel-Raton, Vitebsk, Mogilev and Grodnoinvest. The legal ground for investment activities in the FEZs is presented in the FEZ Act, the Presidential Decrees on creating the FEZ, the FEZ statutes and FEZ Administration statutes.

Tax control and regulation in FEZ: Benefits vary from FEZ to FEZ. They all possess the free customs zones status, which allows bringing foreign, domestic, and FEZ goods and wares free of customs duties, with the exception of legalization and registration fees. Other permanent benefits are the limited number of taxes, dues, and deductions applied and offering profit tax and VAT rates two times lower for FEZ residents. Revenues from sales are exempted from taxes for five years.

Advisory services: Skilled professionals and a network of research and planning institutes are available in all sectors of the Belarusian economy. The following organizations are specialized in power engineering and energy efficiency.

- Belarusian Heat-and-Power Engineering Research and Planning Institute 'Beltei';
- Belarusian Research and Planning Institute 'Belnipienergoprom';
- Belarusian Research and Planning Institute 'Belenergosetproyekt';
- Institute of Heat-and-Mass Transfer of the Belarusian Academy of Sciences;
- Institute of Power Engineering Problems of the Belarusian National Academy of Sciences (former Nuclear Power Engineering Institute);
- Belarusian State Polytechnic University.

Research and planning institutes for agriculture, construction materials, food industry, mechanical engineering, and chemical industry have subdivisions, laboratories, or departments for energy efficiency. The national company Energosberezheniye, affiliated to the Committee for Energy Efficiency, has offices in Brest, Gomel, Mogilev, Vitebsk, Grodno, and Minsk. The company Belinvestenergosberezheniye offers investment and advisory services. Apart from the state organizations mentioned above, there are about 30 licensed private engineering organizations that deal with energy efficiency and auditing.

Market exposure: The energy sector in Belarus is highly centralized and consists of the four large monopolies. 'Belenergo', 'Beltransgaz', 'Beltopgaz', and 'Belneftehim'. The latter enjoys

the greatest degree of openness for market mechanisms. One of the two petroleum refineries, the one in Mozyr, is privatized with participation of Russian and Belarusian capital. Preparations are being made for privatizing the six largest chemical enterprises of the corporation. Private companies are mainly to be found in the oil business.

Fields of competition: Despite centralization, some market mechanisms can be observed. When new energy items are being set up or old ones renovated, it is obligatory to announce tenders for supplying equipment, performing installation, or other service works. Domestic and foreign firms enjoy equal rights and opportunities. Market mechanisms are used when organizing energy audits for organizations and enterprises. The cost of electric energy in Russia and Lithuania, as well as the fuel constituent of electric energy production in Belarus, are taken into account when deciding whether or not to import or produce domestically.

The sectors exposed to market mechanisms and competition are: electric energy supply, light oil products, mazut supply, solid fuels supply such as coal or coke, materials and equipment supply, and heat supply for individual residential buildings in centralized and decentralized systems. However, there is no competition in the domestic electric energy market, for the Belenergo group is dominant. Market mechanisms are also limited in heat energy supply, since in most cases consumers are closely tied to one supplier. Enterprises are tending to build their own boiler-houses and disconnect from the Belenergo suppliers, due to cross-subsidizing and overstated tariffs. However, light oil products, fuel oil, solid fuels, and LN gas are sold at market prices and their supply is market exposed.

Market prices: As mentioned earlier, electric energy prices are unified in Belarus and differentiated according to consumer categories. The regional offices of 'Belenergo', oblispolkoms, and Minsk gorispolkom calculate heat energy prices. They are differentiated by region and consumer categories depending on the structure of actual consumption. The Ministry of Economy ratifies them and establishes prices for natural gas for all consumer categories. It also defines rates for other types of fuels for household consumers only. All other consumer category prices are market-defined.

2.1.2 *Description of sub-sectors*

Lighting: Street lighting in the cities and towns of Belarus is provided by special city services attached to local executive committees (ispolkoms). The structure of services, financing sources, priorities, and problems is illustrated in the example of the city of Minsk. Mingorsvet, a division from Mingorispolkom, has the monopoly on supplying street illumination. The activity of the company includes three major sectors:

- Operating street lighting and illumination. The city has three geographically defined electricity networks and a special network that connects the institutions of the Ministry of Education and the Ministry of Health Service;
- Building new and repairing old units upon government request (goszakaz);
- Contract and special order construction and repairing work, such as installing street lighting on the reconstructed ring highway around Minsk.

The director, the assistant director, and the chief engineer administer the company. Mingorsvet reports to the Ministry of Housing and Communal Services and Mingorispolkom. The director informs the mayor of Minsk on financing and contract work issues. The chief engineer reports to the Minister of Housing and Communal Services on issues concerning methodology, instruction, industrial safety measures, and accidents.

The major source of financing for street lighting is the city budget. The main expenses are salaries, taxes, and electric energy. Mingorsvet lacks funds for necessary materials such as light bulbs, wire, and cable. The company carries out contract work at state-controlled prices. The percent of the profit is used for retrofitting the material base and creating financial incentives for workers. Mingorsvet competes with two other enterprises in the field of building new units — MAPID and Belectromontazh. MAPID installs street lamps and illumination near newly built houses. Belelectromontazh constructs street lighting along new streets.

Mingorsvet has set forth two priority objectives. The first is to modernize the outdoor lighting networks by exchanging the quicksilver 400 Wt lamps for 250 Wt sodium lamps. Although they are of equal power capacity, the latter produces a light stream 50 percent stronger. By introducing these lamps one could save up to 40 percent of electric energy. More than 2,800 quicksilver lamps were exchanged in 2001. Out of that sum 1,296 lamps came from the Belenergo Innovation Fund, 184 lamps were allocated from the enterprise's own fund, and 1,432 lamps were taken out of the Capital Repairs Fund.

The second priority is to introduce an automated street lighting control system in Minsk that will save energy by turning lights on and off at a certain time. This system will also facilitate the diagnosis of defects and their prompt repair. The Department of Internal Affairs and various transport organizations lobby the interests of Mingorsvet in the Mingorispolkom, sustaining that good-quality street lighting is a safety guarantee for the city. Mingorsvet could receive credits for purchasing new lamps and light bulbs.

In 2001, Mingorsvet financed the development of a business plan to reconstruct the street lighting system close to the boiler house on Kedyshko Street. The Belarusian Heat Energy Institute, the Republican Unitary Enterprise BelTEI, drafted the business plan. It includes the substitution of 3,600 obsolete street and quicksilver lamps by more efficient ones. An automated control system would also be installed. Investors are needed to help finance the project, which requires $302,000 and has an estimated payback time of 3.7 years. The project would reduce greenhouse gas emissions by 1,500 tonnes/year. It is possible to start at least ten similar projects in Minsk alone and expect comparable results.

Hospitals: There are 802 hospitals with 119,062 beds and 1,479 outpatient clinics with the capacity of 207,745 visits per shift in Belarus. The total construction area and construction volume of hospital buildings is 3.93 million square metres and 13.4 million cubic metres respectively. Outpatient clinics and ambulatories cover an area of 0.98 million square metres and a construction volume of 13.4 million cubic metres.

The hospitals on a national level, such as the Radiation Medicine and Endocrinology Research Institute in Aksakovshchina or the National Anti-Tuberculosis hospital in Volkovichi, report directly and only to the Ministry of Health Service. Units on regional levels are subordinated to the Departments of Health Service at the corresponding oblispolkoms and include hospitals, outpatient clinics, dispensaries, and sanatoriums, among others. District units, such as district hospitals, are constituent parts of territorial medical establishments. In

some districts there can be more than one district hospital, as well as other area hospitals and obstetrical or feldsher stations. Some units of this level are of double subordination, they report to the district and regional executive committees — rayispolkom and oblispolkom.

Private hospitals are licensed by the Ministry of Health Service, but are subordinated to the ispolkoms. The Ministry of Health Service and the national budget finance national hospitals. Regional hospitals are funded by regional budgets such as oblispolkoms and Mingorispolkom. District hospitals may draw funds from oblispolkom, rayispolkom, and gorispolkom budgets.

The funds for the hospitals do not enter the institutions directly; they are managed through the Exchequer. This organism then reports to the Ministry of Finances. Prioritized expenses include salaries, medical supplies, utilities, and patient boards. Although the allocated funds are lower than necessary, expenses for practical health care are not cut down. Article 7 of the Budget Classification of Belarus envisages expenditure for utilities. According to the concept of item-by-item formation of the costs and strict observance of the estimate, funds provided for by this article may only be saved upon agreement with a higher authority. The excess is then transferred to another fund or activity such as capital repairs.

Energy saving activities may be introduced. Article 101003 designates funds for current and Article 400303 for capital repairs. New hospitals include energy saving activities in their project plan. Additional sources for financing include charging fees for additional health services. It is calculated that in the future this income source will increase by 30 percent in hospital budgets. Other possible finance sources include sponsor help, the Belenegro innovation fund for energy saving, loans and credits such as the World Bank credit for energy saving, and domestic and foreign investment.

District heating in Belarus is administered by subdivisions of Belenegro and the Ministry of Housing and Communal Services. Subdivisions of the Belenergo concern, or 'Teplovye Seti', are situated in Minsk, Brest, Gomel, Mogilev, Vitebsk, Grodno, Baranovichi, Pinsk, Lida, and Bobruisk. Subdivisions of the Ministry of Housing and Communal Services and gorispolkoms administer heat networks that are not part of Belenergo.

In one-pipe terms, the total length of the Belenergo heat network is 4,400 km. It consists mostly of trunk pipelines of large and medium diameters. The Ministry of Housing and Communal Services owns 5,700 km of medium and small diameter pipelines. A small fraction of the heat network belongs to industrial enterprises of other ministries. Since more than half of fuel and furnace oil in Belarus is used for district heating, issues of efficiency and reliability of heat supply are of the outmost importance for the country. The principal energy saving reserve is concentrated in the system of centralized heat supply.

The heat network is the foundation for heat supply. It combines heat and power plants, making it possible to reduce specific consumption of heat and energy. However, it is a source of considerable energy loss due to its low insulation quality, imperfect heat-exchange devices, varying load, and lack of effective regulation, heat control, and hydraulic regimes. The hydraulic link between the network and the heating system is inflexible, limiting the consumer's possibility to regulate consumption. The consumption is over or under the needs of users. This leads to excessive use of electric energy for heat carrier transportation, reducing their lifetime by 1.5 or 2.5 times and increasing maintenance costs.

New heat networks are being built, although the obsolete canal pipelining prevails. Only 10 to 15 percent of new networks are built in pre-insulated pipes. In 2001, only 24.5 out of 191 km of reconstructed heat networks used the new technology. Due to lack of funds, only 50

percent of outdated sections of the heat networks can be renovated. This results in frequent breakdowns and heating-system water leakages.

The following measures are envisaged for preventing losses:

- Planning that would embrace all consumers within an industrial area or a town through independent heat supply schemes of certain objects;
- Using only pre-insulated pipes to reconstruct old and build new heat networks;
- Creating automated systems to control heat and hydraulic regimes;
- Reaching the quality norms for heating-system water, exchange, and equipment;
- Retrofitting residential building heat networks and installing meters and regulating devices in every apartment.

2.1.3 *Addressing the problems*

The main barriers to pursue an energy efficiency policy in the Republic of Belarus are:

- *Cross-subsidies* influence the process of establishing electric and heat energy tariffs. The major negative consequence of cross subsidizing in the energy sector is that it impedes market mechanisms and foreign investments and postpones privatization. However, since 2002 certain moves have been made towards eliminating cross-subsidies, mainly through augmenting household tariffs.
- *Non-payments or settling payments through barter:* Suppliers suffer from lack of financial resources for retrofitting and purchasing fuel. As a result, the energy sector looks less attractive for potential investors.
- *Insufficient financial incentives for energy saving:* This is a consequence of low household tariffs and the lack of technical means to regulate energy consumption in homes. The situation is similar in the budget sector. Funds saved through energy saving do not stay in the institution that carried out the activity, but are transferred elsewhere.
- *Lack of funding*: Although the Government of Belarus pursues an active policy aimed at increasing energy efficiency, funds for energy saving activities are scarce.
- *Short supply of local high-qualified specialists* capable of developing technical and economic plans for energy saving activities in schools, hospitals, outpatient clinics, and other social institutions.

2.2 Bulgaria

2.2.1 *General characteristics of the energy sector*

According to the World Bank's 2004 GEF Project Brief on Bulgaria, the country has a vast potential to achieve significant energy efficiency gains in a cost-effective manner due to its current low efficiency base. The country requires 0.38 ton of oil per thousand US$ of GDP. This proportion is more than twice the average for countries in the European Union. Electricity demand is over-stimulated by households that have relied on under priced electricity for heating and have developed wasteful consumption patterns. There is no low-pressure natural gas market to provide an alternative for heating in this sector. District heating systems also require modernization in order to make more efficient use of electricity. Saving potential is as high as 50 percent for the existing building stock, 40 percent for district heating, and 30 percent for industry.[121]

If the Government's *National Energy Saving Program to 2010*, adopted in 2001, were carried out, combined energy savings would amount 1.4 million tonnes of oil equivalent annually. This represents about 15 percent of the country's total energy consumption. The program also aims at reducing CO2 emissions by 5.6 million tonnes per year. However, access to finance is difficult and represents an important barrier for EE projects. Commercial banks give low credits at high margins and perceive the risks involved in EE projects as too high. Although the projects that showed more potential, required low-budget investments, and offered a payback time of three years, were included in the Government's medium-term plan for 2001-2003, few were carried out. Commercially financed EE investments for this period amounted to US$13 million, 5 percent of what is annually required by the *National Energy Saving Program to 2010*. According to the World Bank, Bulgaria's EE market is still underdeveloped and fails to produce the capital necessary for investment.[122]

Bulgaria is dependent on energy resources mainly imported from Russia such as gas, oil, nuclear fuel, and coal. Nevertheless, the country's electricity generation capacities are enough to satisfy its domestic needs and to export to neighbouring countries. Although EE is an area of limited knowledge and application in Bulgaria, there is great potential for its development. Nearly all official documents and regulations concerning energy development in Bulgaria include EE considerations.

Energy resources: Bulgaria imports more than 70 percent of its primary energy resources.[123] Fuels such as oil, natural gas, high quality coal, and nuclear fuel that are used for energy generation are imported primarily from Russia. The energy independence coefficient elaborated by the Bulgarian National Statistical Institute (NSI) suggests 50.4 percent energy independence of the country, of which 66.7 percent for coal, 0.8 percent for crude oil, and 0.8 percent for natural gas.[124]

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[121] GEF Bulgaria, not dated.

[122] GEF Bulgaria, not dated.

[123] MEER 2002, 2.

[124] NSI 2000, 244.

Coal: According to the US Department of Energy, there are large deposits of low-quality brown coal in Bulgaria. Estimated reserves include about 3 billion metric tonnes of lignite and 200 million metric tonnes of subbituminous coal. The Maritza coalfield, located in southern Bulgaria, is the largest deposit. Its reserves are estimated to last about 50 years. Coal obtained from this coalfield has an average heating value of about 2,840 Btu per pound, as well as a fairly high ash and sulphur content. In 2002, total coal production in Bulgaria amounted to 28.4 million short tonnes, which included 28.25 million short tonnes of lignite, 0.015 million short tonnes of bituminous, and 0.01 million short tonnes of anthracite. Domestic reserves of lignite are considered to be of poor quality because of their low calorific value and high sulphur content.[125]

Local lignite is used to fire one of the most significant Thermal Power Plants (TPPs) in Bulgaria, the Maritza East Complex, and provides about three million metric tonnes for the annual production of one million metric tonnes of briquettes. Coal from the Bobov Dol, Stanyantsi, Beli Breg, and Chukurovo mines, which provide coal for the Bobov Dol TPP. In total, there are 22 coalmine companies in the Bulgarian territory. Annual production and consumption of coal in Bulgaria has been constant since 1991. Since a supply of higher-quality hard coal is necessary for metallurgical industries, the US Department of Energy has been suggested that the country will probably remain a net coal importer. This coal is obtained from Ukraine and can come from as far away as Australia.[126]

Oil and gas: Bulgaria has demonstrated that the country's crude oil reserves are of approximately 15 million barrels. However, the country depends on its imports. In 2002, total oil production and consumption was of 2,000 b/d and 91,000 b/d, accordingly. Since Bulgaria did not have the technology necessary to look and extract oil in its territory, the Government signed agreements with foreign companies to explore the Black Sea and its coast. The company Neftochim, situated in Burgas, operates the 134,000 b/d oil refinery on the Balkan Peninsula that covers 85 percent of the Bulgarian refined product market. In October 1999, the Russian Oil Company Lukoil bought 58 percent of Neftochim and made the commitment to invest more than $400 million to upgrade the refinery to meet environmental standards. [127] The country imported 0.3 MT and exported 1.5 Mt oil products in 2001.[128]

Bulgaria has depended entirely on Russian gas imports. However, the country has demonstrated gas reserves that amount to 6 Gm3.[129] In 2001, Bulgaria signed a 25-year concession accord with the British company Patreco for the exploration and extraction of natural gas in Bulgaria's segment of the Black sea, including the Galata deposit. The company plans to extract 14 billion cubic feet (BcF) annually and sell them to Bulgargaz. Melrose Resources of Scotland is another company exploring the Galata area. It recently announced in June 2004 that this deposit has reserves of 90 Bcf and estimated reserves of 800 Bcf.[130]

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[125] United States Department of Energy 2005.

[126] United States Department of Energy 2005.

[127] United States Department of Energy 2005.

[128] Austrian Energy Agency 2004.

[129] Austrian Energy Agency 2004.

[130] United States Department of Energy 2005.

Electricity supply: In 2002, Bulgaria's electricity exports and imports were estimated at 8 billion kWh and 1 billion kWh, respectively. Bulgaria exports electricity to Turkey, Greece, Serbia & Montenegro, Macedonia, and Albania. Nuclear energy has been a main electricity source for Bulgaria. However, in 2006 the Kozloduy Nuclear Power Plant (NPP) will only operate two of its six units. In 2002, NPP supplied 48.1 percent of the total energy production, in 2003 this participation diminished to 40.6 percent. Other important electricity generators in Bulgaria are thermal and hydro power plants. The table below shows the country's structure of electricity generation capacity and its net generation in 2002. From the 43 TWh generated, 48 percent were produced by TPP, 47 percent by NPP, and about 5 percent by HPP.[131] According to the Austrian Energy Agency, the total electricity consumption in 2002 was of 32.7 TWh.[132]

Table 2.3 Structure of electricity generation capacity and net generation in Bulgaria in 2002

	Installed capacity (thousand MW)		Net generation in 2002 (billion kWhr)	
	MW	%	kWhr	%
Thermal TPP	6.33	53.88	20.7	48.14
Nuclear- NPP	3.76	31.97	20.2	46.98
Hydroelectric	1.67	14.2	2.1	4.88
TOTAL	**11.76**	**100**	**43**	**100**

Source: DOE/EIA as cited by US Department of Energy 2005.

Nuclear Energy: Kozloduy NPP is the most important nuclear power generation plant in Bulgaria, providing around 45 percent of the country's electricity in 2000. It consists of four VVER 440/230 and two VVER 1000/320 power units, with a total capacity of 3,760 MWe. The first four units were built in the 1970s and early 1980s. Units 5 and 6 were constructed in 1988 and 1993, correspondingly.[133] Bulgaria signed an understanding with the European Commission in 1999, stating that due to safety precautions, the first four units of the NPP would be closed and replaced with alternative energy sources. The first two units were closed in 2002 and units 3 and 4 will be closed in 2006. Modernisation programmes for the last two units are being carried out with the support of the EU.[134] In 2003, the construction of the 600 MWe Belene NPP was announced, which requires an investment of $2 to 3 billion.[135]

Thermal power: The structure of fossil-fuel electricity generation in Bulgaria includes six plants operating with lignite, brown coal, imported black coal, and imported black coal gas. The Maritza East Complex, which consists of plants Maritza East one, two, and three, is the largest non-nuclear plant in the country. It accounts for about two-thirds of Bulgaria's power

[131] United States Department of Energy 2005.

[132] Austrian Energy Agency 2004.

[133] IEA 1999a, 143.

[134] Austrian Energy Agency 2004.

[135] United States Department of Energy 2005.

generation through TPP. The government is planning to increase its 12 billion kWh power generation to 19.5 billion kWh in 2005 and 21 billion kWh in 2010. This means that the Maritza East Mines that supply 25 million metric tonnes per year will have to increase their output to 36 million metric tonnes in 2005 and 38 million metric tonnes in 2010.[136]

The other three TPPs are the 1,260 MW Varna Power Station, the 400 MW Rousse, and the 630 MW Bobov Dol. In addition to these large plants, there are a few independent producers that have 1,606 MW of thermal capacity for CHP and supply 14 percent of electricity. These independent producers may be district-heating plants owned by municipalities or industrial thermal stations. About 20 percent of public and residential heating is provided by small HPPs built between 1970 and 1990, located in 21 Bulgarian districts.[137]

Hydropower: There are 18 hydroelectric generating power stations located in six large cascading dams in Bulgaria. These cascades are Belmeken-Sestrimo-Chiara, Vacha, Batak, Arda, Iskar, Sandanska Bistritsa, and Piriniska Bistritsa, located in the Rodopi, Rila, and Pirin mountains.[138] Hydro power plants and pumped storage hydropower are the most significant renewable energy source in Bulgaria, representing 14 percent of installed electricity capacity and nearly 5 percent of net electricity generation in 2002.

Renewable energy sources: Bulgaria's National Program on Renewable Energy Sources plans on increasing the participation of renewable energy sources in electricity generation. The most significant non-hydroelectric renewable source currently used is biomass-fuelled thermal-electric power generation, representing about 0.1 percent of total electricity generation in 2001. Attempts to generate electricity through solar energy were made between 1977 and 1990, but the solar collectors installed are no longer in use. Although there are no operating wind energy and geothermal plants in Bulgaria, the Bulgarian Academy of Sciences and the Geothermal Energy Association estimate that the country has a wind energy potential of 2,2000 to 3,400 MWe and a geothermal power generation potential of about 200 MWe.[139]

Electric power transmission infrastructure: Transmission of electric power in Bulgaria is the responsibility of the National Electric Company (NEC), owner of the country's high-voltage power transmission network. NEC has 85 km of 750 kV overhead power lines, 2,266 km of 400 kV lines, 2,650 km of 200 kV lines, and 9,511 km of 110 kV lines. NEC also owns one step-down substation of 750/400 kV with transformer capacity of 2,500 MVA, 28 substations of 400/220/110 kV, 400/110 kV, and 220/110 kV with total transformer capacity of 14,654 MVA, 248 step-down substations of 110/20/10/6 kV with total transformer capacity of 13,095 MVA, and a 400 kV switching substation.[140]

Technical policy, operation, repair, and network and facility development for power transformation and transmission for HV customers and distribution companies are assigned to the High-Voltage Networks Enterprise. It operates in all Bulgarian territory, divided into 13

[136] United States Department of Energy 2005.

[137] United States Department of Energy 2005.

[138] United States Department of Energy 2005.

[139] United States Department of Energy 2005.

[140] NEC, not dated.

local power transmission regions (PTR).[141] Bulgaria's grid is connected with all of its neighbouring countries including Greece and Turkey, Bulgaria's main electricity export partners. The Bulgarian power system will also be interconnected with other countries in the region, including Ukraine, Moldova, Romania, Turkey, Greece, and former Yugoslavia.[142]

The gas pipeline network imports gas from Russia and provides transit delivery of Russian natural gas through Romania to Turkey, Greece, and Macedonia. The owner and operator of the whole natural gas network is the state company Bulgargaz. The company delivers gas to Turkey since 1987. Delivery for Greece and Macedonia began in 1996 and 1997 respectively.[143] In order to participate in the transmission of Russian and Caspian gas to Central and Western Europe, Bulgaria is willing to expand its network.

According to Bulgaria's 2002 energy strategy, attaining long-term cooperation with Russia is sought to increase the transit of Russian natural gas through Bulgaria. The country aims at positioning itself as a reliable alternative for future oil, natural gas, and electricity transit, as well as a possible dispatch and regional market centre. If gas pipelines were built from Central Asia through Bulgaria to Central Europe, Bulgaria could become an alternative east-west corridor, diversifying the dependence of Western Europe on imported natural gas. [144]

The pipeline system forms a ring structure that runs from east to west with two main branches. One runs through northern Bulgaria and the other through the central part of the country. Other secondary connecting lines branch off from the main structure to major industrial centres.[145] The high-pressure gas pipeline network has a total length of over 2,500 km. There are nine compressor stations with a total installed capacity of 170 MW. The system also has sub-surface gas storage in Chiren and 70 gas distribution sectors.[146] However, there is no gas grid for low and medium pressure gas pipes for domestic users and small industrial enterprises, limiting their access to gas. Although some programmes of gasification have begun in several Bulgarian towns, the process is slow due to high costs and low investments.

The Bulgarian oil pipeline network was built to transport oil from the Tyulenovo- Shabla field on the northeastern coast to Pleven refinery.[147] There is a project to build a transit pipeline to transport Caspian oil from the Bulgarian Black Sea port Burgas to the Greek port Alexandroupolis. Bulgarian, Greek, and Russian companies have established a joint venture for the construction of this $600 million pipeline and are currently negotiating the terms.[148] Bulgaria is also involved in a project to build a pipeline from Burgas through Macedonia to the Albanian port of Vlore on the Adriatic Sea. This 750,000 b/d pipeline would have a length of 560 miles and cost between $850 million and $1 billion. Bulgarian, Macedonian, and Albanian

[141] NEC, not dated.

[142] IEA 1999a, 146.

[143] MEER, not dated.

[144] MEER 2002, 14.

[145] Lynch 2001, 7-8.

[146] MEER, not dated.

[147] IEA 1999a, 135.

[148] Nenova 2002.

governments have agreed on the project and set up the Albanian-Macedonian-Bulgarian Oil Pipeline Corporation (AMBO).[149]

Energy demand in Bulgaria decreased during the transition period last decade. According to some estimates final energy consumption dropped by 42.2 percent in total, by 20 percent per $1,000 GDP, by 63 percent in agriculture, 58 percent in transport, 36 percent in industry, and 22 percent in households.[150] The following table provided by the Bulgarian Energy Industry shows the distribution of final energy consumption for 2002 and 2003. The table illustrates the predominance of consumption in the economic and public sector and households.[151]

Table 2.4 Distribution of final energy consumption 2002–2003 (%)

Sector	2002 %	2003 %
Economic and public	26	28.1
Household	26.3	26.1
Own and technological costs	15.1	14.9
NEC- high voltage	14.8	15.5
Export	17.8	15.4
TOTAL	**100**	**100**

Source: *The Facts. Energy Policy*, Bulgarian Energy Industry 2003.

Energy intensity is defined as the amount of primary energy resources consumed per unit of GDP (kg oil equivalent/$1000). In 1998, this indicator was 1,628 kgoe/$1000, higher than all other countries in Europe with the exception of Ukraine. This ratio is seven times the average of OECD member countries.[152] Unlike other countries in transition, energy intensity has increased in comparison with the beginning of the transition period, from 1,332 kgoe/$1000 in 1989 to 1,628 kgoe/$1000 in 1998.[153] A significant amount of energy is lost in transmission, where there is strong potential for EE. A promising feature of the *National Strategy for Energy Sector Development* is the search of new alternatives for transmission such as the construction of an efficient system for gasification and heating that requires fewer resources.

Industry: One example of the remaining features of central economic planning in Bulgaria is the large share of heavy industry with energy-intensive technologies. This includes ferrous and non-ferrous metallurgy, mechanical engineering, chemical and oil processing, and electrical and electronic engineering industries. This pattern of industrial development was applied because Bulgaria had easy and inexpensive access to Soviet energy resources. Today, the high energy-

[149] Lynch 2001, 7-8.

[150] Novem and EnEffect 2000, 18.

[151] MEER 2003.

[152] MEER 2002, 10.

[153] MEER 2002, 10-11.

intensity of production, in addition to outdated machinery, is one of the main obstacles to increase the competitiveness of the industrial sector. During the years of transition the total consumption of primary energy diminished, reducing the ratio of the amount of energy needed for GDP. However, this reduction was greater for the GDP than for industrial production, where energy intensity remains high.[154]

Households: Households account for 42 percent of electricity consumption,[155] a share higher than that of other countries in the same region with a larger GDP per capita.[156] This pattern of high-energy consumption within the household sector is explained by the households' dependence on electricity for heating and its subsidised prices. Households lack other heating alternatives such as household gasification.[157] Natural gas has been used mainly in the industrial sector, with around 70 percent of all gas consumption. One of the priorities of the National Energy Strategy is therefore, the expansion of residential gas supply and consumption. Around 20 percent of the population use central heating, 30 percent use electric heaters, and 50 percent use electric heaters, coal, and firewood.[158] Coal for heating in the residential sector is predominantly in the form of briquettes, which account for nine percent of Bulgaria's coal production.[159]

Regulatory bodies: The Energy and Energy Efficiency Law (EEEL) enforced in 1999 and amended in 2001 and 2004 set up two main bodies to regulate and control the energy sector — the Ministry of Energy and Energy Resources and the State Energy Regulatory Commission. The Ministry of Energy and Energy Resources was created in 2001, emerging from the former State Energy and Energy Resources Agency (SAEER). It is responsible for the development and implementation of state energy policy. Article 4 of the EEEL states that its Minister shall propose the prepared energy strategy to the Parliament for approval and carry out its implementation with other state institutions and municipal authorities. The Minister is also responsible for the planning of the country's energy balance in terms of extraction, production, import, and export of the necessary energy resources, restructure programmes, privatizations, investments, and EE programmes. In the case of state owned energy enterprises of the electricity, gas supply, and coal mining sectors, the Ministry fulfils the functions of an owner.

The State Energy Regulatory Commission (SERC) exercises authority as the main energy regulatory body. It has seven members and is responsible for regulation of production, transmission, and distribution of electricity, heat, and gas. This also includes the construction of electric-power lines, gas pipelines, and production capacities for heat-transmission, gas-transmission, and gas-distribution networks. The SERC issues, suspends, and keeps record of permits and licenses for utilities. It also defines the general conditions to sell electricity, heat, and natural gas. Since 2002 the SERC establishes the prices for these sectors by approving the companies' propositions, an obligation that previously corresponded to the Council of

[154] MEER 2002, 10-11.

[155] Austrian Energy Agency 2004.

[156] MEER 2002, 10-11.

[157] Lynch 2001.

[158] IEA 1999a, 140.

[159] Lynch 2001.

Ministers. According to the 2002 Energy Strategy, institutional changes within SERC would strengthen its position, autonomy, and influence. It would be given the right to apply new rules for market pricing and for consumers' access to the transmission net. Eligible consumers would need to fulfil certain criteria and pay a fee to NEC.[160]

The Committee on the Use of Atomic Energy for Peaceful Purposes (CUAEPP) was set up in 1985 to specialize in national policy and control on the safe use of atomic energy.[161] It was renamed Nuclear Regulatory Agency (NRA) in 2002. It defines safety requirements for the use, transportation, and storage of nuclear material. It also establishes the criteria for training, qualifying, and licensing specialists to work in the atomic energy field. The NRA reports to the Council of Ministers of the Republic of Bulgaria. Licences are issued by one of its entities, the Inspectorate on the Safe Use of Atomic Energy, which also establishes the requirements and processes the applications for them. This entity also provides on-site inspectors, some of which are at the NPP Kozloduy. The NRA grants annual operating licenses for the Kozloduy units after inspection.[162]

Table 2.5 Electricity prices per categories of end-users ($BGL/kWh)

Mode of measurement	Zones	Industry			Households
		HV	MV	LV	
With three tariff levels	Peak tariff	0.122	0.137	0.163	-
	Daily tariff	0.076	0.085	0.101	
	Night tariff	0.046	0.052	0.062	
With two tariff levels	Daily tariff	0.098	0.109	0.130	0.098
	Night tariff	0.046	0.052	0.062	0.053
With one tariff level	-	0.093	0.104	0.124	-

Source: SERC, 2005.

Tariff system: The tariff of natural gas in 2002, based on production and operating costs of Bulgargaz, was 300 BGL per thousand nm3 including VAT.[163] Heat and electricity tariffs are differentiated by consumer type and liberalized only for industrial consumers. These latter may be billed with day and night tariffs like households or on the basis of three zones. Tariff prices for high, medium, and low voltage electricity currently in force are shown in Table 2.5. Since 1 January 2002, the price of household heat has been 40 BGL per Gcal.[164] Further increase in energy prices is expected, particularly for district heating and household electricity, since the government is aiming at market-based tariffs.

[160] MEER 2002, 6.

[161] NRA 2003.

[162] IEA 1999a, 147-148.

[163] SERC 2002.

[164] MEER, not dated.

Subsidies: Although Bulgaria has carried out reforms aimed at liberalizing the energy sector and market mechanisms are currently applied for pricing liquid fuels, coal, and natural gas, some prices remain subsidised. This practice is carried out in the form of cross-subsidies between different categories of consumers. Household heating and electricity for example, are cross-subsidised by industrial and commercial customers.[165]

The State Regulatory Commission on Energy is the entity responsible for the regulation of tariffs since 1 January 2002. The Law on the State Budget for 2001 determined that subsidising district heating companies with resources from the state budget would be done through the Ministry of Finance. Subsidies were allocated to the district heating companies based on a calculation of the losses they would suffer from selling heat to households at a fixed price. However, the Energy Strategy of Bulgaria aims at gradually cutting off state subsidies for producers and shifting them to low-income consumers by means of targeted support. It is envisaged that subsidies for heating energy will be distributed directly to the low-income households jointly by the regional social assistance centres and local authorities.[166]

Direct taxation: Personal income and corporate income taxes were reduced in 2002. It was decided that an income of 110 BGL would not pay taxes and those over 1,000 BGL would be charged up to 29 percent. Corporate income tax rate was uniformed as 15 percent. Prior to 2002, profit tax for enterprises was 15 percent for those with profits under 50,000 BGL and 20 percent for those above this amount.[167] The Corporate Income Tax Law states that all companies and partnerships, including non-corporate partnerships, are liable to corporate income tax and a 10 percent municipal tax. This latter is deductible from the annual taxable base for the corporate income tax. The aggregated tax rate, including corporate and municipal tax, for the annual taxable income amounts to 23.5 percent.[168]

Indirect taxation is represented by value added tax (VAT), excise duties, and custom duties. The VAT in force since 1 January 1999 is 20 percent. Any legal, physical, resident, or non-resident person who has a taxable turnover exceeding BGN 75,000 in a year is obliged to register for VAT purposes. Voluntary registration is possible for those with a taxable turnover between BGN 50,000 and BGN 75,000.[169] Under the VAT Act a rate of twenty percent applies for import of goods and services. Exports and processing of import goods that are further re-exported have a VAT rate of zero. The VAT on electricity and heating energy prices was initially introduced for business entities only, but in 1994 it was expanded to cover the population and the budgetary sphere too.

Excise duties: Eighty percent of excise tax revenues on fuels, vehicles, and road transportation are destined for the Road Network Fund. The remaining 20 percent is designated to the National Environment Protection Fund. The Law on Liquid Fuels Taxation for these funds was adopted in 1996 and updated in 1998. It states the taxes levied on the production and

[165] World Bank 2001b, 161.

[166] EnEffect 2001, 20-21.

[167] Ministry of Finance of the Republic of Bulgaria 2002.

[168] Bulgarian Foreign Investment Agency 2002, 35-36.

[169] Bulgarian Foreign Investment Agency 2001, 43.

import of gasoline, diesel, and residual with sulphur content. Cars are annually taxed according to their engine horsepower. This contribution goes directly to the Road Network Fund. A highway charge that would be applied depending on the vehicle's horsepower is being considered.[170]

Customs duties: The Customs Act, effective since 1 January 1999, provides different customs arrangements on warehousing, inward processing, and placing of goods in free zones and warehouses. Import goods are subject to customs duty, which is a percentage of the customs value plus the VAT of 20 percent. Customs duties on products were significantly reduced in 1999 due to the application of Free Trade Agreements with EU, EFTA, CEFTA, Macedonia Turkey, Croatia, Israel, and Estonia.[171] Customs Tariffs in 2002 for some energy sources, raw material, and other commodity groups were rated zero. These include electricity, natural gas, and most types of coal, including charcoal. However, briquettes and lignite have a 3.8 percent and fuel oils a 4.7 percent due rate. The highest rate applied on energy carriers for petrol and different types of oils is 22 percent.[172]

Advisory services: Consultants that provide expertise on energy related technological, economical, and financial issues are limited. According to the World Bank, the absence of the financial and technical skills required for the preparation of solid EE business plans is one of the main obstacles to obtain commercial EE Finance. A poorly constructed business plan is a frequent cause for rejection by financial institutions.[173] Main advisory bodies include:

The *State Energy Efficiency Agency*, the main body under the EEEL, has the status of an Executive Agency to the Ministry of Energy and Energy Resources. It implements the state EE policy defined by the Minister. The Agency also cooperates with local administration and bodies on implementing EE projects and programmes. One of its main functions is to provide consultation services on rational energy use, utilisation of RES, as well as energy audits and technical expertise.

Energy Centre Sofia is the successor of the European Community Energy Centre Sofia established in June 1992 in the framework of THERMIE programme. One of the main objectives of the Centre is the promotion of efficient and environmental friendly energy technologies. The Centre is also responsible for the coordination and support of measures executed under the EU energy programmes in Bulgaria. It has been involved in different PHARE, SYNERGY, THERMIE, and SAVE projects and activities. Since 1997 the centre is registered as an independent energy consultant that collaborates with European, regional, national, and municipal authorities with focus on EE and RES. Since 1998 Sofia Energy Centre, in consortium with Energoprojekt, has been working as FEMOPET Bulgaria, as Fellow Member of the Organisations for Promotion of Energy Technologies Network.

Energoprojekt is a company specialised in construction and maintenance services in the energy sector. It is also involved in the implementation of engineering projects, consultancy, and studies. Its activities at present are broadly connected with the rehabilitation of the

[170] La Rovere et al 2000, 15.

[171] Bulgarian Foreign Investment Agency 2002, 41.

[172] Ministry of Finance of the Republic of Bulgaria 2002.

[173] GEF Bulgaria, not dated.

Bulgarian energy sector. Energoprojekt also participates in several programmes supported by foreign institutions such as the EU PHARE programme.

EnEffect Center for Energy Efficiency is a NGO actively involved in EE activities. It aims at supporting central and local authorities and fulfilling the knowledge gap among municipal official bodies. The NGO works in the elaboration of municipal EE programmes and implements demonstration projects aiming at sustainable development. It also provides investigation on the EE potential in various sectors of the national economy and the environmental impact of energy conservation, training in this field, and rational use of energy. The projects developed and implemented by EnEffect are funded by the US Agency for International Development, the Commission of the European Communities, the United Nations, and the Global Environmental Facility, among others.

The *Association of Energy Engineers* is a NGO that acts as a Chapter of the Association of Energy Engineers in Atlanta. It was established in 1992 and has up to 40 regular and 10 corporate members.[174] Its main activities include providing policy advice, seminars, demonstration projects, studies, and training. The NGO supports the development of private EE consulting services and assists its members in promoting their activities in the private consultancy market.

JICA EE Centre was established in 1995 with the cooperation of the Japanese International Cooperation Agency (JICA) and is affiliated to the Ministry of Economy. Its present activities are focused on the industrial sector and include consultations on rational energy consumption and control, optimization of energy management, improvement of production processes, and modernization of production facilities in Bulgarian industrial enterprises. The Centre has performed audits in some of the largest Bulgarian private enterprises with resources for and interest in energy conservation issues.

Techenergo, Sofia is a state joint-stock company specialised in activities of the energy sector. It imports and exports energy equipment. The company also provides engineering services and consultancy, performs energy audits, controls energy combustion processes in the energy sector, and serves different energy utilities.

Fields of competition: There has been significant delay in structural reforms in the Bulgarian infrastructure and energy sector. With the exception of some HPPs, all energy utilities are state-owned.[175] Privatization is a slow process that has not reached large generators and utilities yet. The Energy and Energy Efficiency Law (EEEL) adopted in 1999 and amended in 2001 began the restructure and liberalization of the energy sector and created an energy market. It aimed at separating electric power generation, transmission, and distribution in order to eliminate NEC's monopoly. The Law hoped to create the conditions for market competition by establishing new and independent market participants.

The National Power Transmission Company (NEC) was formerly called the National Electricity Company. It was the main actor on the electricity market, running the entire electricity supply. It owned the NPP Kozloduy, HPPs, TPPs, and the whole transmission and distribution system. Hence, NEC managed the whole electricity production, transmission, and distribution sector. It was the only agent responsible for electricity trade, import, and export.

[174] Novem & EnEffect 2000, 42.

[175] Bulgarian Government 2000.

In accordance with the 1999 National Energy Strategy and EU requirements, restructuring and de-monopolisation of the energy sector started in 2000. Electricity production and distribution were separated from NEC. The latter was renamed Transmission Company for it retained the transmission system, some large HPPs, the pumped-storage hydropower plant, and the Maritza East 3 TPP. The remaining generation capacities were excluded from the NEC structure and acquired a status of independent power producers to be privatized.[176]

According to the adopted Single Buyer Model, all independent power producers sell electricity to NEC. Being the country's only power transmission company, NEC is the only agent eligible to buy electricity from independent producers. It then sells it directly to high-voltage customers and to the seven newly established power distribution companies. These latter then sell power by retail to medium and low voltage clients. Thus, NEC continues to be the main actor on the Bulgarian electricity market, carrying out electricity generation, transmission, import, and export. The company will not be offered for privatization.

As a result of the NEC restructuring, the output of independent power producers increased from 11.4 percent of the total in 1999 to more than 50 percent in 2000.[177] However, it is still arguable whether this approach of centralised purchase and sale does not retain the state monopoly in the sector. It has been claimed that a restructuring of this kind introduces organisational separation only but no real commercial relations. Following this argument, amendments to the EEEL allow a partial market opening to take place. This is achieved by authorising electricity generators free access to transmission and distribution networks and direct contracting with eligible consumers without NEC's interference. The latter is obliged to ensure transmission in return of a fee. This is expected to encourage competition among generators, where large industrial enterprises will be the first to benefit. By including power distribution companies in the category of eligible customers, a wholesale market in electricity will be created. The creation of a retail electricity market where customers will choose their supplier is the long-term goal of the domestic market development.[178]

Full market liberalization, understood as free determination of electricity prices, is unlikely to take place. With the establishment of a wholesale market in electricity, medium and low-voltage customers will buy electricity from power distribution companies. These latter have the recognised monopoly right to serve an assigned territory and will continue to be subject to regulation. NEC defines the transmission fee charged in exchange for the transmission net. Thus, even when customers will have the right to choose between alternative electricity providers, the electricity price will contain a regulated component.[179]

The Single buyer model preserves state control and planning over the energy sector, especially with regards to investments. Although the Law intended to promote commercialisation and competition in the energy sector, the energy strategy argues that it

[176] This includes TPP Maritza East 1, TPP Maritza East 2, TPP Rousse, TPP Varna, TPP Bobov Dol, TPP Maritza 3, 63 small HPPs, DH plants, and industrial Plants. NPP Kozloduy has also become an independent producer but will not be privatised because of its strategic importance.

[177] NEC 2000, 6.

[178] MEER 2002, 16-17.

[179] MEER 2002, 16-17.

supported a 'non-market business model'[180] by maintaining full government control over electricity generation, transmission, and distribution companies.[181]

The new energy strategy calls for market structures and rules. These include the introduction of a permissive regime to build new capacities without the State's issue of construction permits and purchase obligation. The discontinuation of long-term power purchase agreements is also desired in order to allow investors to take independent market decisions and assume market risks. Under the previous Single Buyer model, private investors did not have direct access to end consumers and required government-supported long-term power purchase agreements to be concluded. This practice transfers risks to the Single buyer instead of placing it on those making the investment and entry decisions.[182]

The government programme announced in 2001 envisaged privatization in the energy sector to be completed in the period 2003-2005, with the exception of NEC and the NPP. Privatization in the energy sector was set up as one of the main priorities of the 2002-2003 strategy and is to begin with the power distribution companies. The power plants privatization will start with key electricity and heat generating plants. In the period 2003-2004 Bobov Dol, Rousse, and Varna TPPs will be privatized. This will take place after the establishment of market rules, since their absence has prevented investors from participating in the privatization of the energy sector.[183] Further measures are necessary in order to allow foreign producers to have access to import and export deals.

Mining: The restructuring in the mining sector closed unprofitable mines and called for the improvement of the more viable ones in order to make them more attractive for investors. The mining sector has been preparing for privatization by separating or merging mining and district heating companies, such as the Pernik mines and Pernik DHC.[184] Imported coal is bought at market prices and domestic coal has partially liberalised prices. Six state companies and the briquette factory sell at state regulated price levels and the rest apply contractual prices.[185]

Gas market: The state-owned Bulgargaz, the only owner and operator of the national gas transmission system, controls the natural gas market in Bulgaria. It also owns the natural gas storage 'Chiren' with a capacity of over one billion m^3. Bulgargaz controls gas import, transmission, storage, distribution, and trade. The establishment of regional gas distribution companies to supply households was the initial and most significant step towards breaking up the Bulgargaz monopoly. Deregulation of the internal and external energy markets for natural gas and privatization are the next steps, according to the energy strategy. Allowing large users to contract domestic or foreign supply directly could accelerate the opening of the gas market. However, the transmission fee is yet to be defined.[186] Bulgargaz is likely to retain ownership of

[180] MEER 2002, 3.

[181] MEER 2002, 4.

[182] World Bank 2001b, 162

[183] World Bank 2001b, 19.

[184] Bulgarian Government 2000.

[185] MOEW and Energoprojekt PLC 1998, II-12.

[186] Dnevnik 2002a.

the gas transmission system and the right to direct contracting of natural gas supplies. The company can also give third parties access to eligible consumers.

Privatization of Bulgargaz is envisaged in stages. Shares of the company will be sold but the state will retain control over the major share. Privatization of Bulgargaz is to be completed in 2010 and the Bulgarian gas market will be fully integrated with the rest of Europe.[187] At the moment, Bulgargaz is only expected to contribute its network assets as minority stakes in future joint venture companies with foreign and domestic partners.[188]

Market prices: Liberalization of the energy sector has been partial. Electricity, indigenous coal, and household heat prices continue to be fixed below their costs. Bulgaria and the IMF have agreed on a programme for the liberalization of energy prices. However, due to the high social costs involved, its implementation has been significantly delayed. As an example, in 1999 electricity prices were increased by 14 percent instead of the 30 percent rise that was agreed on with the World Bank and the IMF.[189]

The government declared in its programme the development of a competitive energy market as a top priority for the energy sector. It emphasized the normalisation of energy prices in conformity with their full economical costs and the cessation of subsidies for producers. Further increase in electricity prices for households is envisaged in order to level prices for domestic and industrial consumers. In the beginning of 2002, household tariffs were about 16.2 percent lower than industrial ones. In practice, firms still subsidise households.[190]

According to the strategy, new market prices will create energy saving incentives and proper patterns of energy consumption. The price of electricity for the population will be twice as high as heat and natural gas tariffs.[191] This measure will be complemented with new forms of social aid, in order to make energy prices affordable for all citizens.

Gas and electricity tariffs are presently lower for households than for industrial consumers. Energy policy calls for household tariffs to rise faster than industrial ones. Household gas prices are based on import costs and cover Bulgargaz's transmission and operation costs. Gasoline prices were freed on July 1999.[192] The amendments to the EEEL allowed large industrial gas consumers and gas distributors to negotiate directly with suppliers of imported gas since January 2002, although it will not be in practice until transmission fees are defined.

Heat prices are established according to different consumer types. Heat prices for companies are liberalised and cover the full production cost of the generation plant and a certain rate of profit, which is why prices can differ among suppliers.[193] Heat prices for households are limited and still subsidised although they should have been eliminated in 2000.[194] The budget subsidises the difference between the full production cost and the limited

[187] Lynch 2001, 13-14.

[188] IEA 1999a, 124.

[189] IEA 1999a, 130.

[190] Nenova 2002.

[191] MEER 2002, 12.

[192] IEA 1999a, 124.

[193] EnEffect 2001, 20.

[194] Alexandrova and Mihailova 2001.

price, approximately 40 percent of the total cost.[195] The population's low income prevents the liberalization of a significant number of consumers who, unable to pay their bills, have chosen to disconnect from the grid. This was practiced by more than 30 percent of the consumers since 1998.[196] Nevertheless, further increase in heat prices for households is expected in order to eliminate subsidies from the budget.

Coal: Some state-owned mines sell coal at state-regulated prices. The briquette factory at Maritza East also sells briquettes to consumers at state-regulated prices. The present price of briquettes is 80 BGN/ton net of VAT.[197] Although at present coal and briquette prices are subsidised, the Bulgarian energy strategy calls for phasing out these subsidies. In addition to the state-owned mines there are some coalmines that sell their products at contracted prices.

2.2.2 *Description of sub-sectors*

Lighting: Street lighting systems were considered as part of the national power-engineering infrastructure until 1999, when the Energy and Energy Efficiency Law was amended. This law established that energy infrastructure networks and equipment became municipal property.[198] This change was well accepted since street lighting serves the resident population. The change in ownership is a tool to encourage investments and improve the system's operation. At present almost 90 percent of lighting fittings for street lighting use high-pressure mercury-vapour lamps, which predetermine their low energy efficiency. The remaining 10 percent of lighting fittings are high-pressure sodium-vapour lamps and compact luminescent lamps.[199]

However, there is ambiguity over the municipal ownership of street lighting systems, since they have also been included in regional power distribution companies. Thus, it is a question as to the ownership of the street lighting systems. Some argue that including street lighting in the power distribution companies' capital does not mean that they have lost their status as municipal property.[200] In some cities, street lighting systems are not included as assets of power distribution companies or are only partially considered. In this case they are property of the municipality and this latter should cover the costs of operation and maintenance. However, no money for maintenance and repair has been provided to municipal budgets.

It has been suggested that the draft-law prepared in 2001 to amend the Energy and Energy Efficiency Act contained texts that explicitly defined municipalities as owners of street lighting systems. It was envisaged that power distribution companies would transfer their ownership rights to municipalities free of charge. However, until the transfer of ownership of networks and equipment is completed, the power distribution companies will be on charge of their operation and maintenance with municipal funds.[201] If street light ownership were transferred

[195] IEA 1999a, 154.

[196] World Bank 2001b, 152.

[197] MEER, not dated.

[198] EnEffect 2001, 11.

[199] MOEW 1998, 25.

[200] MOEW 1998, 25.

[201] MOEW 1998, 11-13.

to municipalities, their administrations would require the expertise to manage the system. In case this transfer was made free of charge, an arrangement would be needed for the municipalities' overdue debts to power distribution companies.

On 31 March 2001 the Law on Organisation of the Territory replaced the former Law on Spatial and Settlements Organisation. Under the latter, municipalities constructed street lighting systems with their own funds and then transferred them free of charge to power distribution companies for operation and maintenance. Presently, municipalities have neither the right to invest in the development of street lighting systems, nor their ownership according to the Energy and Energy Efficiency Act.[202]

Hospitals: In 1991, hospitals and dispensaries were state-established and had different municipal, regional, or state scopes. All health care establishments were transformed into public entities in order to distinguish them from the emerging private ones. There was no state and municipal divisions for public hospitals. This practice was introduced with the new Law of Health Care Establishments in Bulgaria.[203] The health care reform found hospitals with 20-year-old equipment and buildings lacking repair. Large state hospitals liquidated themselves.[204]

In order to improve the health care system, a considerable change in the structure of ownership of hospitals and health establishments was made through the Law on Health Care Establishments enforced in 1999. Changes also aimed at improving financing and operational modes through a new registration regime. It was established that health establishments would be founded according to the Commercial Law or the Law for Cooperatives.[205] The deadline for their registration was 1 September 2000. It was stated that public health establishments that were not transformed would be closed down and liquidated by the Council of Ministers.

Changes in the status of health care establishments took place and a majority of them were registered under the Law on Commerce and the Law on Cooperatives. In compliance with these Laws, the majority of them were transferred to municipalities. However, municipalities had difficulties to finance the hospitals adequately and problems with liabilities and provision of basic medical and sanitary equipment appeared. This complications lead to considerable problems in the planning and spending of municipal budgets. Health establishments are:[206]

- District when treating citizens from neighbouring municipalities;
- Regional when treating citizens from municipalities of one region;
- Inter-municipal when treating citizens from different regions;
- National, when carrying out country diagnosis, scientific research work, implementing modern medical technologies, or developing and implementing national health policy.

According to Art 37 (3) the state and the municipalities shall found health establishments for hospital care and dispensaries as limited liability companies or joint stock companies. The

[202] MOEW 1998, 13.

[203] Bulgarian Ministry of Health 2000.

[204] Kultura News 2001.

[205] Republic of Bulgaria National Assembly 2000.

[206] Republic of Bulgaria National Assembly 2000.

owner could be the municipality, state, or other joint form of state and municipal management of the capital. The majority of transformed hospitals became municipal. Health care establishments with specific or strategic roles for the national health care system are subject to joint management by the state and the respective municipality. Under this provision, the Law lists 26 regional hospitals. They are transformed into joint stock companies with 51 percent state-share, managed by the Minister of Health, and 49 percent municipal share. Only a small part of the transformed health care establishments was envisaged for entire state-ownership. These include nine pulmonary hospitals, national medical centres, and university hospitals.

After the registration period for the healthcare establishments as commercial companies, the Ministry of Health started keeping record of healthcare establishments with permission for medical activity. According to the Ministry, there are a total of 245 establishments with this permission. From this total, municipalities have the jurisdiction of 118 municipal hospitals, 50 dispensaries, and 26 untied regional hospitals. The state has jurisdiction over 29 national diagnostic and treatment structures affiliated to the high medical schools.[207]

Financing of health care establishments is specified in Article 96 of Chapter XII of the Law. It is stated that the National Health Insurance Fund, state and municipal budgets, voluntary health insurance funds, and local and foreign corporate bodies and individuals can finance health establishments. Health services for Bulgarians and insured foreign individuals is free of charge if compliant with the regional division of health care and if financed by the state budget. The revenue of health establishments is formed by:

- Direct payments under contracts for provided medical care by individuals and corporate bodies out of the ordinary practice;
- Reimbursement of expenses made by a third party;
- Expedient subsidies from the republican budget when stipulated by the Law for the state budget;
- Expedient subsidies from the municipal budgets when provided by them;
- Rentals of equipment, premises, and offices according to the acting legislation;
- Donations, wills, among others.

Hence, the state and the municipalities finance the state or municipal health establishments through expedient subsidies approved by the law for the state budget and by municipal budgets. It was stated that public health care establishments that used to be financed by municipal budgets until 2000, would be financed from the same source during 2001. The financing mechanism of hospitals for 2001, the first year after their transformation, was defined with the Law for State Budget. It imposed funding to be distributed from the municipalities and the Health Ministry after approval by the Ministry of Finance. The governing bodies of each hospital conclude financing contracts with the respective municipality that allocates the subsidies. It is envisaged that the state National Health Insurance Fund will distribute the budget funding for hospitals.

[207] Bulgarian Government 2000.

Registered under commercial terms, hospitals are formally independent commercial companies and should therefore make independent decisions on investment. However, the municipality is the owner of the capital of these medical establishments and must provide them with subsidies and investments. The restructuring of the health care system and the new modes of ownership raised ambiguities concerning investment.

District heating: There are 21 district heating companies (DHC) in Bulgaria. They are formed at a regional basis and report to the Ministry of Energy and Energy Resources. Some work as combined heat and power generation plants (CHP) that supply electricity to NEC. District heating is provided in most Bulgarian cities and heating is supplied to 18 percent of the Bulgarian population.[208] They are state-owned, with the exception of Sofia DHC that accounts for 60 percent of the DH industry. [209] Transfer of ownership to municipalities and privatization of the economically viable DH companies is being considered.[210]

District heating systems in Bulgaria were built between 1970 and 1990 and are currently in poor technical condition with negative financial results. Lack of resources is linked with low fixed prices for household heat that do not cover production and delivery costs. When cessation of subsidisation was postponed, instead of establishing commercially operating business companies, DHCs came near to financial collapse.[211] The failure to pay heat and electricity bills is notorious in Bulgaria, not only among citizens but also with budget-financed organisations and big state owned enterprises. Moreover, a considerable number of consumers chose to disconnect from the system. In the current system the producers get subsidies considerably lower than their needs. 'In that way the DHCs subsidise the consumers on the account of their own decapitalization'.[212]

The outdated equipment and facilities cause transmission losses of 16 percent.[213] Lack of appropriate metering and regulating equipment leads to bills that are based on heated area and not on measured consumption. Consumers also lack measures to control their own consumption, a prerequisite for the rationalisation of heat consumption. According to the Energy Strategy, metering devices are to be installed in all district heating companies. Metering devices in the Sofia DHC is near completion.[214]

An action plan for restructuring commercial DHCs has been approved. It aims at establishing joint stock companies with municipal participation, considering that it is convenient that DHCs remain within municipal scope. State shares in the district heating facilities would be transferred to the municipalities. The actual division of ownership rights is yet to be specified. Joint stock municipal DHCs will be gradually privatized. Foreign investors are expected to participate in this process bringing the know-how necessary for the modernisation and improvement of DHCs improving energy efficiency performance.

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[208] MOEW 1998, IV-13.

[209] IEA 1999a, 154.

[210] Novem & EnEffect 2000, 41.

[211] MEER 2002, 4.

[212] MEER 2002, 24.

[213] Novem & EnEffect 2000, 14.

[214] MEER 2002, 22.

2.2.3 *Addressing the problems*

Major barriers for investments in energy efficiency signalled in Bulgaria include:

- *Currency board restrictions* limit the capital available for decentralised public-owned entities. Aiming at financial stabilisation, the currency board imposes a rigid public expenditure policy and limits options for financing of the budget deficit. It limits the state initiative for investing in different undertakings, including EE. The only EE fund available in Bulgaria was dismantled namely because of the currency board prescription.
- *Delay in privatization and insufficient market based legal framework*: Privatization practice in Bulgaria has been delayed because of political reasons. Restructuring of large state-owned energy-intensive industries is still taking place. The absence of well-defined regulatory framework and market rules hinders the attraction of EE investment.
- *Persistent subsidizing of energy prices* continues, distorting market signal and avoiding incentives for conservation measures. There is low awareness of energy saving measures to increase competitiveness of the national production.
- *Formation of municipalities' budgets and non-payment*: The government approves municipalities' budgets according to the expenses made during the previous year. Resources allocated are usually insufficient and savings are deducted from the amount of subsidies allocated for the next year, including energy. Delay or non-payment of energy bills is tolerated, preventing energy enterprises from receiving the operating revenues needed for their operation.[215]
- *Lack of incentives for end users to save energy* derived from low energy prices in comparison to their production costs, as well as unresolved ownership issues concerning municipal and public property.
- *Lack of knowledge and institutional capacity* to prepare and implement EE programmes. EE is a new field of knowledge in Bulgaria and its development has been rather slow. Municipalities have the jurisdiction of the majority of public buildings such as hospitals, kindergartens, and schools. These authorities lack both the financial resources and the expertise to implement EE projects. Cooperation with other institutions providing technical advice is inefficient and unpopular.

[215] EnEffect 2001, 2.

2.3 Kazakhstan

2.3.1 *General characteristics of the energy sector*

Due the discovery of massive oil fields in recent years, the future of Kazakhstan seems to be assured in terms of energy security. The country is rich in natural resources, but major investments are needed for upgrading and extending the infrastructure. Oil and gas are the most important sectors in the economy. Following a massive drive for privatization in the nineties, these sectors have attracted large foreign investments.

One of the challenges for the government has been to establish the infrastructure necessary to reach new markets. Some population centres within the country are still not connected to domestic energy resources and are thus dependent on imports, which are both unreliable and expensive. Projects to build new gas pipelines have been scheduled, but often remain on paper. At Kazakhstan's oil fields, natural gas reserves are considered leftovers and thus large amounts of gas that could be used for heating or other purposes are flared. Perhaps most importantly, further legal and institutional reforms are necessary to ensure that the natural wealth also translates into wealth for the average citizen. It remains to be seen whether Kazakhstan will avoid the 'oil paradox' of natural resources wealth and societal poverty, as demonstrated by countries like Venezuela and Nigeria, which possess sizable oil reserves that have not created wealth for the majority of citizens.

Energy supply: Kazakhstan has huge reserves of fossil energy resources, including coal, oil, and natural gas, enough to cover the demands of the country and great exports. The total energy resource balance is still dominated by coal, which covers more than 90 percent of power generation needs and between 40 and 50 percent of residential energy use.[216] Despite the significance of coal, the future of Kazakhstan is tied to oil. Already under the Soviet regime, Kazakhstan was the second-largest oil-producing republic in the FSU, but the real oil rush came after independence. With the help of foreign oil giants, exploration was expanded with successful results. As to proven gas reserves, Kazakhstan possesses approximately 2 trillion cubic metres. The production capacity amounts to more than 35 billion cubic metres annually, of which only a fraction is extracted at present. Inflows of foreign investment are likely to increase the extraction and use of natural gas.

Coal: The main locations of coal extraction are the Karaganda and Ekibastuz basins located in the central northern part of the country. Overall coal production has been declining from 140 million tonnes in 1992 to 82 million tonnes in 2000 (see Table 2.6). The decline of coal production was both due to a decline of demand and non-payment by customers. Still, Kazakhstan remains the largest exporter of coal in the FSU; the main importer is Russia, where some power plants are entirely dependent on supplies from Kazakhstan. The majority of mines were privatized. Total reserves of coal are estimated at 38 billion tonnes.[217]

[216] Kazak Institute of Climate and Environment Monitoring 1996, 15.

[217] Country Watch 2002.

Table 2.6 Annual coal production and consumption (million tonnes)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production	139.49	123.32	115.33	91.88	84.69	80.08	76.91	64.35	82.44
Consumption	94.16	87.16	88.69	79.71	62.60	54.27	52.85	50.29	67.59

Source: Department of Energy of the United States 2002.

Oil: There are at least three vast, newly discovered fields: Tengiz, Karachaganak and Kashagan.[218] By the year 2010, a six-fold increase of oil production is foreseen relative to the 1990s and the production is estimated to reach 3 million barrels a day.[219] So far, Kazakhstan has received more than $13 billion worth of foreign direct investments in the oil sector, and the current Prime Minister Imangali Tasmagambetov hopes the investment will exceed $140 billion over the next 10 years.[220] The main problem of Kazakh oil, long export routes dependent on Russia, could also be solved in foreseeable future.[221] Some experts believe that by 2015, Kazakhstan could be the second-largest oil exporter in the world.[222]

The Tengiz field has oil reserves estimated at between six and nine billion barrels and is developed in collaboration with ChevronTexaco (USA). In mid 2002, the daily production from the Tengiz field reached 250,000 barrels. The Karachaganak field has reserves of around 2.4 billion barrels and daily production of around 100,000 barrels. The foreign partners are British Gas (United Kingdom) and Agip (Italy). The Kashagan field, located underneath the Caspian Sea, is still under exploration, but the estimated reserves could be as high as 40 billion barrels, which would make it the largest oil discovery worldwide in the past 30 years. A consortium of many companies called Offshore Kazakhstan International Operating Company (OKIOC) is the operator of the field.

In November 2001, the Caspian Pipeline Consortium opened a new pipeline connecting the Tengiz field with the Russian port of Novorossiisk.. Fifty percent of this pipeline belongs to governments of Russia, Kazakhstan and Oman, and the other fifty percent belongs to foreign oil companies. Other possible pipeline destinations under consideration are Iran, Georgia, China, Afghanistan (to India or Pakistan) and Turkey. Among these options, the last appears the most viable. The pipeline to Turkey could be built through Baku-Tbilisi-Ceyhan. By 2010 more than 1.2 million barrels per day could pour through this pipeline from Caspian fields. The US government would endorse this export route.

Oil represents more than half of all exports.[223] A World Bank paper urged the government to promote non-oil related parts of the economy in order to avoid 'Dutch Disease', the process of deindustrialization that can occur after the discovery of rich natural resources, because

[218] United States Department of Energy 2002.

[219] United States Department of Energy 2002.

[220] EIA 2002.

[221] Kalicki 2001, 120-135.

[222] Daniszewski 2002.

[223] United States Department of State 2001.

investments attracted to this sector are withdrawn from other sectors of the economy.[224] To address this problem, state officials have created a national fund that receives a share of oil revenues. This fund is similar to an investment scheme operating in Norway, which uses money from oil exports for investments in new technologies and savings for future generations since oil reserves will diminish or oil might be replaced by other energy sources. As the fund in Kazakhstan was established only recently, it is not yet possible to evaluate its operation. With so much money at stake, strict rules and transparency are essential to prevent embezzlement.

Table 2.7 Annual production, consumption, exports and imports of oil (million tonnes)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001E
Production	122.4	111.9	104.6	83.4	76.8	72.7	96.8	58.4	74.9	80
Consumption	83.2	77.5	68.3	65.1	55.8	50	47.2	40.1	43.9	51.6
Exports	43.5	34.5	22.5	20.8	20.8	24.9	23.6	16.2	25.7	27.5
Imports	1	4.7	0.2	1.2	1	1	1.2	1.1	0.7	0.2

Notes: E= estimate.

Source: AsDB 2002.

Gas: The proven reserves of 65 trillion cubic feet (Tcf) rank Kazakhstan among the top 20 countries worldwide in terms of gas reserves. However, the natural gas sector is still underdeveloped. In 2001, the production of 324 billion cubic feet (Bcf) did not cover the consumption of 491 Bcf. Approximately 35 percent of domestic needs had to be imported, mainly from Uzbekistan and Russia. The main reason behind this paradox is the fact that the gas deposits are located in western Kazakhstan, while the main consuming areas are in the north and south, and the transport infrastructure linking these points is weak. In order to remove this barrier, Kazakhstan seeks to channel major investments into gas exploration and distribution networks. The country may no longer require gas imports by 2005.[225]

Electricity supply: The electricity sector is in poor condition. For example the largest thermal power plant (TPP) Ekibastuz 1, owned by AES, operates at around 30 percent of its installed capacity.[226] A proper explanation of this has to delve into the past. Most of the electricity sector equipment was installed in the 1950s and 1960s when Soviet planners wanted to develop Kazakhstan into a supplier of power to the whole Soviet Union. According to one estimate, 94 percent of gas turbines, 57 percent of steam turbines, and 33 percent of steam boilers have been in operation for more than two decades.[227] Also, during the Soviet era, the output performance and low-cost production were the main objectives and therefore planners did not show much concern for the quality of the facilities.

[224] World Bank 2001c, 6-9.

[225] EIA 2002.

[226] AES Silk Road Group 2001.

[227] Peck 2002, 33.

Although much can be blamed on the Soviet period, there is no evidence to suggest that major improvements were achieved after Kazakhstan gained independence. During the years of economic breakdown in the early 1990s, the electricity sector was neglected along with many other vital sectors. By the mid 1990s, the electricity sector was close to collapse due to lack of investment. It was hoped that new power plant owners would improve the situation, but in reality the repairs proved expensive and time-consuming. Since it is difficult to make sufficient stable profits in the Kazakh electricity market, investment is still lacking and a total rehabilitation of the electricity sector is unlikely in the near future.

Table 2.8 Installed electricity generation capacity in Kazakhstan (thousands of MW)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Hydroelectric	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.22
Nuclear	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0
RES (excluding hydro)	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a
Conventional Thermal	16.49	16.49	16.32	16.81	16.75	15.18	15.16	15.15	15.09
Total Capacity	18.86	18.86	18.63	19.12	19.06	17.48	17.46	17.45	17.29

Note: N/a = not applicable

Source: Department of Energy of the United States 2002.

Nuclear power: Although Kazakhstan has gigantic uranium reserves — about 25 percent of the world's reserves — the country currently has no operating nuclear power plant (NPP). The only NPP had a capacity of only 350 MW and a unique construction: it was the first 'fast breeder' reactor developed in the FSU.[228] The power plant suffered several accidents and was shut down indefinitely in 1999. The main reasons were its marginal importance in terms of electricity production and environmental concerns. In 1998, the government announced the plan to build a new NPP with a capacity of 1,900 MW and a cost of over $5 billion. The construction was scheduled to begin in 2006, but this plan was later shelved because of high expenditures and public opposition.

Thermal power: There are more than 50 fossil-fuel power plants in the country. Most of them are combined heat and power plants; the majority uses coal as a fuel, the rest oil and natural gas. The biggest plants are located in the northern part of Kazakhstan, where the coal is extracted and where the largest amount of electricity is consumed, mainly by industry. Ekibastuz 1 is the largest TPP in the country with an installed capacity of 4,000 MW, followed by Ermakov (2,400 MW), Zhambyl (1,230 MW) and Ekibastuz 2 (1,000 MW). The remaining TPPs have an installed capacity below 1,000 MW.[229] Nearly all of the TPPs were privatized, mainly to foreign investors such as AES (USA), Samsung (South Korea), Japan Chrome (Japan), Ispat (UK) and Tractebel (Belgium).

Hydro power: The hydro energy potential of Kazakhstan is estimated at '170 TWh/year, of which 62 TWh/year can be used from a technical point of view, 27 TWh/year can be used

[228] United States Department of Energy 2002.

[229] World Bank 1999, 120.

from financial point of view, and only about 8 TWh/year are used now'.[230] There are four large hydro power plants in Kazakhstan; the biggest are Bukhtarminskaya and Shulbinskaya with capacity of 675 and 702 MW respectively.[231] Both are situated on the Irtysh River and operated by AES. There are opportunities in the sector of small hydroelectric power projects, which unlike large HPPs are classified as renewable energy sources.

Renewable energy: Because of the 'grandiose project syndrome' exhibited by Soviet planners, renewable energy (RE) was never considered a real alternative. This attitude has scarcely changed since independence, which partly explains why RE accounted for only 0.3 percent of total electricity production in 1996.[232] Using RE can improve the supply of electricity to undersupplied areas of the country. The main RE potential is in the southern part of Kazakhstan, for all project locations are situated not more than 600 km from the largest city, Almaty. This region has insufficient electricity production capacities and inadequate grid connections to the large power plants in the north. Thus, electricity must be imported from Uzbekistan and Kyrgyzstan, which is unreliable and causes frequent shortages. The implementation of RE in this part of the country could decrease the dependence on imports. Moreover, there are 5,100 villages throughout Kazakhstan without access to the electric grid, and the extension of the transmission lines would be uneconomic in many cases.[233]

Despite all the written promulgations, the practical support of state authorities for RE is weak and most RE projects are carried out with financing from bilateral and multilateral institutions. Of all RE options, small hydro, wind energy, and solar energy are the most viable for Kazakhstan. Geothermal and biomass energy have a more limited potential. There are at least 300 waterways where small hydro power plants could be built with a total projected capacity estimated to exceed 1,600 MW and an annual production of 5 TWh. The projected capacity of wind energy is 530 MW and the annual production is estimated at 2 TWh (small and scattered facilities not included).[234] Although Kazakhstan is situated quite far in the northern hemisphere, due to its dry continental climate exposure to the sun is sufficient to consider solar energy a viable option. According to a World Bank report, the country receives between 2,200 and 3,000 hours of sunshine per year and insulation energy is between 1,300 and 1,800 kWh per square metre and year.[235]

Transmission infrastructure: Kazakhstan inherited from the Soviet Union transmission connections that were not optimal for the country as an independent state.[236] The Northern grid was installed for export to Russia and to Eastern Kazakhstan, whereas the transmission capacity to Southern Kazakhstan is limited. The Southern grid in its turn is supplied from Kazakhstan's Central Asian neighbours. In Western Kazakhstan, there are two isolated systems that are net importers of power from Russia.

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[230] Climate Change Coordination Center of Kazakhstan, not dated.

[231] Dahl and Kuralbayeva 2001, 429-440.

[232] Kazakh Institute of Climate and Environment Monitoring 1996, 16.

[233] ESMAP, UNDP & World Bank 1997, 3.

[234] Main Administration for Hydrometeorology of the Republic of Kazakhstan 1999.

[235] ESMAP, UNDP & World Bank 1997, 21.

[236] World Bank 1999, 102.

In 1991, there was only one company, the state-run Kazakhstanenergo, which was responsible for power generation facilities, the national grid system and regional distribution networks. In 1995, the government decided to restructure the sector by means of privatization. Kazakhstanenergo was stripped of its generating facilities, which were offered for sale. By 1999, investors had snapped up 85 percent of installed capacity.[237] The rest of Kazakhstanenergo was renamed to the Kazakhstan Electricity Grid Operating Company (KEGOC), which is a joint stock company owned entirely by the state. The assets of KEGOC include the transmission grid (lines from 110kV to 1,150 kV) and the master substations, forming the National Power Grid that connects power plants and distribution networks.[238]

According to estimates by KEGOC, $258 million are needed in order to reconstruct the power grid, to improve the reliability of supply, and develop the power market through a power pool. This electricity transmission rehabilitation project has attracted $256 million in funding from IBRD, EBRD and Kazakh sources. According to the US Energy Information Agency, KEGOC is considering building a second North–South power line to complement the existing 600 MW line, making it possible to supply the country's southern regions fully with energy generated in Kazakhstan. The line would cost an estimated $300 million to build. In addition, Kazakhstan has made plans to construct five new combined heat and power stations: 150 MW Uralskaya, 450 MW Aktyubinskaya, 300 MW Mainakskaya, 1,280 MW Yuzhno-Kazakhstanskaya, and 500 MW Zapadno-Kazakhstanskaya.[239]

From an administrative point of view, ten regional systems containing generation, transmission, and distribution facilities and a dispatch centre manage load within the region and operative functions within the corresponding grid system. On the national level, a number of State Regional Electric Stations account for the bulk of production capacity and are managed through a national dispatch centre. Like the electric grid, the gas pipeline was planned with consideration of the needs of Kazakhstan's neighbours rather than the country's self-sufficiency. There are two gas pipeline networks – Kazakhgas in the west and Alaugaz in the south–east. Export markets are reached mainly through Russia. The southern parts of the country use imported gas from Turkmenistan, Uzbekistan, and Russia. Because of the pipeline layout, the largest field in the north–east cannot transfer gas to the more populated areas in the south. Only eight of the country's nineteen regions (oblasts) are supplied with gas.

Oil is transported via the Atyray–Samara pipeline through Russia. A new 990-mile pipeline operated by the Caspian Pipeline Consortium enables transports directly from the Tengiz field to Novorossiysk on the Black Sea. The official opening was made in November 2001, and was preceded by an agreement on transport tariffs between Kazakhstan and Russia. It is believed that rail transports and barge routes across the Caspian Sea will have less importance in the future due to further development of pipeline capacities.

Energy demand: The supply and demand of electricity dropped by nearly fifty percent since 1991 (see table below). The bottom was reached in 1999. The decline was caused by economic breakdown and inability of both enterprises and citizens to pay for electricity. The southern part of Kazakhstan is not sufficiently connected to electricity producing areas in the north and

[237] US and Foreign Commercial Service & US Department of State 1999.

[238] KEGOC 2002.

[239] EIA 2002.

therefore has to rely on imports from Uzbekistan and Kyrgyzstan. In the 1990s, the government was at times unable to pay for imported electricity, which increased the frequency of supply interruptions. In those parts of Kazakhstan that were dependent on imports, electricity shortages were common. State authorities have been working to solve this problem and given the oil revenues the payment problems are likely to disappear over time. Moreover, the proposals to complete the grid connecting north and south could satisfy electricity demand in all parts of the country.

Table 2.9 Electricity generation/consumption, exports/imports (billions of kWh)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001E
Net Generation	82.7	77.4	66.4	66.7	59	52	49.1	47.5	51.4	55.3
Net Consumption	96.5	88.9	74.4	74	64.6	56.7	53	50.1	47.1	57.1
Imports	29.6	11.7	13	7.4	6.6	4.7	4	3.2	3.1	3.4
Exports	15.4	N/a	N/a	N/a	0	0	0.1	0.1	0	1.6

Notes: N/a= not applicable, E = estimate.

Source: AsDB 2002.

Regulatory bodies: According to David Kennedy, one of the key legislative instruments in the energy sector is the law 'On Natural Monopolies', which was adopted in July 1998. The law stipulates, among other things, that the government can set up an agency that deals with industry regulation. In the power sector, the body is called the Agency for Regulation of Natural Monopolies, Protection of Competition and Support of Small Business. It is often referred to as the 'Anti-Monopoly Agency'.[240] This agency decides maximum tariffs for gas and power and a number of other goods from natural monopolies. The agency committee influences activities both on the national and regional levels through a number of local branches, supervising prices both on the wholesale and retail levels, including transmission fees. The committee is directly subordinated to the Ministry of Energy, Industry and Trade.

Maximum tariffs of public and private companies are subject to quarterly reviews. Wholesale prices below the maximum level are negotiated between the energy consumers and the suppliers. Whereas smaller customers are bound to buy from local distribution companies, larger customers are free to choose between suppliers. The regulatory body is not obliged to confer with industry and other affected organizations before adopting resolutions and the regulatory does not need to provide any justifications, which may lead to greater arbitrariness and increase risks for investors. The more recent law 'On Electricity', dated 16 July 1999, does not address these areas of concern. According to Kennedy:

> There is a high degree of political interference at both levels with frequent politically driven reorganisations (six between the beginning of 1998 and the end of 1999). The law provides a route for appeal, though this is not to a third party (e.g. a competition authority), but rather back to the agency. Though there is a route for recourse to the judiciary, in practice the courts do not have the experience to make the detailed

[240] Kennedy 2002, 222-223.

judgements necessary on regulatory issues. Furthermore, given the looseness of the legislation, it is not clear upon what basis any judgement would be made.[241]

Tariff system: The law 'On Natural Monopolies' specifies that 'prices must not be lower than the costs incurred during the provision of the services and must provide the possibility for the natural monopoly entity to gain profits'. The law permits tariffs that cover operation and maintenance costs, amortisation of (existing) fixed assets, interest on borrowed funds and a return on equity that is sufficient to enable the sector to survive. It does not, however, guarantee such tariffs.[242]

The most complex tariffs exist in the electricity sector. Today, the price of electricity consists of three components. The first is the one charged by producers. The producers sell electricity at one of the lowest prices in the world. For example, in January 2002, the TPP in Petropavlovsk rate was 4.09 TZN/kWh (3.26 US cents/kWh).[243] The second component is represented by the transmission tariff that has to be paid to KEGOC for using its grid. Because these tariffs had been determined by political means in the past and KEGOC had been regularly loosing money, in July 2001, the methodology was changed and consequently the transmission tariffs rose by 23.7 percent and are now at approximately 0.8 TZN/kWh (0.53 US cents/kWh).[244] The third component of the final price includes the fee charged by the distribution companies. This fee is different in various regions. The regulatory agency keeps the prices for households on a lower level than the prices for industrial customers. There are currently discussions in Kazakhstan on how to change the tariff policy to assure future development of the electricity sector and to attract sufficient national and international investment. Gas and electricity prices are determined by a regulatory body, the Agency of the Republic of Kazakhstan for the Regulation of Natural Monopolies. Unlike in other countries this agency 'is not independent of the government, and tariff setting appears to be politically influenced'.[245] The prices are often subsidized and kept low by the regulatory agency.

Subsidies:[246] The largest subsidies apply to the gas and electricity sector. In the oil sector, the prices are distorted to a lesser extent, because the government does not subsidize oil in the domestic market. State authorities force refineries and customers to use domestic oil even in cases where high transaction costs and other factors make it more expensive than oil imports. As a result, the prices of oil in Kazakhstan are sometimes higher than the average world market prices. Kazakhstan has recently pursued a partial liberalization policy. Wholesale electricity prices are determined by the market, transit prices are set by the State Committee for Price and Antimonopoly Policy, and endues prices are established by local governments.

In the gas sector, regulation is strongly influenced by social considerations. Because gas is usually used for heating and thus directly affects the living standard of people, it is heavily subsidized to keep the social peace. According to the International Energy Agency, the

[241] Kennedy 2002, 222-223.

[242] Kennedy 2002, 222-223.

[243] Kazakhstan Electricity Association 2002.

[244] Kazakhstan Electricity Association 2001.

[245] World Bank 1999, 106.

[246] IEA 1999b, 197.

subsidies are as high as 55 percent of the reference price. Cross-subsidies exist, when tariffs below the cost of production are charged to one group of consumers, and the revenue shortfall is made up charging above-cost tariffs from another group of consumers. Other cross-subsidies include the following:

- The present policy of common tariffs coupled with a wide diversity of supply costs means that consumers located in remote areas pay tariffs that are misaligned with true supply costs;
- For social reasons, as winter temperatures can reach far below the freezing point, combined heat and power plants redistribute costs, imposing higher electricity tariffs and significantly undercharging for heat;
- Power companies are forced to raise tariffs to cover losses from non-paying consumers.

A recent UNEP study calculated that, without subsidies in the energy sector, Kazakhstan could achieve a one percent increase of GDP annually while at the same time reducing energy consumption by 19.2 percent.[247] Although subsidies for natural gas, steam coal, and electricity remain high, the government has taken the first steps toward privatization and other substantive reforms in the energy sector, which over time may reduce the subsidies. Kazakhstan should continue to build and enforce the transparent legal infrastructure necessary to provide energy at prices that reflect supply costs.

Taxation:[248] The tax regime outlined below is based on a new Tax Code, which was implemented on 1 January 2002. The main taxes affecting foreign investors operating under the current tax regime are as follows:

- Corporate income tax (CIT);
- Income tax withheld at the source of payment (WHT);
- Value added tax (VAT);
- Personal income tax;
- Social tax;
- Import tariffs.

There is a number of other less material taxes and charges that investors and businesses operating in Kazakhstan can be subject to. These include natural resource taxes, excise tax, property tax, land tax, and vehicle tax. The tax year in Kazakhstan constitutes one calendar year. Kazakhstan's tax system operates on the self-assessment principle. The tax authorities are responsible for verifying the accuracy of calculation and the timeliness of tax payments.

[247] UNEP & IEA 2002, 17.

[248] Ernst & Young 2002, 12-25.

Corporate income tax: The following entities are subject to CIT ('profit tax') in Kazakhstan:

- Resident legal entities (Kazakh legal entities and other legal entities having their place of effective management in Kazakhstan);
- Non-resident legal entities conducting their activities through permanent establishments in Kazakhstan or deriving income from Kazakh sources.

Taxable income includes income received from the sales or provision of goods (works, services), capital gains, income from financial activities and other income. Resident legal entities, including those entities with foreign investments, are taxable on their world-wide income. Non-resident legal entities are taxable only on Kazakh source income.

The general CIT rate is 30 percent. Legal entities, for which land is the main means of production, are taxed at the rate of ten percent. Insurance companies are taxed at the rate of two or four percent on insurance premiums, depending on the type of insurance provided. The rate of branch profits tax is 15 percent. If a foreign legal entity does not have a permanent establishment in Kazakhstan, income tax is withheld at the source of payment as follows:

- Dividends and interest – 15 percent;
- International transportation income – five percent;
- Insurance premiums payable under insurance agreements – ten percent;
- Insurance premiums payable under re-insurance agreements – five percent;
- Management fees, royalties, rents, lease income, and other income – 20 percent.

The applicable rates of income tax withheld may be reduced in accordance with the terms of the relevant double tax treaty.

Value added tax: Sales of goods (works, services) regarded as being supplied in the Republic of Kazakhstan, as well as the importation of goods are subject to value added tax. VAT taxpayers include all enterprises, their branches and subdivisions, and any individuals engaged in entrepreneurial activities in the Republic of Kazakhstan, where these are properly registered for VAT purposes. VAT is charged at a standard rate of 16 percent.

Personal income tax: Individuals in Kazakhstan are taxed relative to their status as residents. Under domestic tax rules, individuals are considered to be tax residents of Kazakhstan for any particular tax year, where they are present in Kazakhstan for at least 183 days during any consecutive twelve-month period ending in that year. Kazakh citizens are always residents of Kazakhstan, provided that their centre of vital interests is located in Kazakhstan. Double tax treaties may provide different rules to determine residency. Resident individuals are taxed on their worldwide incomes, whilst non-residents are only taxed on incomes received from sources in Kazakhstan.

The following incomes are included in the incomes of taxpayers subject to tax at source of payment:

- Wages in cash, or in kind, less statutory allowable deductions;
- Dividends, remuneration and winnings;
- Grants, but not stipends paid to persons studying in educational institutions within the statutory established state norms;
- Insurance payments related to accumulative policies.

The following incomes are not subject to tax source of payment:

- Capital gains;
- The income of individual entrepreneurs;
- The income of lawyers and private notaries;
- Other incomes received from outside the Republic of Kazakhstan.

It is the responsibility of the individual to pay personal income tax on incomes not subject to tax at source of payment.

Wages: Employers are entitled to set the wages of their employees independently. However, all wages must be equal to, or greater than, the statutory approved minimum monthly wage. The minimum for the year 2002 is set at 4,181 Tenge (approximately $27). Kazakh legal entities may only pay their Kazakh employees in Tenge.

Social tax: In Kazakhstan, employers are required to contribute social tax at the rate of 21 percent of the gross payroll. For foreign employees, contributions should be made at the rate of either 21 or 11 percent. The latter rate is applicable to the foreign specialists classified as 'administrative, managerial and technical'. For individual entrepreneurs (excluding entrepreneurs subject to the special tax regimes discussed below), private notaries and advocates, the rate is three times the monthly-specified index (approximately $16).

Import tariffs: The customs duty rates payable on goods imported into Kazakhstan are dependent upon the type of goods imported. Only in very limited cases are goods exempt from import duties. Such cases include goods covered by legislation relating to foreign investments and goods imported by subsurface users. In addition to customs duties, an administrative customs clearance fee is payable at the rate of either 0.2 or 0.4 percent of the customs value of the goods, depending on the time and place of importation.

Taxation of subsurface users: Businesses engaging in the extraction of mineral resources in the Republic of Kazakhstan (usually referred to as 'subsurface users' under Kazakh law) operate under special tax regime provisions established in subsurface use contracts. Tax regimes in subsurface use contracts are established by the Government of the Republic of Kazakhstan. Prior to their conclusion, all subsurface use contracts are subject to compulsory tax reviews. The purpose of such reviews is to determine an appropriate tax regime and to establish any specific taxes or special payments applicable to subsurface users under contract. Tax reviews are usually conducted on a contract-by-contract basis, taking into account the

specific conditions of the respective subsurface users. Tax regimes established as a result of tax reviews become constituent parts of subsurface use contracts.

Subsurface users are covered by one of the following two tax regimes. The first regime envisages the payment by the subsurface user of all the generally established taxes and other payments provisioned in the Tax Code. The second regime envisages the payment (transfer) by the subsurface user of a share of the production to the Republic of Kazakhstan.

Market exposure: The breakdown of the Soviet Union had a devastating effect on the economy. Between 1990 and 1995, GDP declined 44 percent.[249] The reasons included the disintegration of traditional markets; the breakdown of supply lines between enterprises within the FSU; non-competitiveness of local production; non-payment in all branches of the economy; endemic corruption; and the collapse of local currencies. However, unlike other Central Asian states, Kazakhstan opted for structural reforms including privatization.

Like other EITs that emerged from a system of proclaimed economic equality, some people got rich very fast, while the vast majority lagged behind. In today's Kazakhstan, the distribution of wealth is highly unequal. In 2000, the oil-rich region of Atyrau Oblast had an average per capita income of $14,677, while Zhambyl Oblast in the south recorded only $1,952. The years of transition led to large structural changes in the economy. The importance of the agricultural sector sharply declined due to inefficiency, over-employment and droughts. In contrast with other EITs, the industrial sector share increased because of the fast expansion of oil and gas extraction as well as the oil-processing industry. The service sector now accounts for the largest share of GDP, but its importance may decrease if the oil boom continues in the future. Privatization and retail sector development have lead to an increase of the private sector share in the economy from zero percent in 1990 to an estimated 75 percent in 2000.[250]

In February 2002 the former state oil company Kazakhoil was merged with the natural gas distribution company KazTransGaz into a new state-owned giant called Kazmunaigaz. The main aim was to ensure a unified state policy in the field of strategic mineral resources. All three oil refineries were sold to foreign investors in 1997, but eventually two of them returned to the property of Kazakhoil.[251] Also the pipelines are to some extent controlled by the state company. The government thus controls the main parts of the oil sector and there is virtually no competition. Although the extraction of oil is organized by joint ventures headed by foreign oil giants, they have to comply with the government's provisions in this strategic sector. Moreover, they focus mainly on exporting oil and are not involved in the domestic oil market. This state of affairs is unlikely to change in the future, as the president and powerful officials see the oil as strategic sector where full liberalization is not desirable.

In 1997, the natural gas transmission network was privatized and a 15 years lease-contract was awarded to Tractebel (Belgium).[252] However, Tractebel faced a number of traditional problems, including non-payment and government intrusions, and left the country in 2000. After that the state company KazTransGaz was formed, which in 2002 became part of Kazmunaigaz. The local distribution companies are also in state hands. The reform in the

[249] European Commission 2001c.

[250] ICSD CA 2000.

[251] Peck 2002, 42.

[252] World Bank 1999, 123.

natural gas sector is widely considered a failure and the current state of affairs is virtually the same as it was at the beginning of the privatization.

According to the World Bank, the efficiency in the operation of the now largely privatized power sector has improved significantly. Many companies such as AES seek to produce electricity at lower prices, enhance the maintenance of power plants, and reduce the level of non-payment. However, a competitive market in electricity has not yet emerged. Many power producing companies acquired local distribution networks adjacent to their power plants and they operate virtual monopolies in some areas of the country. On the other hand, with open competition, the risks for investors — in particular because of fluctuating electricity prices — may have been so high that privatization would not be possible.[253]

The World Bank report summarized the reasons for privatization as follows: 'Why the privatization occurred, can simply be distilled to a combination of crippling budget deficits with the possibility of system collapse, and an extremely determined Minister of Energy who believed that the only way to stop the power sector from further adding to the deficits was to get them off the government's books. The ultimate decision was, however, driven more by the fear of an imminent system collapse'.[254]

The government promised to investors in electricity production that KEGOC would buy electricity from them at prices that had been negotiated during the privatization process, but when KEGOC was unable to meet its contractual obligations due to lack of cash, the state did not reimburse KEGOC, also because of a lack of money.[255] The government tried to implement single buyer model with KEGOC as the only purchaser of electricity from generators. KEGOC was supposed to sell the electricity on to distribution companies. However, because KEGOC did not pay the bills, the electricity generating companies had to find more reliable and wealthy customers. Thus, a spontaneous multiple buyer model has emerged on the basis of bilateral contracts between producers and customers. The government had little choice but to approve this state of affairs by determining than entities with a demand of 5 MW and more can negotiate the price directly with producers.[256]

2.3.2 *Description of sub-sectors*

Lighting: See section 3.2.3.1.

Hospitals:[257] According to the Healthcare Agency of Kazakhstan, government healthcare expenditures in Kazakhstan reached an estimated $359.7 million, or about $24 per capita in 2000. Total healthcare expenditures amounted to 2 percent of Kazakhstan's gross domestic product (GDP) in 2000. Expenditures in 2001 are estimated at $340 million, which is about 1.7 percent of Kazakhstan's GDP in 2001. Domestic service providers account for 99 percent of healthcare providers in the Kazakh market.

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[253] World Bank 1999, 113-114.

[254] World Bank 1999, 104.

[255] Peck 2002, 50.

[256] World Bank 1999, 16-18.

[257] United States Department of State 2001.

The healthcare services industry in Kazakhstan consists of public and private healthcare providers. They include hospitals, offices and clinics of medical doctors, other specialized healthcare facilities, and health insurance providers. State healthcare facilities are divided into two groups: state medical organizations fully supported by the state budget, and public medical enterprises, reimbursed by the government for a certain amount of medical services provided to the public, but allowed to render fee-for-service care as well. State medical organizations include specialized facilities such as TB hospitals and dispensaries, psychiatric clinics, ambulance service, blood transfusion stations, and sanitary epidemiological stations.

There appears to be a trend toward rationalization of hospital care in the face of increasingly expensive care. The result has been a substantial reduction in the number of hospital beds, together with the growth of small outpatient facilities (so-called family healthcare units). Budgetary constraints have led the government of Kazakhstan to allow private health care delivery and insurance to play a more active role. The private sector in Kazakhstan is represented by 2,500 private companies and entrepreneurs engaged in medical practice. More than 600 public facilities were privatized. From 1998, the number of private hospitals increased by 30.5 percent and private outpatient facilities increased by 15.7 percent. More than half of private clinics and hospitals concluded contracts with regional healthcare departments to provide certain medical services to be paid from regional state budgets.

Structure of the healthcare system: The main regulatory body is the Healthcare Agency of Kazakhstan. Kazakhstan is divided into regions called oblasts. Every oblast has a Healthcare Department adjacent to the oblast administration (Akimat), the highest administrative body for an oblast. The Oblast Healthcare Department receives funds from the oblast budget and has sole responsibility for distributing them to healthcare facilities in the oblast. Also, it is responsible for licensing and supervising all the healthcare providers in the oblast.

All medical services providers in Kazakhstan have to obtain a license from the regional healthcare administration. The license is given for an unlimited period. Terms and conditions of getting licenses for foreign entities is the same as for local entities. Providers of healthcare services do not pay value-added tax.

Medical insurance: Obligatory medical insurance was launched in Kazakhstan by the government in 1995, but the failure of the system in 1998 proved that the scheme was not properly thought out. The Fund for Obligatory Medical Insurance (FOMS) received transfers from employers. The experiment turned into a fiasco when the managers of the fund embezzled vast sums. The Kazakh government plans the re-introduction of a mandatory medical insurance programme. It believes that it is the best way to deal with the chronic problems of financing the public healthcare system.

District heating:[258] Because of the northern climate with cold and long winters, Kazakhstan consumes huge amount of energy for heating. In 2000, more than 30 million tce of fuel were used for heating, of which about 50 percent was used by the residential sector in the cities.[259] District heating (DH) systems cover more than half of heating needs in cities, but they are

[258] This section was written based on information from UNDP and Mr. Gennady Doroshin.

[259] UNDP, not dated/b.

generally both inefficient and unreliable.[260] The reasons are not only technical (old and poor quality equipment), but also financial and institutional.

There are 42 large DH systems connected to 38 large co-generation plants (CHP) and 24 boiler houses. Total power capacity of CHP constitutes 6,700 MW, or about 38 percent of all power generation capacity in Kazakhstan, and 35,000 MW heat capacity. The total heat capacity of is about 5,800 MW. Most co-generation plants use coal and cannot match the environmental standards set by modern, co-generation facilities. The efficiency of the DH systems is low, with losses reaching up to 50 percent of primary energy used. The main causes for losses are old, obsolete equipment and a leaky distribution network. In comparison, the overall system losses of modern, well maintained DH systems are normally in the range of 20–25 percent, or less if the additional benefits of co-generation are accounted for.

At the institutional level, the energy sector in Kazakhstan has gone through significant changes during the past few years with the aim to liberalize the sector. All power producers, including CHPs, and most DH companies have been re-organized as joint stock companies. Many CHPs, along with connected DH systems, have been sold to foreign investors, while the boiler houses are still in the process of privatization .The ownership of such DH systems are divided between private enterprises and municipalities; a few are fully owned by municipalities. According to the 'Law on Energy', power and heat are to be evaluated as commercial commodities and the relations between the heat supplier and consumer are to be regulated by business agreements. The government retains the right to assume regulatory functions in case of monopolistic trends. The government's Antimonopoly Committee regulates DH companies by setting heat tariffs, which are determined based on the calculated heat supply costs.

2.3.3 *Addressing the problems*

Although Kazakhstan has made significant improvements in terms of reducing its energy intensity since it gained independence, the situation in the energy sector is still alarming. Some barriers are difficult to change, including the harsh climate, a large land area with low population density, which leads to higher energy demand and energy losses due to long transport routes. The legacy of waste from the past, the structure of the economy that was based on energy-intensive industries, still affect the present and are likely to prevent any swift EE improvements. In the following list, we therefore name only the problems where there is a chance of implementation given sufficient political will.

- *Subsidies:* The level of subsidies is still too high, mainly in the gas and electricity sector. Cross-subsidies exist in favour of small consumers whose low prices are balanced out by higher prices paid by industrial customers. Price hikes carry a risk of undermining social peace, but it is better to gradually deregulate prices and then pay social compensation to the poorest segment of the population.[261]
- *Extensive non-payment:* As in other countries of the Former Soviet Union, non-payment is widespread. In some cases, only about 20 percent of the bills are

[260] UN ECE 2000a, 199.

[261] The Antimonopoly-Committee set the level of prices, which is kept low because of social concerns and often is below the cost of production. This situation is unbearable for producers because it makes it impossible for them to invest in rehabilitation and proper maintenance of their facilities. As a result, further deterioration occurs.

collected.[262] The investors that came during privatization succeeded to improve this level significantly (sometimes to more than 90 percent), but they used harsh measures such as cutting off supplies – measures that were opposed by both the public and the government. In the places where the distribution companies are still the property of state or municipalities, the customers are not forced to pay. If the prices of energy are low and payment is not enforced, no one can expect that the customers would save. The incentives in the Law on Energy Conservation are not used because there are no funds for them.

- *Lack of metering devices:* In majority of cases, there are no devices that would determine how much energy each customer exactly spends. Instead, a flat rate (or a rate based on the number of people) is applied in the case of housing sector and mere estimates in the case of the industrial sector.
- *Unsuccessful privatization:* Although Kazakhstan opted for fast privatization of its gas, oil, and electricity sectors, most efforts resulted in failure. In the gas sector, distribution networks and pipelines returned to state hands. The same is valid for some parts of the oil sector. In the electric power industry, frequent disputes between investors and the state over the level of tariffs have taken place and some investors preferred to leave the country rather than continue squabbling with the government. The government has often been blamed for not facilitating the negotiated privatization contracts.
- *Insufficient funding for EE:* Despite the fact that the government of Kazakhstan has proclaimed EE as its priority, the money provided shows that it is not a real priority. There is no special item for EE in the state budget. Some municipalities have invested in district heating improvements, but these amounts are negligible as their sources are limited. As it is extremely difficult to obtain credit on commercial terms in Kazakhstan and especially for projects where risks are high, multilateral and bilateral financing often serve as the last resort. The establishment of local ESCOs could break this barrier in the future.
- *Coordination and cooperation of stakeholders:* The coordination and cooperation among various actors in EE (state, municipalities, businesses, MIs, NGOs, etc) is low. Due to the long distances and insufficient infrastructure, the level of communication is inadequate and sometimes overlapping. Joint endeavours are virtually non-existent. The role of MIs in solving this problem would be indispensable, although even these actors had many problems with coordination and cooperation in the past.
- *Lack of experts, know-how, and experience:* The number of local experts that would be able to participate in creating new 'bankable' project designs, to perform energy audits in the enterprises is limited. Few people are experienced with new technologies and know-how. It takes some time before sufficient capacities are trained. The capacity building provided by MIs is crucial to achieve this goal.

[262] Robinson 2000.

2.4 Russian Federation

2.4.1 *General characteristics of the energy sector*

Russia is rich in natural resources, owning the world's largest natural gas reserves, the second largest coal reserves, and the eighth largest oil reserves. It is also the leading natural gas exporter and the second major oil exporter. Russia's economic growth over the last few years has been strongly stimulated by energy exports. Oil production was increased and world oil prices remained fairly high. The country's economy is strongly dependent on oil exports and world oil prices.[263] The World Bank has suggested that the oil and gas sector may have accounted for 25 percent of Russian GDP in 2003.[264] Following the United States and China, Russia is the world's third largest energy consumer.

The state owns the controlling share of the power industry, the oil transportation system, and a number of coal and oil companies. The joint-stock company Unified Energy Systems of Russia (RAO UES Russia) originally emanated from the GOELRO (the State Commission for the Electrification of Russia) plan on 22 December 1920. It was established by the State to improve the transmission of energy resources between energy-rich and energy-lacking districts of the country. The company should also distribute resources between the country's strategic directions. The Russian energy sector consists of three levels — energy production, energy transmission, and energy consumption. Each level has commercial organizations, energy joint-stock companies that are subject to various mandatory regulations such as establishing tariffs and state standards. RAO 'UES Russia' owns the majority share of the energy sector and controls these companies. It holds the majority share of energy producing and distributing companies. The Russian power sector is thus represented by RAO 'UES Russia'.

Since 1992, the government has been working on adapting energy policies and strategies to the new economy. In 1995, *The Basic Directions of Energy Policy of the Russian Federation for the Period until the Year of 2010* were adopted by Presidential Decree. *The Basic Conceptions of Energy Strategy of Russia* was later affirmed by resolution of the government. During the past years, the energy sector managed to meet the energy demands of the country, preserve the country's energy independence, reduce the industrial pressure on the environment, and restructure natural monopolies. However, the country failed to diminish the country's energy consumption, improve the investment climate, and provide a solution for the non-payments and debts problem. These failures have been attributed to financial crises in the last decade, as well as to the drawing of funds from the energy sector to support the state's budget, rather then preserving them within the sector.

The strategy affirmed by the government on 23 November 2000 provided guidelines and measures to serve the interests of both the investors and the state. The strategy pointed out the needs of reforming tax legislation, reconstructing the Fuel and Energy Complex, and invigorating the investment climate. The document does not provide predictions about how the sector would develop.

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[263] Kreil 2004.

[264] World Bank 2004.

Energy supply: Russia is rich in natural gas, coal, and oil reserves. Most of Russia's energy resources are located in Siberia. Its harsh climate and permanent frosts are important barriers to the extraction and transport of fuels. The world's largest gas reserves — 1,680 billion Tcf — are found in Russia. The country's major gas production fields are Yamburg, Urengoy, and Orenburg, which account for about 80 percent of the state's overall gas production. The gas sector is run by the state monopoly Gazprom. The company operates the country's natural gas pipeline grid consisting of 149,000 km of gas pipelines, 154 complex gas treatment facilities, 9,157 gas-wells, 570 oil wells, 6 gas, gas condensate, and oil processing factories, 253 compressor plants, 22 underground gas storage facilities, and 3,602 gas distribution stations.

Although Russia is the world's largest natural gas producer and exporter, its gas industry has not grown significantly since the country's independence. Russia's latest energy strategy released in May 2003 calls for moderate production growth by 2010.[265] According to the EIA, Russia's natural gas sector has been stunted due to ageing fields, state regulation, Gazprom's monopolistic control over the industry, and insufficient export pipelines. Gas is sold in Russia through Gazprom's subsidiary Mezhregiongas. The domestic market receives natural gas at a price regulated by the government, about $25 per thousand cubic metres. Gazprom obtains two-thirds of its revenues from its export sales to Europe where its gas is sold from $100 to $125 per thousand cubic metres.[266]

Russian oil reserves are estimated at 60 billion barrels and are located in Western Siberia. Five companies had dominated 70 percent of the country's production until 2003, Yukos, LUKoil, Surgutneftegaz, Tyumen Oil Company (TNK), and Sibneft. About 150 small and medium sized oil companies produce the remaining 30 percent. In 2003, TNK merged with British Petroleum (BP) forming the TNK-BP, the biggest single foreign investment made in the country since the collapse of the Soviet Union. The company has 4.1 billion barrels of oil reserves and produced 1.2 billion bbl/d in 2003. In 2004, TNK-BP announced that it is planning to build a new marine terminal in the Gulf of Finland.

A merger between Yukos and Sibneft was announced in April 2003 and annulled in February 2004. The $12-$15 billion new company, YukosSibneft, would have been the country's biggest oil company, with reserves of 18.4 billion barrels and production capacity of 2.2 million bbl/d. However, Russia's Procuracy General investigated Yukos and arrested important figures in its ownership, including the head of the company. About half of the company's shares were seized.[267]

Russia' coal reserves are the second largest in the world and amount 173 billion short tonnes. Russia worked with the World Bank at restructuring the country's coal industry from 1996 to 2001. RossUgol — the state-monopoly — was dissolved and independent producers now provide almost 80 percent of domestic coal production. A steady increase in coal production started in 1999 and has been kept through 2003. Russia's energy strategy indicates that coal production should reach between 441 and 496 million short tonnes by 2020.[268]

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[265] Kreil 2004.

[266] Kreil 2004.

[267] Kreil 2004.

[268] Kreil 2004.

The electric power sector of the Russian Federation has sufficient power production potential. There are about 450 power stations in the country, with the generation capacity of more than 200 GW. The Russian power sector produces enough electricity for the national market, and it also exports power to Europe and the former CIS countries, for example, Moldova and Ukraine.

The Russian energy supply showed a strong decline in the first part of 1990s, but is now recovering and energy production is increasing. However, much is still to be done to improve the production efficiency and to introduce environmentally sound technologies. For these purposes, Russia seeks to attract investment capital from domestic and foreign investors, including multilateral institutions. Russia is a party to the United Nations Framework Convention on Climate Change and potentially has much to gain from the Kyoto regime.

Transmission infrastructure: Energy and energy products are transmitted in the Russian Federation via an installed grid or network of pipelines, or via tanker and motor transportation. In the power sector, RAO 'UES Russia' owns and operates the grid with the voltage of more than 330 kilovolts. Gazprom owns a network of high pressure pipelines with a total length of 140,000 km. Gas distribution is performed by a number of regional and municipal gas companies, which work under a former gas-distributing monopoly, 'Rosgas', the shares of which are state-owned. The government has declared in the new energy strategy that the de-monopolization of gas transmission and distribution should be performed, which would guarantee that the same transport tariffs would be levied from the independent gas producers. So far, however, the success was insignificant.[269] In the field of oil transportation, 'Transneft', the oil distribution monopoly, owns the oil pipelines, 48,000 km long for crude oil transportation, and 15,000 km for petroleum products transportation.

Outside the country, Russia has the oil export pipeline Druzhba (1,2 million barrels per day nominal capacity), and several gas export pipelines – Bratstvo, Progress, Soyuz (1 ton of cubic feet), Northern Lights (0,8 Tcf), and Yamal (0,1 Tcf).[270] In an effort to reach new markets, Russia is planning to build several new oil and gas export pipelines. The Blue Stream gas pipeline to Turkey is currently under construction, and the Government of the Russian Federation now plans to construct several more gas pipelines to reach European customers. In addition, Baltic oil pipeline system is constructed, and the setting up of a pipeline to China is also expected. One of the major concerns of Transneft and Rosgas is the upgrading of the pipeline system inside the country. Illegal tapping is also a problem. According to the Ministry of Fuel and Energy, about 5 percent of oil is lost in this way.

Energy demand: Russian energy demand declined after the collapse of the Soviet Union. The International Energy Agency (IEA) estimates that in 1993 about 4.5 tonnes of oil equivalent (toe) were used to produce $1,000 of Russia's GDP. Economic crisis lead to a decrease in energy production and consumption. Private energy companies substituted the main consumer, the state. In 1997 this figure dropped to 1.34 toe.[271] However, this is a high proportion compared with the average of 0.23 toe needed to produce $1,000 of the GDP of OECD member countries.

[269] IEA 1999a, 88.

[270] Kreil 2004.

[271] IEA 1999b, 56.

Russia is at present the world's third largest energy consumer. The country's vast fuel reserves and the absence of an internal market have allowed the economy's high energy intensity. It has been suggested that the country's high energy consumption is due to its low energy prices, reducing the costumers' incentives to save energy. The adjustment of state tariffs, balancing the costumers' low purchasing power and the need for investment, is yet to be solved. The employment of worn-out equipment and the poor insulation of residential buildings are also important areas of opportunity for energy savings. Russia is in the process of making important structural reforms to allow market mechanisms to drive the energy sector.

Table 2.10 Energy resources production, consumption and exports in 2002

	Production	Consumption	Exports
Oil million bb/d (2003E)	8.44	2.68	5.76
Coal million short tonnes**	259.3	268,3	---
Gas Tcf	21	14.5	6.5
Electricity Bkwh	850.6	780	70.6

Note: *One short ton = 907.2 kilograms.

Source: Russia Country Analysis Brief 2004.

Fuel mix: Fuel mix is the combination of fuels extracted and consumed in a country. Russia's fuel mix has changed several times due to new technologies and concerns for the environment. In the latter part of the 19th century, it was dominated by hydropower. After 1930s, coal became a favourite fuel to employ and to invest in. It was soon substituted by gas, which was not as difficult to transport as coal. Natural gas accounts for 50 percent of Russia's fuel mix. It is expected that gas might soon 'gain its share from the oil, coal and, in the longer term, even from the nuclear power generation'.[272]

Administrative regulation and control: The whole energy sector of the Russian Federation is under the supervision of the Ministry of Fuel and Energy of the Russian Federation (Mintopenergo), except for the nuclear industry, which is under the control of the Ministry of Atomic Energy of the Russian Federation (Minatom).

Since the efficient production and distribution of energy is of great importance for most sectors of the country's economy, the Russian Federation has established a system of state regulation of the activities of organizations working in the energy sector. It has been recognized that in certain fields of energy production and distribution, such as oil and mineral oil main pipeline transportation, gas pipeline transportation, services of transmission of electrical and heat energy, competition is adverse.[273] The Federal Law on Natural Monopolies of 1995 provided that these parts of the energy sector should be natural monopolies, in order to lower production costs and raise the levels of goods quality. The activities of subjects of natural monopoly are, in accordance with the applicable legislation, subject to state control of

[272] Dudarev, not dated, 3.

[273] SZ RF 1995a.

Natural Monopoly Regulation Agencies, which would cease to exist when an opportunity offers the development of competition on a certain market.

Whereas the energy sector is closely connected with the extraction of fossils, the state regulates the usage of subsurface mineral and other resources. In the Russian Federation, one may use the interior and extract minerals only if it holds a special permission in the form of a license. Each license holder is subject to the control of licensing authorities: he must adhere to the conditions of the license on penalty of its revocation. The users of the minerals should also observe the plans and projects of mining development and safety regulations, they should keep adequate geological accounting, provide the state geological agencies with the required information.[274] The Law 'On the Subsoil' of 1992 is now the legal basis of the oil industry.

The activities in the Energy Sector are subject to state licensing under the Federal Law 'On Licensing of Certain Types of Activities'. The quality of the fuel and energy produced should be no lower than it is established in the GOSTs, or state standards, as provided in the Federal Law 'On standardization'. Various other mandatory requirements for the companies of the Energy Sector may be established in the applicable legislation of the Russian Federation.

Regulatory bodies: The Federal Energy Commission: Oil and mineral oil main pipeline transportation, gas pipeline transportation, services of transmission of electrical and heat energy are the spheres of natural monopoly of the Russian Federation.[275] The activities of commercial and non-commercial organizations - natural monopolies are subject to state regulation of federal executive bodies for regulation of natural monopolies (in the Energy Sector this is the Federal Energy Commission; hereinafter the 'FEC'). The FEC has its territorial agencies – Regional Energy Commissions (RECs) – to which the FEC has transferred some of its regulative powers.

The FEC has the two functions: firstly, the regulation and control of the activities of the subjects of natural monopolies, and secondly, the state regulation of tariffs on electrical and heat energy.[276] It regulates electric and thermal energy transportation services, energy (capacity) tariffs for the Federal Wholesale Market of Electricity and Capacity (FOREM), transportation oil through the main pipelines, etc. The FEC is also responsible for developing and implementing a single system of cost classification and cost accounting in power supplying organizations, as well as a uniform system of reports to be submitted to the FEC and RECs.

The FEC may resort to the following fields of regulation:

- Cost adjustment, which is effected by means of determining or establishing of prices (tariffs) or their limits;
- Identifying consumers subject to mandatory servicing, or establishment of minimal levels of maintenance in the case of impossibility of the full satisfaction of their demands of the goods produced (distributed) by a subject of natural monopoly, taking into consideration the necessity to protect the rights and legal interests of people, the state security, the environment and the cultural values.

[274] SZ RF 1995b.

[275] SZ RF 1995a.

[276] SZ RF 1996.

The FEC is empowered to control operations performed with regard to or with the participation of subjects of natural monopoly, if such operations may result in infringement of consumers' interests or containment of economically sound transition of a corresponding goods market from the state of monopoly to the state of competitive market.[277] Thus it may control all the transactions, which result in the subject of natural monopoly's acquisition of property rights to permanent assets, investments of a subject of natural monopoly in the production of goods, etc. To be able to perform one of the listed transactions, a subject of natural monopoly should send in an application for the permission and provide all of the information required to make a decision. The FEC is managed by the Commission's administration, which is formed by the chairman, who in turn is appointed by the President of the Russian Federation. The FEC is empowered to create regional commissions (RECs), which would establish regional tariffs.

Tariff system: Electrical and heat energy, which is supplied to consumers, is priced in accordance with the tariffs established by the FEC and the RECs. The FEC establishes the tariffs on the wholesale market, and the regional commissions determine the tariffs for regional markets. Consequently, the regional tariffs follow the federal, but with a little delay. The tariffs vary depending on the region, the producer, the customer or the type of transporting. In the gas industry, for instance, the FEC establishes different tariffs for transmission via main pipes and gas service pipes, as well as for Gazprom organisations and independent ones, which are not in the system of OAO Gazprom. Then these tariffs are further differentiated depending on the group of customers. Special tariffs are also established for the power energy sold to and from FOREM – the Federal Wholesale Market of Energy (Capacity). In 2000, special tariffs were established for the power energy supplied to the Chechen Republic.

There is a project to establish a Single Tariff Body, which would have powers to regulate all the state tariffs, including even the prices for the services of public transport in the country. This project is yet under consideration and the works on the preparation of the Provisions of the Single Tariff Body are now carried out.[278] It is difficult to review heat and electricity prices across Russia. The following tariffs were adopted on 13 February 2002 in St. Petersburg.

Table 2.11 Electricity tariffs (extracts)

Groups of consumers	Tariffs (RUR/kwh)
Industrial consumers with 750 kilovolt-ampere and more:	
- basic payment	87,34
- excess payment	0,51
Other consumers not included in other tariff groups	0,90
Population (dependent on the type of residential houses and/or the type and the function of the building, availability of watt-hour meter, location)	0,27 – 0,90
Electric energy used by the population for district heating	
- day tariff	1,24
- night tariff	0,33

[277] SZ RF 1995a, Article 7.

[278] MFIT 2001.

Table 2.12 Maximum tariffs on heat energy in St. Petersburg

Paragraph No.	Fixed Capacity (Giga calories/hour)	Tariff (RUR/Giga calorie)
1.	Below 1 (inclusive)	496,00
2.	From 1 to 3 (inclusive)	399,00
3.	From 3 to 20 (inclusive)	303,00
4.	From 20 to 100 (inclusive)	243,00
5.	More than 100 (inclusive)	209,00

Note: Heat energy is supplied by three enterprises of St. Petersburg, the tariffs are different for each.

Subsidies: During the Soviet period, and in the realities of the command economy, the USSR's Energy Sector was actively subsidised from the budget. This has resulted in a growth of the energy consumption on a background of artificially low prices, which had a negative effect on economic efficiency, environment protection, and on the structure of the state budget. Nowadays Russia has reached some success in energy pricing, but the share of subsidies in the sector is still high.

It is interesting to point out that, in the opinion of the International Energy Agency, the non-payments and delays in payment are the main form of subsidies.[279] The non-payments commonly occur in the industry sector, while the non-industry customers usually pay on time. The level of subsidies for consumption is also very high, especially in the gas and power industries. The subsidies to the oil industry were cut down substantially, since the oil prices were freed. However, they do not follow the world oil prices, because of the pipeline capacities, tariff regulations on oil transmission, and state control. In 1997, the total amount of subsidies to the energy sector was about 188 billion roubles or $12.5 billion. From this total, 62.85 billion roubles were spent on the power industry and 121.9 billion roubles on the natural gas industry.[280] The Russian District Heating System receives a share of subsidies.

As suggested in the International Energy Agency's Review, the cancellation of the subsidies would promote the decline of energy demand (the demand of gas would abate by one third, the demand of power energy – by one fourth[281]). However, this cancellation should be combined with various measures to mitigate harsh consequences in the social sphere. The prices for natural gas and electricity should be exposed to market mechanisms, as it was done in 1993 in the oil industry. Therefore, it is one of the reasons to de-monopolize these sectors. The competition and the presence of the third parties on the market can help release the budget from the weight of subsidies and to diminish the level of energy consumption. The energy sector should turn into a profitable operation from an intensively subsidised industry.

Taxation: All energy producing, transferring and distributing organisations are involved in commercial activities, and should therefore pay taxes. The tax proceeds from the energy sector constitute a very big part of the overall tax proceeds. In 1997, only the taxes paid by Gazprom

[279] IEA 1999b, 90.

[280] IEA 1999b, 91.

[281] IEA 1999b, 96.

constituted 25 percent of all the tax dollars. The Russian tax legislation is highly complex and the country struggles with very high rates of tax evasion. Tax laws are currently represented by the Federal Tax Code and a number of Federal Laws adopted in compliance with it.[282] This Code has established the system of taxes paid to the Federal budget, as well as the basic principles of taxation in the Russian Federation. The Russian Federation system of taxes is currently established in the Federal Law 'On the Basics of the System of Taxation in the Russian Federation' of December 27, 1999, No 2118–1. In accordance with Articles 18–21 of this Federal Law, there is a three level system of taxation in the Russian Federation. At each level (federal, regional or municipal), different taxes are levied to different budgets.

The organisations of the Energy Sector pay the same taxes as the ordinary commercial organisations. On the federal level, there are the following taxes: Value Added Tax ('the VAT'), excises, unified social tax, customs duties, mineral rehabilitation tax, payments for use of natural resources, profits tax, taxes to the road funds and state duties (levied for the commitment of the legally important acts by the state authorities).

- *Value Added Tax:* Legal entities are obliged to pay this tax for the turnover (transaction) when selling goods (providing services) on the territory of the Russian Federation. The rate of the tax is 20 percent.
- *Excise taxes:* The excises are paid either in a fixed sum for the volume of the sold goods or in percent of the cost of the under-excise goods or services. The objects of excises may be divided into two groups: excise goods and excise raw materials. Among the excise goods in energy sphere are gasoline and diesel oil. Oil and natural gas are the excise raw materials.
- *Unified Social Tax:* This tax is paid to the 3 non-budgetary funds of the Russian Federation — the Pension Fund, the Social Insurance Fund and the Medical Insurance Fund — and is aimed at mobilising assets for realisation of the citizens' rights to pension and social maintenance and medical security. The tax rate is 13 percent of all sums that are paid by the employer to his employee, except for pensions, welfare payments, financial aid and several other payments.
- *Mineral Rehabilitation Tax:* Only users of the earth's interior who exploit mineral resources at the state's expense pay this tax. Its rate is established in the Federal Law of 30 December 1995, No 224–FZ, 'On the Rates of Assessments to the Budget for Reproduction of Mineral Source of Raw Materials'. The tax base is the cost of the raw material exploited and sold.
- *Payments for the Use of Natural Resources:* These payments are made in accordance with the limits set up by the Russian government.
- *Profits tax:* From January 2002, the new chapter of the Federal Tax Code regulating the profits tax is in force. The tax is paid on the revenues of the organisation diminished by its expenditures.
- *Taxes to the Road Funds:* These are the tax on the users of automobile roads (one percent of profits, the tax is calculated separately on each type of the enterprise's activity) and the tax on the owners of automobiles (the exact tax rates are specified in

[282] SZ RF 1998; SZ RF 2000.

the Law of the Russian Federation of 18 October 1991, No 1759–I 'On Road Funds of the Russian Federation').

On the regional level, legal entities pay the following taxes: property tax, forest tax, payment for water, payments levied for the needs of educational institutions, sales tax, and the unified tax for the imputed earnings from certain types of activities.

- *Tax for the Property of Enterprises:* The assets of an enterprise, which are on the enterprise's balance sheet, are subject to taxation. The tax is calculated based on the middle value of the company's assets during the financial year.
- *Payment for water:* The object of the taxation here is water consumption with the use of technical equipment. The tax rate is established based on the following grounds: the amount of water inlet, the space of the defined area of water, the quantity of goods manufactured with the use of the inlet water, and the passed water quantity.
- *Sales Tax:* The tax is levied from every sale conducted by an enterprise. The maximum rate of the tax is established at a five percent level.
- *Unified Tax for Imputed Earnings:* The imputed earnings are the earnings that may potentially occur. This tax is usually paid by the organisations in the services business and is not applicable to the energy sphere.

There are also a number of taxes collected at the municipal level. The Federal Law only contains the list of the taxes that may be established in the Subjects of Federation and municipalities, but are not necessarily established.

Advisory services: In the Russian energy sphere, they are mainly conducted by non-profit organisations, which were specially organised for rendering such services. Among the most well-known of them are the Centre for Energy Efficiency (CENEf), the Russian Union for Energy Efficiency, the Russian Interregional Association of Engineers in Heating, Air Conditioning and Thermal Physics (ABOK), the Association of Energy Managers (ASEM), the Association 'Russian Demonstration Zones' (RUSDem), Russian–Dutch Institute of Energy Efficiency (RDIEE), the Centre of Energy Policy, among others.

CENEf is a non-profit, independent Russian organization founded in 1992 to promote energy efficiency and environmental protection in Russia. It organizes 3–4 exhibitions per year attended by hundreds of Russian and foreign experts. It also holds the National seminar and exhibition 'Energy Efficiency – Business in Russia', seminars on energy efficiency for the subjects of Federation. CENEf has also helped establish energy efficiency centres in the Russian Federation regions and it publishes the quarterly bulletin Energy Efficiency in English and Russian. The Russian Union for Energy Efficiency organizes seminars and exhibitions on energy efficiency as well, but it also renders audit and consulting services in the field of energy efficient technologies and assists Russian enterprises in attracting capital to produce or buy energy efficient equipment. The ABOK is engaged in professional training, holding seminars 'Energy Efficient City' in various cities and regions. RUSDem, apart from working out the energy-saving policy, also assists in the cooperation of the energy efficient project participants with international, governmental, public and financial institutions.

Market exposure: The exposure of the Russian energy sector to market forces has increased through the past decade through the gradual de-monopolization processes in the energy industry. However, especially in the energy sphere, there are a lot of remnants of the command economy. Among them are lowered energy tariffs for domestic markets, subsidizing, and remaining state monopolies in some spheres of the energy industry — oil and mineral oil main pipeline transportation, gas pipeline transportation, and transmission of electrical and heat energy. According to the new Energy Strategy, the current goal of the Russian energy sector is to bring the domestic energy prices on par with European prices and to establish competition in the energy sphere. Currently, there are a number of barriers preventing possible competitors from entering the market. For instance, it would be difficult to gain the market from a company like OAO Gazprom that holds 90 percent of it.

As far as energy equipment is concerned, together with Russia's increasing openness to world markets, western-produced equipment would create an alternative to the locally produced. Being considerably cheaper, the local equipment is likely to dominate in the short run, but would gradually lose its market share due to its lower quality and energy efficiency. At the present stage, most of the possible Russian customers of energy equipment do not have sufficient resources to install it. However, mechanisms already exist to release funds usually spent on energy consumption payments (see Section 3.2.4 on ESCO Financing for details).

Fields of competition: Nowadays in Russia, the oil industry is the most exposed to the market sphere of Russia's energy sector. As of 1992, attempts were undertaken to restructure the oil industry in a commercial direction — relatively free market prices were established, i.e. prices not directly controlled by the government. However, the government does influence the oil market through setting up export quotas and establishing the mandatory minimal levels of oil supply to local oil refineries. Therefore, Russian oil prices, though officially exposed to the market, do not exactly follow the world's market prices. Exporting oil has proven more profitable for oil companies than distributing it among the domestic market. In 1999, the government of the Russian Federation and the major oil companies reached an agreement to establish export quotas depending on the internal oil supply: if the domestic demands are met, the quotas would be lower. Such a measure does not allow a domestic deficit and thus establishes indirect control over prices. The competition in the oil sphere is still very limited due to the restricted access to the pipelines that are in the management of state authorities and a limited number of private companies.[283]

As for the other industries of the energy sector, they are less exposed to the market. In these industries, Russia pursues a price-setting policy that is based on the production costs and oriented to the market. In 2002, the tariffs for the power sector were established at the level 20 percent higher than the year before, which would be about 1.5 cents per kWh. But, as calculated by some experts, the necessary price level to cover the production costs would be 2.5–3 cents 7 kWh.[284] The gas tariffs were also increased to 20 percent, and further rise is expected. However, the current price level covers only about 60 percent of the production costs, and will be unprofitable for several more years.[285]

[283] IEA 1999b, 94.

[284] Marshak, Dashevsky, and Tihomirov, 2002.

[285] Marshak, Dashevsky, and Tihomirov, 2002.

Market prices: At the present stage it is difficult to talk of energy markets in Russia. There are several reasons for this. Firstly, power and fuels were for a long time not allowed in civic circulation and regarded as a commodity.[286] The fuels were supplied to consumers as services by the state organisations entitled to do so. In the Soviet period, these were the state bodies having a monopoly right to render such services. After the collapse of the Soviet system, these state bodies turned into commercial organisations. However, in most cases, they remained the only actors in the sphere because it was too difficult for the newcomers to enter the market. Secondly, energy is a commodity of limited circulation. Buyers or sellers of energy have to own a connected power circuit or a transmission pipeline. Most part of the power grid and oil and gas transmission pipelines are owned or managed by state-run monopolies or major energy companies. Therefore, most transactions in the Russian energy sector are performed between a company and its intermediaries. Thirdly, there is a serious lack of transparency and availability of information. Usually, the parties of a transaction do not disclose their deal prices. It is therefore difficult to establish a market price without any statistical information on energy purchase and sale transactions.

In the current situation of the energy market coming into being, the market prices are not yet established. The domestic prices for energy resources are determined by tariffs established by FEC and RECs. The control over pricing is considered vital for the state, as it realises that most domestic consumers cannot bear market prices. However, Russia adheres to the policy of liberalization of energy prices, which increase every year and become closer to European levels. In addition, households acquire energy for the prices considerably lower than the industry, which is due to the general economic conditions in the country – unemployment, low salaries, etc., as the common user cannot afford paying more for the energy.

Oil industry is probably the only energy sphere where competition and market pricing exist. This is the only part of energy sector, where there exists not only a primary, but also a secondary market where derivatives are traded. External markets determine the prices in the Russian oil market. The gradual increase of prices for electricity and fossil fuels should serve the increase of energy efficiency and reduction of energy dependence.

2.4.2 *Description of sub-sectors*

The district heating, lighting and hospital sub-sectors in Russia have some features in common. They are mostly financed by state budgets and have aging and worn-out equipment low in energy efficiency. The upgrading of these assets bears large energy saving potential. This subsection provides a description of each sub-sector's administrative structure and some examples of current EE projects. An evaluation of these projects' performance is not offered since they have been implemented too recently.

Lighting: Street lighting in Russia is an object of housing and communal services, which is a special kind of property due to its importance to the population. As such, street lighting infrastructure is exempt from property tax. This kind of property may be registered not only

[286] It was not until the adoption of the Civil Code of the Russian Federation, when energy was regarded as a commodity and the regulations on the purchase and sale of energy were included in the chapter on purchase and sale of goods.

on state and municipal balance, but also on the balance of legal entities. Most of the street lighting infrastructure was transferred in 1990s to municipal property by a number of RF governmental resolutions. The maintenance of street lighting equipment is the responsibility of respective budget organisation. For the maintenance and reconstruction of lighting of highways, special assets are accumulated from the tax income in the Road funds.

Maintenance and renovation of street lighting is a heavy burden for the budgets of municipalities, most of which have enormous debts to energy supplying companies. Non-payments force power supply companies to resort to extraordinary measures such as leaving entire cities without light on the streets. Such a situation, for instance, occurred in the city of Kostroma on 28 March 2002. Due to the debt of more than one million roubles (approximately $30,000), street lighting in Kostroma was switched off.

The expenditures of the budgets for the maintenance of street lighting, according to estimates of specialists, can be reduced significantly by the introduction of new technologies. Most of the lighting systems are equipped with incandescent lamps and mercury lamps, which consume up to 30 percent more electric energy than sodium lamps. Energy efficiency projects in lighting were already introduced in Russia in the cities of Nizhniy Novgorod and Saratov. In Nizhniy, the reduction of energy consumption is expected to amount to 45 percent, if 7,000 sodium lamps are installed on the main streets of the city (the sodium lamps' in question period of service is twice as long, and one sodium lamp may be installed instead of two mercury ones). In Saratov, the luminaries of 'Alfa–Reflaks' are installed, which would allow to save up to 30 percent of budgetary funds, or 1,620 million roubles.

Hospitals: The Ministry of Health Protection ('the Minzdrav') oversees the hospitals in the Russian Federation. From an administrative point of view there are two types of hospitals: municipal and federal. The federal hospitals may be on the balance of the subject of federation or on the federal balance. All the expenses for electric and heat energy should be covered by the corresponding federal, regional, or municipal budgets. In 1999, a volume of budgetary funds spent for energy and water consumed by 1200 hospital facilities of the RF in 1999 amounted to over $50 million[287], which is really a heavy burden to the budget. There are also a number of private hospitals and clinics. These are commercial organization, and are as such obliged to carry all the expenses incurred in connection with their business activities, including the payments for energy supplies.

In the current economic situation, the funds of the budget are scarce, and they are often not enough to cover all the expenses. Some hospitals are therefore transferred onto 'hozraschet' – they start providing commercial services. That is in fact a conglomerate of a public and private hospital in one, but the moneys earned by the commercial part can help cover the needs of the whole hospital.

However, even these measures are not fully effective, and hospitals are now often named among the debtors of the Energy Sector, and they are often cut off of the energy supplies, except for those that are listed among the economical objects that are not subject to shutting-out (reformatory institutions, military hospitals, etc.). The main reason for that is that the health sector in Russia, with rare exceptions, is unprofitable. The system of mandatory medicine insurance, which was supposed to accumulate vast amounts of money for the needs of the health-caring institutions, is not transparent, and the funds turn out to be insufficient.

[287] UN ECE EE21 Project, not dated.

Shutting-out hospitals has became a problem of federal significance. Media reports on the cases, when people, patients of the hospitals, died because of the power shortages or cutting-outs. A power engineer from Ulianovsk was even sentenced for the suspension of the power supplies to a hospital. The situation in this sector is very painful for the country, and the unified practice to cope with it has not been worked out yet.

The Federal Target Programme "Energy Efficient Economy for a Period of 2002–2005 and for a Perspective up to 2010" has provided a framework for energy saving measures in the health care sector. Within this framework, several projects were elaborated to modernise heat supply and thermal insulation in hospitals to reduce energy consumption in Moscow, Chuvashia, Nizhniy Novgorod and other regions.

Like most of the other buildings in public maintenance, hospitals' buildings, most of which were constructed in Soviet times, have high energy consumption, poor insulation, and lack of proper maintenance. Energy efficiency projects are aimed at making a considerable contribution into the development of hospital infrastructure by eliminating cold in wards and surgery rooms, preserving equal temperature in all the hospital sections, which would diminish the risks of secondary infections and ensure higher comfort of staff and patients. In the practical terms, these goals may be reached by the installation of double glazed windows, installation of systems of automatic control over heat and hot water supply, and so on.

District heating: Russia has one of the most extensive district heating systems in the world. As in was reported by the CENEf,[288] there are 257,000 km of heat pipes in Russia now, and 232,000 of these kilometres are made up of distribution pipes. Most district heating companies and plants and all of the distribution pipelines are municipally owned and financed from the local budgets, often accounting for more than 40 percent of municipal government expenses.

Commonly, a city's district heating system consists of kilometres of heat mains and distribution pipes, transferring heat from co-generation power plants and municipal boiler houses to the people's dwellings, sometimes through distribution stations. Only a few houses have their own boiler houses or boilers inside the apartments. Russia is employing the 'two-pipe' system of district heating for the supply of hot water and for the return of the unused. The pipes are usually located underground and isolated with mineral wool and foamed concrete (ten percent), and their period of life is almost two times less than in European countries. The general technical condition of distribution pipelines is low, because of corrosion, poor insulation, and many other reasons; the average deterioration is about 55–65 percent. Therefore, typical problems of Russian district heating are the loss of heat during transportation and huge pipeline maintenance costs. Among the consequences of untimely renovation are multiple leaks. The technical equipment employed in Russia is not modern enough to be able to monitor the condition of the pipelines and provide efficient repair. [289]

Examples of projects of different sizes:

- Boiler Renovation in Pochinok Community Project, (city of Priozersk). Dated November 2000, the project aimed at reconstructing the boiler to run on bio fuel and

[288] Halpern, not dated, 1.

[289] Halpern, not dated, 1.

capacity expanding and installation of control systems. The lifetime of the project is 15 years. The financing of the project came from different sources, including a $70,000 grant, loans from local banks, foreign investments and own funds.

- On 27 March 2001, the World Bank approved an $85 million project on municipal heating in Russian Federation, the main objective of which is assistance in diminishing of financial burden of municipal governments. The project would target nine to ten cities (Syzran, Nerungri, Mytishi, and Dubna are already in the project, and there are also candidate cities). The project consists of three components: 'System Rehabilitation' – reparation and replacement of sections of the district heating systems; technical assistance and institutional support. The project is designed for 17 years maturity and five years grace period.

2.4.3 *Addressing the problems*

Certain characteristics of the Russian economy, its economic history and climate conditions have determined the problems undermining its energy sector. These are: vast aging energy infrastructure with lack of sources to support and upgrade it, high energy intensity stemming from Russia's self-sufficiency in fuels and poor energy managing system. The promotion of energy efficiency in the country is also impeded by the following barriers, which stem from the current policy and may be eliminated more easily:

- *Lack of incentives for energy saving of municipalities:* According to Russian budgetary legislation, the funds not used by a budget during the financial year lose the status of 'spare cash'. Next year, they would form the source of budgetary revenues and would be allocated to certain expense items. It is therefore not advantageous for municipalities to release funds from energy saving and leaving them for the next financial year.

- *Lack of incentives for energy saving among the population*: Subsidising of energy prices for households lead to the conception that energy is cheap. Together with the absence of educational programmes for the population in the field of energy saving it leads to the lack of incentive to consume less.

- *Commercial legislation*: It should guarantee the return of investment. Current bankruptcy laws, contract enforcement, performance responsibility of contractors and dispute settlement legislation, though creditor oriented, leave the debtor many ways to escape liability and the rights of minor creditors may be violated by the major ones. Much of the questions are left to the discretion of the state authorities (for example, determining the future fate of insolvent debtor at the Creditors' Meeting, when the overall debt before state authorities amounts to more than 70 percent of the total) of dispute settlement and enforcement of arbitration decisions.

2.5 Ukraine

2.5.1 *General characteristics of the energy sector*

The energy sector plays a significant role in the Ukrainian economy, as fuel and electricity account for 27.7 percent of industrial output (1999 data). Former overregulation of the energy sector by the state led to inefficiencies and distortion in industrial development. The only fossil fuel available in the country is coal. Gas and oil are imported, mostly from Russia. Ukrainian nuclear power production does not have its own complete fuel cycle and must send its nuclear fuel waste to Russia. Thermal power-generating units can use coal, gas, and fuel oil.

A privatization process was started in the early 1990s. Some enterprises and activities in the sector were specified as natural monopolies and the rest were defined as subject to privatization. Regional distribution companies have been set up for the first phase of privatization. They will be followed by power-generating enterprises. Privatization is understood as the sale of the controlling stake of companies. Since 1998 all thermal power-generating companies are joint stock companies where the state owns about 80 percent of the shares. Companies are therefore dependent on state policy.

Energy supply: Domestic oil and gas reserves are insufficient to meet the national demand. Ukraine imports these resources mainly from Russia and Kazakhstan. In 2001, out of the 10.7 million tonnes of oil used by Ukrainian oil refineries, 17.4 percent proceeded from Ukraine, 56.33 percent from Russia, and 26.25 percent from Kazakhstan. The same year, Ukrainian NSC 'Naftogas' mined 2.67 million tonnes of oil with gas condensate and 13.1 billion cubic metres of gas. Fossil fuels extraction in 2001 formed 8.1 percent of Ukrainian GDP.

Total potential resources of carbohydrates in the country (in terms of fuel equivalent) are 8417.8 million tonnes. Oil accounts for 15.7 percent of this total, gas condensate for 4.5 percent, gas for 76.5 percent, dissolved gas for 3.3 percent. There are plans to exploit the shelf of Azov and Black seas, which is supposed to contain 18.2 percent of the total reserves.

Coal reserves in Ukraine could amount 300 billion tonnes, placing coal as the principal energy resource in the country. The main coalfield lies in Donetsk where 98 percent of the total coal reserve is located. There are 284 extracting plants, from which 193 are active. Many mines perform poorly in financial terms. The possibility of closing some of these mines is being discussed since the coal industry is polluting and considered one of the deadliest in the world. More than 350 miners died in 1998 and another 297 miners lost their lives in 1999. However, closing mines would imply high maintenance costs (required for closed mines) and unemployment of many people in small cities. The 'Ukrainian Coal' programme approved by the Cabinet of Ministers of Ukraine (CMU) in 2001 aimed at decreasing the total quantity of mines from 284 to 232 by the year 2003.

The Ukrainian power sector is represented by the three traditional components of generation, transmission, and distribution. There are 4 thermal power-generating companies (GenCos) which own 14 power-generating stations with a total installed capacity of 34.4 GW, of which 18-20 GW is functional.

- Centrenergo (3 thermoelectric power stations – Trypilska, Vuglegirska, Zmiyivska, and the maintenance and service enterprise 'Remenergo');
- Dniprenergo (3 thermoelectric power stations – Zaporizka, Kryvorizka, Prydniprovska, and maintenance and service enterprises);
- Zakhidenergo (3 thermoelectric power stations – Burshtynska, Dobrotvirska, Ladyzhynska; and maintenance and service enterprises);
- Donbasenergo - the company was declared bankrupt in the end of 2001 and sold (initially 5 TPS – Zuyivska, Kurahivska, Luganska, Slavyanska, Starobeshivska; and maintenance and service enterprises). On 27 April 2001, three of five TPS were sold in exchange for debts to Tehrempostavka on auction.

National Nuclear Power-generating Company (NNPC) 'Energoatom' (14 power-generating facilities, total installed capacity 12,812 GWt).

- Zaporizka NPP;
- Pivdenno-Ukrainska NPP;
- Rivnenska NPP;
- Khmelnytska NPP;
- Chernobylska NPP* (ceased to operate on 15 December 2000)

Hydropower generation is produced by cascades of hydropower stations with a total installed capacity 4.7 GWt:

- Dniprohydroenergo (six HPS and Kyiv hydro accumulating power stations)
- Dniesterhydroenergo

There are also local boiler stations and municipal heat and power plants, with approximately 3.8 percent share in total power production. The latter has a capacity below 20 MWt and is not subordinated to the Ministry of Fuel and Energy. Together they account for 3.79 percent of total energy generation.

Transmission infrastructure: According to the Law of Ukraine on the Power Industry, energy transmission shall be understood as conveyance of energy using networks on a contractual basis. The Ukrainian transmission network is more than 1 million km long, out of which 21,700 km are trunk transmission lines with a voltage of 220-750 kV. The national power grid with transmission lines of more than 220 kV as well as interstate power networks are subject to operation by the state, represented by the National Energy Company Ukrenergo. The company was created in 1998, and has at present eight regional divisions. It has operational and dispatch functions and is responsible for automation, control, communications systems, and all infrastructures. In the first quarter of 2002, NERC set the tariff on transmission of

energy using trunks and interstate power grid for Ukrenergo at UAH 3.2/MWh (tariff includes rent on centralized dispatch and technological control of UES).

Generation (I)	Wholesale supplier (II) (WEM)	Regional distribution companies (III) (27 Oblenergos)	Consumers (IV)

One of the main features of transmission infrastructure in the country is a high level of 'technological power outlay' (TPO) in the transmission network, especially at the stage of transmission between respective Oblenergo and consumers. TPO defines losses in the grid due to natural technical losses, thefts, and supplied electricity for which payments were not made. Even though the standard is already high, set at 14.1 percent, the average TPO of the country in 2001 was more than 20 percent. This is partly due to thefts of physical energy-transmitting infrastructure. In 2000, 37.5 thousand km of cable, and 1,034 power transformers were reported stolen. Uncontrolled power use aggravates the problem of oblenergos' arrears.

Export of electricity, energy-related commodities, and services are under the competence of the State Foreign Trade Company (SFTC) 'Ukrinterenergo'. The company was founded in 1993 in order to manage foreign trade activities in the energy sector. Power import amounted to 200 TWh from 20 August 2001, when the Ukrainian and Russian energy systems were united, until the end of 2001. Correspondingly, power export in 2001 amounted to 2.6 TWh, a 9.9 percent increase compared with the year 2000.

Transmission of gas and oil is carried out by a number of joint-stock companies. Two companies use the Ukrainian oil pipeline system: SJSC (state joint-stock company) 'Main Oil-pipelines Druzhba' and SJSC 'Prydniprovski main oil pipelines'. During the first nine months of 2001, 13.3 million tonnes of oil were transmitted by 'MP 'Druzhba' (four percent more than 2000) and 38 million tonnes by 'Prydniprovski main oil pipelines' (ten percent more than 2000). The leading gas transmitting company is 'Ukrtransgas', a company associated to NJSC 'Naftogas' of Ukraine'. Following Gazprom, Ukrtransgas is the second largest gas transmitting company in Europe. It has 35,000 km of gas pipelines, 12 underground gas depositories, and 71 compression stations. Approximately 60 percent of the gas imported in Europe is Russian. From this total, 85 to 95 percent of gas is transmitted via Ukraine. Ukrainian's capacity for gas storage is 32 billion m^3, compared to the 15.5 billion m^3 storage capacity of Germany, 10.5 billion m^3 of France, and 3.5 billion m^3 of Great Britain.[290]

Energy demand: In accordance with the Law of Ukraine on the Power Industry, electric power supply shall be distributed to consumers using transmitting facilities on a contractual basis. Energy consumers are understood as business entities and private persons using energy for their own needs as per sale-and-purchase contracts. The only legal way to consume electricity is through conclusion of a contract between an energy supplier (distributor) and an energy consumer. The energy consumer has the right to choose the distributor, but there is usually only one available, and buy energy at a regulated tariff in accordance with the contract.

During the last decade both energy production and consumption have decreased dramatically and it is expected that this decline will continue more moderately in the next five

[290] Ukrainian Energy Association 2001.

years. One of the factors contributing to this decline is the privatization of the energy sector, which started in 1997. Industrial negative growth in the past decade led to a decline of industrial energy consumption of 200 percent (in comparison with consumption before 1990). It is supposed that industrial slowdown decreased GHG emissions and overall pollution of the environment, when outdated and energy intensive technologies widely used in the industrial complexes were shut down. On the other hand, specific consumption of fuel equivalent per unit of produced energy constantly increased from 1990 to 2000, with 8.1 percent increment over ten years (346.3g/kWh in 1990 and 374.5g/kWh in 2000). In 2001, this tendency changed to 0.5 percent less specific consumption per unit of fuel equivalent.

Table 2.13 Energy consumption by source; export and import

Year	Energy produced	Energy imported	Industry and construction	Agriculture	Transport	Other sectors	Including: Communal and household	TPO* (technological power outlay)	Energy Export
1985	272.0	10.3	160.3	22.7	14.5	29.0	-	21.7	34.1
1990	298.5	15.3	170.0	28.5	14.5	35.1	-	21.9	43.8
1995	194.0	9.7	99.9	23.8	10.8	37.7	-	18.8	12.7
1996	183.0	4.2	92.7	20.4	9.8	33.1	-	25.0	6.2
1997	178.0	9.7	90.1	17.5	9.5	32.3	-	28.4	9.9
1998	172.8	10.0	84.1	15.7	9.7	32.6	-	30.0	10.7
1999	172.1	7.0	81.1	14.9	9.5	33.0	-	30.2	10.4
2000	171.4	2.7	83.2	11.7	9.2	32.3	-	31.2	6.5
2001	172.135	0.2	59.98	4.132	8.88	-	13.312	33.7	2.617

Source: Statistical Yearbook of Ukraine, 2002.

Gas consumption decreased in 2001 by ten percent due to price increases. Power generating companies buy fuel oil from commercial firms. These latter can import oil from Russia, supply it to refinery plants as given raw material, pay for processing, and take the end product. They can also act as intermediary companies and buy mazut from refineries and sell it to the consumers. Consumer companies can choose their supplier (by price criterion) and then apply for MFEU confirmation of the selected supplier. Consequently, the domestic market for mazut is the least regulated by the state, in comparison with the coal or gas market.

From 1999 to 2000, the share of cash (as opposed to barter) payment in total amount grew. Nevertheless, end-users paid only 90.1 percent (75 percent in cash) for energy consumed in the year 2001. Municipal service providers constitute 30.2 percent of the total amount of non-payment to WEM (Wholesale Electricity Market) and 10 percent of the Ukrainian energy consumption structure, whereas 16.6 percent of non-payment pertains to the coal industry and 11.1 percent to agriculture.

WEM arrears, estimated at UAH 14.6 billion in 2001, grew by UAH 3.3 billion from the end of 2000 to 2002, while the total cost of annual energy supply to energy market was UAH 16.9 billion (including VAT). Lasting state support of specific prioritized industrial sectors by 'emergency reservation' is one of the barriers to solving the debt problem. Prioritized sectors

and environmentally dangerous plants, which are under state control, have no incentive to pay for energy. Moreover, in January 2002, CMU commissioned MFEU to pass legislative acts to prohibit switch-off of power supply for plants in the mining and smelting complex. Such artificial protection supports energy intensive and inefficient sectors.

Another issue to consider is forced constraints of total demand. As the amount of energy to be produced is often established a year in advance, restrictions are set based upon the average level of non-payment. In this situation, even consumers or regional distribution companies who can pay for the commodity are unable to buy as much energy as they want to. In addition, the amount allocated for daily generation by the central dispatch centre depends upon the fuel available.

The burden of non-payments is reallocated by the state, providing the least successful industrial companies with subsidies in the form of a non-payment or payment delay, while actual demand is restricted.[291] It is also likely that regional distribution companies are gambling when they request larger volumes than those needed by their consumers. This is technically possible because of metering equipment shortage. Addressing the problems listed, a number of steps have already been taken and a reform programme is being developed. It is believed that market conditions will favour the development and profitability of the energy sector.

Administrative regulation and control: Actors in the energy sector are subject to administration and regulation of the Ministry of Fuel and Energy of Ukraine, the State Property Fund of Ukraine (SPFU) for privatization-related issues, the antimonopoly committee (if applicable), and the corresponding legislation. Normative documents issued by the President of Ukraine (Decrees and Directives) and by the Cabinet of Ministers of Ukraine (Resolutions and Orders) are mandatory. The SPFU and the National Electricity Regulatory Commission (NERC) are central executive bodies with special status. The legal document will have the force according to the status of the state body issuing it. The MFEU is an assignee of the Ministry of Coal Industry of Ukraine (see Annex 3), the Ministry of Energy of Ukraine, the State Department on Electricity Issues of Ukraine, the State Department of Oil, the Gas and Refining Industry of Ukraine, and the State Department on Issues of Nuclear Energy of Ukraine.

The main duties of the MFEU include state administration, realization of state policy in the fuel and energy complex of the country, as well as securing energy safety of Ukraine. It elaborates proposals for economic stimulation of fuel and energy. The MFEU has the authority to participate in formation, regulation, and improvement of the fuel and energy resources market. Moreover, the MFEU implements state policy on energy-saving, takes part in processing of state energy-saving technologies, and controls their performance in the energy resources industry.

The elaboration of balances for coal, natural gas, oil, and processed oil products, as well as the monitoring of their respective markets, is carried out by the MFEU. It coordinates and decides the extent of geological exploration of oil, natural gas, and coal. The production, transmission, distribution, and consumption of electricity and heat in Ukraine are regulated under a number of laws, presidential decrees and resolutions of CMU, as well as other normative documents.

[291] Ballonoff, not dated.

Regulatory bodies: On 21 April 1998, the National Commission of Ukraine on Electricity Regulatory Issues was renamed the National Electricity Regulatory Commission (NERC) of Ukraine through a Presidential Decree (see Annex 3, 4). NERC is an independent non-departmental public agency, whose activities are governed by the Constitution of Ukraine, the decrees of the Verkhovna Rada of Ukraine, the decrees and resolutions of the President of Ukraine, the resolutions and orders of the Cabinet of Ministers of Ukraine, and the provisions on the National Electricity Regulatory Commission of Ukraine. NERC is a legal entity with an independent balance, bank account, and seal, which bears the national emblem of Ukraine and the commission's name. It regulates finance and payment issues related to wholesale electricity, gas, oil, and oil product markets. NERC was later declared a central body of executive power of Ukraine, under the control of and reporting to the President of Ukraine. It was entrusted with the functions of regulating the activities of natural monopolies in the fields of natural and oil gas transmission via pipelines and distribution, transmission of oil and petroleum via trunks, as well as the supply and storage of natural gas on adjacent markets (see Annex 3, 5). Moreover, NERC formulates within its authority the state pricing policy for electricity, fuels, and tariffs regarding transportation, storage, supply, distribution, and pipelining of other substances. NERC also obtained the right to create special-purpose funds to promote the development of the markets under the regulation of the Commission. NERC was also granted the right to attract researchers and specialists from central and local executive bodies, enterprises, organizations, and institutions, and to develop projects, provide consultations, and expertise. NERC issues licences for electricity generation, transmission, and supply to entrepreneurial entities. NERC shall be financed at the expense of license fees, current payments made by licensees, technical assistance from international institutions, among other sources.

Tariff system: In 1995, the wholesale electricity market (WEM) Energorynok was created. It originated from a division of Ukrenergo that used the British electricity pool as a model. In May 2000, it was transformed into a separate state enterprise. The main purpose of the WEM was to reform the administrative energy price formation in accordance with competitive standards. Power producers with a total installed capacity of more than 20 MW and yearly generation of more than 100 MW sell energy to the WEM, whereas regional distribution companies buy energy from the WEM and sell it to the end-users. In this system there are fixed (regulated) and 'competitive' (non-regulated) tariffs. Both categories of tariffs, as well as tariffs for energy grid transmission, are subject to NERC regulation. Electricity is sold to and from WEM on a contractual basis. Before contractors start any entrepreneurial activity with electricity as a commodity, they should receive a license and sign a contract in accordance with the standard specification or pattern of the respective documents. On the end-user distribution level, there are regional power distribution companies, oblenergos, and independent power suppliers. Oblenergos sell energy at tariffs regulated by NERC, whereas independent suppliers set their own tariffs. Independent suppliers use the local power transmission grid of oblenergo. A centralized dispatch control is fulfilled by the Dispatch Center for Managing the Power System of Ukrenergo. The dispatch services cost is also set by NERC.

There are three segments of energy production reflected in the WEM purchasing tariff, namely the base load, the interim load, and the peak load. Energy from nuclear power plants (base load) supplied by 'Energoatom' and from hydropower stations (peak load) is sold to WEM at a fixed, usually underestimated price. As previously mentioned, the price of nuclear

energy does not include the costs of used nuclear fuel processing, storing, and post-operational maintenance of the NPP. If these costs were considered in the tariff, the energy supplied by the NPP would be more expensive than the energy produced by thermal power generators. By underestimating the cost of NPP energy production, the regulator (NERC) tries to hold tariffs at a low level. Pricing for the interim load segment (thermal power-generating companies) is calculated with the established NERC price algorithm.[292] The sales price includes transportation costs and technical losses of the grid, thus varying among regions. It was initially intended to facilitate competition between different power generating thermoelectric facilities via the WEM mechanism. The total installed capacity would be enough for this purpose as well as for meeting the energy demand. Nonetheless, due to technical and fuel reasons, energy supply is not sufficient to create competition among power generators. In addition, the price algorithm established by NERC has the overregulation of establishing marginal price levels that distorts prices.

The law obliges those involved in wholesale purchase-sale agreements to make all payments exclusively in cash, using a distribution account in an authorized bank. Payments made in a form other than cash or in an account other than a distribution account are not regarded as payments for consumed electricity. Distribution accounts are used solely for collection of payments for electricity and for settlings with WEM participants.

The wholesale electricity price is differentiated by the time of the day. In February 2002, the tariff for peak hours (23:00-6:00) was 3.2 times higher than that at night (8:00-10:00; 17:00-20:00).[293] Such a differentiated price is introduced to stimulate consumption of electricity at night and reduce consumption during peak hours. The expected outcome would be to smooth out the consumption and production schedule over the day, achieving a more efficient use of the TPSs productive capacities. The main condition to ensure the tariff of time differentiation is the availability of zone meters, which allow users to keep track of their energy consumption. WEM wholesale electricity prices are estimated on an hourly basis, which often leads to discrepancies with differentiated retail tariffs, causing losses to regional distribution companies.

Consumers' payments for electricity have increased significantly since the early 1990s. In 1994, payments for household and municipal services accounted for less than 0.3 percent of GDP. Three years later, it had increased to 5 percent. The governmental price reform increased the share of total price for municipal services that families should cover from 4 percent in 1994 to 80 percent in 1997. In order to mitigate negative outcomes of such an aggressive price policy for households and individuals, an extensive state subsidies programme was initiated.

Subsidies and privileges: These are two direct forms of state support for households and individuals present in Ukraine. Both subsidies and privileges may be viewed as a citizen's right to receive a discount on the payment for a public service consumed. However, there are a number of important differences between them such as eligibility criteria to receive state support, form of granting, conditions for granting, social protection function, calculation,

[292] According to Article 1 of Ukraine's Law on the Electricity Sector, 'An algorithm of the Wholesale Electricity Market is a procedure established by the National Electricity Regulatory Commission of Ukraine for the allocation without transfer orders by an authorized bank of the funds in the distribution accounts.'

[293] Previously, it was 2 times the interval with the tariff set at levels of 70 UAH/MWt*hour for night hours and 141 UAH/MWt*hour for day peak hours.

procedure for assigning, and incentives to consume services in energy-efficient way. The right to receive the subsidy is granted on the basis of the individuals' aggregate income.[294] Privileges are granted due to social or professional affiliation, which do not depend on the level of individual's income or his or her actual need for state support. Electricity and heat supply are communal services subject to subsidising and the granting of privileges. Initially, extensive granting of privileges and subsidies was to support households that could not afford the full cost of these services. However, the vast system of social benefits was a heavy burden on the state budget.

The decision of granting privileges is made locally, where the registration system is not always perfect. Moreover, for some categories of privilege beneficiaries, the source of financing is not clearly legally defined. This makes it complicated to assess the total amount of privileges granted. Discounts to households made by service companies on the volume of subsidies or privileges allotted are supposed to be covered by state budget settlements. However, such settlements do not always take place. Addressing the problem of subsidies and privileges will subsequently help alleviate non-payments for energy consumption.

Individuals and households may apply for privileges at their local communal-service providing enterprise. Many professional groups with an income above the average, such as judges or prosecutors, are eligible for privileges. Meanwhile, poor households and individuals apply both for the privilege payment deduction and the subsidy. After the privilege is granted, the beneficiary does not need to prove his eligibility within a certain time frame. A privilege takes the form of services cost reduction by a certain amount (50 or 75 percent), in some cases full exemption from payment obligation is possible. When the metering equipment is installed, the amount of privilege corresponds to the consumed service, such as heat or water delivery. If meters are not available, the amount of support is calculated on the basis of average consumption rates. In some cases, individuals may belong to several groups of eligibility and are able to choose the most attractive option.

Subsidies are a more effective and cost minimizing way to address social support problems at the local level. They are assigned to the poorest segment of the society. Subsidies provide individuals the right to pay 15 or 20 percent of his or her income for household and communal service provisions. The individual is required to verify his or her eligibility to a subsidy once every six or twelve months. As with privileges, calculation also depends on whether metering devices are available. However, an essential difference between these two social aids is that a decision on granting a privilege is reached independently for each household by the communal service provider, whereas, in the case of subsidies, the decision-making is the responsibility of the Housing Subsidy Offices and Privilege and Subsidy Offices within the social protection bodies. This feature makes the process of subsidizing more transparent, directed at target groups of the population, simplifying the recording, control, and monitoring functions.

In the case of privileges, no aggregate record is maintained. Substituting the privilege programme with subsidies and gradually seizing all social demands for support in households and service payments, will allow the government to address the most needed segments of the population in a more economic way. Improving the record system, targeting financial support, and bringing incentives for economic consumption of the services provided could optimize costs for the government. It is intended to substitute privileges with subsidies, as the latter are

[294] CMU 1995.

considered to be more socially oriented, better at addressing the problems of the poor, and less cost demanding for the state budget.

Indirect subsidizing is the absence of sanctions for uncontrolled and unpaid use of municipal services. In this way, the public sector encourages non-payments. To combat the free riders' attitude toward municipal services and energy consumption, disconnections and fines have been proposed.

Taxation: The Law 'On the Taxation System' designates the major principles of taxation in Ukraine, namely tax rates, tax exemptions, and procedures of tax payments. Of all legislative acts only tax laws may introduce amendments to the taxation system. Taxes that are levied under Ukrainian legislation fall into state and local categories. The first, in accordance with Verkhovna Rada normative acts, are imposed throughout the country. The second are the responsibility of local authorities.

An entity within the energy sector is a taxpayer of a number of taxes and duties. These are general taxes to be paid by any entity generating profits from its own activity, selling goods or services, and paying salaries. There are also taxes and duties related to specific activities where enterprises in the energy sector may be involved, such as land and mineral exploitation, water use, geological exploration, and pollution of the environment. The taxes and duties these entities may have to pay include:

- Corporate profits tax (30 percent of profits);
- Personal income tax (determined on the basis of income volume);
- Value-added tax (20 percent of a contractual value) is levied on goods and services, including services from a non-resident entity at the customs territory of Ukraine and imported goods into the customs territory of Ukraine;
- Excise tax (comprised in the value of excisable goods);
- Payroll taxes such as pension insurance (32 percent); temporary disability, birth, and burial insurance (2.5 percent); unemployment insurance (2.5 percent); industrial accident and professional disease disability insurance (from 0.84 to 13.8 percent);
- Land tax (related to value and location of the land), which has three tax rates according to three categories of land;
- Duty on geological exploration activities;
- Duty on natural resources use (entrails);
- Water tax (water rate);
- Tax on own hauling unit;
- Municipal tax;
- Payment for pollution of the environment;
- Other taxes and payments.

The basic corporate profit tax rate is 30 percent, which is deemed to equal the gross income minus expenses and depreciation. There are also certain types of corporate expenses, which are not deductible or may be expressly limited by laws. Non-residents of Ukraine are liable to pay corporate profits tax with regard to all Ukrainian-source income. Ukrainian-source income is defined as 'any income derived by non-residents from any business activities on the territory of Ukraine'. Dividends received by a non-resident legal entity from the ownership rights in a resident legal entity are taxed at a 15 percent rate, unless otherwise stipulated in a relative bilateral double taxation treaty. Ukraine is a party to more than forty bilateral double taxation treaties, including the treaties of the former Soviet Union.

Personal income tax: Ukrainian residents are taxed on their worldwide income. Non-residents are taxed on all income derived from sources within Ukraine. All foreign individuals who are physically present in Ukraine for more than 183 days in a year are considered Ukrainian residents for the personal income taxation purposes. Their worldwide income is then subject to Ukrainian tax.

Grants: Only few types of grants fall into the non-taxable category. Among them are those allotted by the Ukrainian government for research purposes.

Advisory services: Consulting companies and non-governmental organizations represent the market for advisory services in the country. There are also officially assigned advisors to the government within the field of privatization in the energy sector. Among NGOs and some other agencies actively working on the issues of energy-efficiency and energy sector in Ukraine the following should be mentioned:

- Arena-Eco - Agency on rational use of energy and ecology;
- PADCO Ukraine – Planning and Development Collaborative International;
- State committee of Ukraine for Energy Conservation;
- Climate Change Initiative;
- National Energy Conservation Information Network of Ukraine;
- Charity Information and Publishing Centre 'Green Dossier';
- National Ecology Centre of Ukraine;
- NERC has the right to carry out consultancy and expertise activities.

The sale of energy company shares should be carried out via tender with a designated advisor assisting in the process. In October 1999, USAID initiated the Ukraine Energy Privatization Support Project aiming to support the government of Ukraine and the State Property Fund of Ukraine in privatization matters and ensure the transparency of the process. Deloitte & Touche Tohmatsu in association with INEKO-Management were advisors.

In 2000, the Law of Ukraine On the State Privatization Programme for 2000-2002 determined additional conditions for privatization tenders, for instance that only controlling stakes would be sold on tender basis. The SPFU was advised to attract advisors for this sale. A preliminary selection process was held for all three parties of the tenders, which were the companies to be sold, the potential buyers, and advisors. Credit Swiss First Boston had won

the advisors' competition and became the official advisor to SPFU by signing a contract in May 2000. In June 2001, CSFB won another tender and was awarded the post as sales advisor to the SPFU on the privatization of 12 more Oblenergos.

INEKO-Management (founded in 1997 from investment banking and corporate finance departments of the INEKO company) and Energy Consulting Group EnCoG (founded in 1996 by three former ministers of energy of Ukraine) established the IMEPOWER Investment group in 2000. These companies provide a full range of energy-sector related information and advisory support, including 'project structuring, development of organizational and legal framework, technical expertise and designing, financial and economic analysis, analysis of tariff formation and specifics of operations, legal and informational support, financial modelling, capital raising, communications with the state agencies, development of risk mitigation and tax planning schemes'.[295]

Market exposure: In order to strengthen the national economy and acknowledge the particular importance of reforms in key fields, the government of Ukraine decided that the development of a transparent, competitive, and efficient market for energy resources should be a priority. However, the united energy system of Ukraine should be preserved, provided with efficient public administration of natural monopolies in the energy sector. To promote competition in the field of energy resources, an increase in the use of alternative energy sources is planned as well as the creation of a complete nuclear-fuel cycle. At present, wasted fuel is supplied to Russian processing plants, the process which is expensive for Ukraine and for which the country lacks the vehicles required for the transportation of wasted fuel. An increase in the extraction of oil and coal and the diversification of sources of oil and gas import to Ukraine are also considered. This would give consumers the possibility to choose between suppliers and improve the quality of commodities and services provided.

Reforms in the energy sector have brought the opportunity to create market conditions. The direction of the initial policy has changed as the vision of the future energy sector was developed due to circumstances and the requirements of the local economic and legislative environment. Correspondingly, the role of regulative bodies has been modified in the course of reforms. The scope of privatization was extended, the parts of the energy sector to be preserved as natural monopolies were clearly defined, although in a more narrow scale than initially foreseen (Annex 3, 16). Adjacent to natural monopolies, markets should be considered and regulated as commodity markets that are not natural monopolies, but whose activities are exclusively dependent on the use of goods produced by the entities of natural monopolies. Adjacent markets in Ukraine include the supply of natural gas and other fuels transported via pipelines, the supply of electric power, the generation of heat energy and electricity in quantities and conditions specified by the law, and the storage of natural gas in quantities stipulated by the law in question (Article 6). The activities of both natural monopolies and the adjacent markets are to be licensed. Prices on the products of natural monopolies, as well as consumers' access to these products and some other conditions specified by the law, are subject to regulation.

Fields of competition: Fields of the energy sector that are not stipulated in the Law On Natural Monopolies or other normative documents are places for the development of

[295] IMEPOWER, not dated.

competition. More specifically, on the level of energy production (the thermoelectric segment) and distribution to final consumers, competition is highly desirable and should be promoted, in accordance with state policy. For this purpose the mechanism of price offers-bids was established in the WEM. Electricity consumers were entitled to choose electricity suppliers and receive electricity in keeping with contractually fixed quality standards. However, real pricing policy (artificial price cap regulation by NERC), as well as some other determinative factors (excessively controlled coal supply for thermoelectric power-generators) do not provide favourable conditions for competition within the sector. Moreover, non-payment for consumed electricity from end-users continues because power switch-offs and fines for non-payment are still not implemented.

Privatization of thermoelectric power-generating companies planned for 2002-2003 is expected to weaken the state influence on enterprises, in particular with regard to fuel-purchasing policy. The freedom of energy producers to choose fuel supplier and independently decide on quality, price, and amounts, will result in competitive wholesale price bids submitted to WEM. There are a number of companies supplying fuel oil to generating companies. The latter have the right to choose the best purchasing conditions. MFEU regulates the purchasing price through a limit on the price. Moreover, the final decision about a fuel purchase transaction shall be taken by the MFEU. Additionally, the currently existing requirement of 'payment for additional productive capacity' should be amended in order to solve the problem of peak-load energy supply.

Ukrainian electricity consumers have the right to choose distribution companies. This condition is supposed to determinate competition between distribution companies, limited by the availability of the grid. In addition, incomplete cash-payment, tariffs that are not always transparent, and the oblenergos' dependence on state decisions do not favour competition. In the first phase of reform of the energy sector, small independent electricity-distribution companies entered the energy market, exposing 27 traditional oblenergos to competition.

Independent distributors have been benefiting substantially from barter schemes and have created rivalry with the oblenergos. These companies did not try to achieve cost reductions, since there were neither incentives nor requirements for such activities. However, after the abolition of inter-company barter settlements and the requirement of payments in cash as the only legal tender, the number of suppliers selling electricity at non-regulated tariffs decreased sharply. With the CMU Resolution No.755 dated 5 May 2000 in force, the number of independent distributors decreased sharply and oblenergos spread to solvent consumers who were using services of independent distributors before.

Market prices: Electricity pricing at the WEM is based on a 'cost-plus' principle. However, a significant part of the fixed costs is not reflected in the tariff. Expenses on reconstruction and post-operational maintenance of equipment are not included. This leads to gradual deterioration and ageing of equipment. Moreover, a cost-plus tariff gives few if any incentives to reduce variable costs. Hence, companies are unable to modernize and renovate their technologies, being thus unable to improve productive performance. They are also reluctant to increase the efficiency of their operational activity within possible framework. In the absence of market pricing and competition, the mechanism provides partial costs reimbursement but no stimulus to reduce them. The electricity wholesale price bids are insufficient and the generation capacity does not meet the demand of the market. NERC tried to adjust the price-cap mechanism to local environment. However, the renewal of the price-cap level is carried

out at least once a year, whereas in UK (the UK energy pool model was used as a pattern for the Ukrainian wholesale electricity market) the frequency is once every four or five years. During the longer period, generating companies have enough time to reduce costs by adjusting to the new price-cap. Thus, frequent changes deprive the price-cap mechanism its main advantage leaving no incentives for cost reduction.

According to the Resolution of NERC dated 24 March 2000, WEM would sell electricity to regional distribution companies at hourly wholesale price. Yet subsequent adjustment of final electricity consumption to the price of electricity at the WEM is needed, as well as meters that give information on hourly consumption. At least large industrial consumers should install hour or half-hour meters.

2.5.2 *Description of sub-sectors*

Lighting: Illumination of streets and highways is linked not only to possible energy-saving opportunities, but also to social and even criminal problems. A recent sociological survey in Kyiv (the Darnitsa district in particular) has shown that juvenile drug addiction and delinquency is related with poor street illumination and improper public vehicle services. Further investigations have proved that poor or lacking street lighting may have an effect on the level of criminality.

The responsibility for lighting in cities is borne by city and regional state administration, state lighting service companies 'Misksvitlo' (equivalent to Russian 'Gorsvet'), and the state construction companies. The territory within the city may be viewed by ownership criteria as municipal or departmental. The owner of the territory is thus responsible for the lighting. The lighting service company providing the lighting at the municipal territory signs a contract with the local power-distribution company or with the local company which owns co-generation facilities. Costs of the electricity consumed for lighting is appropriated in the municipal budget. The lighting service company owns the main and district dispatch centres (Kyiv is divided to three districts for lighting dispatch purposes), electricity grid (in Kiev most of lighting cables are underground, which lessen the probability of cable rupture with wind), two groups of power transformers and identifiers of breakages, and lamps. The current problems faced by the lighting system include old, broken, inefficient lamps, intentional or unintentional jams in electricity supply, partly caused by arrears in local budgets for electricity consumed, old cables, and sub-optimal dispatch systems.

Several measures have been taken by the government to improve this situation. The *Comprehensive State Energy-Saving Programme* stipulates the development and implementation of automatic lighting switches, measures for energy and lighting equipment modernization, and the manufacture and introduction of electronic high-frequency start-and-control devices in fluorescent lighting. The programme intends to install 10,000 automatic lighting switches before 2005 and to significantly decrease the consumption of equivalent fuel through the improvement of lighting figures. The whole programme was developed in 2000 for several sectors including heating, lighting, heat, and energy supply, cold and hot water supply. The programme is to be assessed and revised each five years until 2010.

Two major aspects of the lighting sector should be of interest for investments in energy efficiency. The first is the efficiency of lamps and lighting equipment themselves. The second, the possibility of decreasing the cost of lighting services at the present volume of electricity supply through installation of zone meters and transition to lower tariff rates.

As there are no daily zone meters available, electricity consumed for lighting is charged at a unified tariff. Lamps are switched on during the morning, evening, and night according to a monthly schedule. Changing to a day-zone tariff would allow a significant decrease in the cost of consumed electricity without changing the amount of consumption. However, the installation is zone meters is expensive, has a long payback period, and is currently unaffordable for lighting service companies (electricity consumed through lighting is compared to the investment needed to introduce the meters). Moreover, it is important to calculate carefully the total daily amount of zone-tariff, taking into consideration high cost during peak loads.

Another approach to energy efficiency is currently being used in Kiev. The Kyiv State Administration in collaboration with the company Vatra-Schreder manages this project of lamp replacement. This collaboration allows both actors to decrease expenditures while taking measures on energy efficiency through the installation of new types of lamps, decreasing electricity consumption while keeping the quality of the service (number of hours and intensity of lighting). Savings have been calculated at 68 percent of present energy consumption in large industrial cities.[296] However, local city or regional administrations lack the funds to buy the new lamps because of budget deficits, misunderstanding of the possibilities for savings, or incapacity to obtain bank loans.

Mercury lamps with a capacity of 250W and 200W and incandescent lamps with a capacity 500W are most often used for municipal street lighting. Sodium lamps with a capacity 150W and 100W are also used, although to a lesser extent. Mercury lamps consume more energy than sodium lamps. It has been estimated that exploitable mercury lamps 'DRL-250' (ДРЛ-250) with electromagnetic relay consume 24 percent more electric energy than sodium 'WLS-100' lamps with electronic relay.[297] It is suggested that the most efficient solution is to use lamps of lower capacity (natrium/sodium lamps WLS-100) with a good reflector and electronic relay. Electronic relay also increases the period of the lamps' work. Where funds are sufficient, lamp replacement is a necessary measure to increase energy efficiency in municipal street lighting.

Electricity meters used for lighting are rarely zoned, although equipped with a timer, metering consumption of electricity not once a day, but hourly. This is why lighting service companies are obliged to pay day tariffs for electricity provided at night, evening, and morning hours. The replacement of old lamps with new, more energy efficient ones, the installation of electricity zone meters, and the optimisation of dispatch in municipal lighting companies would allow both a reduction of the cost of the electricity consumed for lighting and the use of energy in a more efficient way.

Hospitals: The Ministry of Health Protection of Ukraine (MHPU) regulates all hospitals and health protection institutions in Ukraine. In the structure of households' expenditures, 2.5 percent is invested in medical services. Continuing the traditions of the former Soviet Union, the state provides medical protection for free. This policy has proven to be unsustainable, as the medical institutions accumulate arrears to local (municipal/regional) budgets, whereas the needs for health-care services are not satisfied. The years of reforms since 1990 in the Ukrainian economy have brought changes to the structure and size of the health-care sector in

[296] ASE 2002, 385-386.

[297] Elektra, not dated.

accordance with the cost-cutting strategy. Dispensaries (ambulance stations) have lower maintenance costs and have increased from 6,900 in 1990 to 7,400 in 2000. The average planned capacity of a dispensary has also changed from 895 to 973.

On the contrary, there was a decline in the amount of hospitals due to 600 close downs of medical permanent establishments between 1996 and 2000. In order to increase the income of medical institutions, chargeable services and opened paid wards/sections with improved conditions were created. Here, the patient is obliged to cover the cost of medicines and materials. The cost of municipal services such as electricity and heating are borne by the hospital.

The financial results of all medical institutions for the first three quarters of 2001 were 0.19 percent higher than expenditures.[298] This result was achieved thanks to the existence of private hospitals, still rare in the country. Most medical institutions belong to several groups according to the type of public administration, which can be municipal, departmental, or a trade union. The term 'departmental' refers to hospitals of a governmental institution such as a ministry, committee, administration, or some organization such as a plant or factory. Financing is appropriated in the municipal or regional budgets, in the budgets of trade unions or relevant departments. The last are usually in the best condition of financing, since the organizations they belong to can also provide them with support.

An investment project on energy efficiency in public buildings is currently being implemented in Kyiv by the Agency for Rational Energy Use and Ecology (Arena-Eco) and the Pacific Northwest National Laboratory (PNNL, USA) with support of the State Committee of Ukraine for Energy Conservation, the Kiev Municipality, and the US Department of Energy. This project involves upgrading building substations by installing heat meters and temperature controls, weatherizing windows and doors, installing radiator reflectors, faucet aerators, and low-flow shower heads, installing hot water heat exchangers and controls in building substations in more than 1,300 buildings, including hospitals, dispensaries, and policlinics. The total annual consumption of all buildings is more than one million Gcal. Measures taken will allow yearly savings of about 298 Gcal, an equivalent of 27 percent of the baseline (initial) consumption. Financing for the project was provided namely by the World Bank with a loan of $18.3 million, the Kyiv Municipality internal financing with $10.1 million, and the Swedish Agency for International Development (SIDA) with a $2 million grant. The Investment is supposed to be implemented during five years with a payback period of about seven years.[299]

There are categories of medical institutions that receive separate provisions from the state budget that cover their expenses. In 2001, these categories were multiple-discipline hospitals that carry out specific state functions, clinics of research institutes of MHPU and Academy of Medical Sciences, and other special hospitals of MHPU and MFEU. Other medical institutions are financed on common basis. The scope of budget expenditures is stipulated in Distribution of the expenditures of the State budget of Ukraine in 2001 in the Law On State Budget of Ukraine in 2001.

District heating: Ukraine's 70,000 high-rise residential buildings (with five or more stories) consume approximately 40 percent of the country's heat energy resources. Collectively,

[298] State Committee of Statistics, not dated.

[299] ARENA-Eco, not dated.

Ukraine's DH systems consume about 8.1 MMT of coal equivalent each year. There are centralized and local autonomous systems. Dwellings may be provided with heat from heat and power plants (HPP or co-generation) and boiler houses. Individual heating systems are boilers that are usually installed in flats or small private houses.

The individual, or autonomous, type of heating system is becoming more popular among households, since it allows them to save up to 50 percent of energy costs. This may be due to the fact that tariffs for heat supplied by HPP or boiler houses are calculated with respect to the total heated area in square metres. The actual amount of heat consumption however, may be significantly lower. The absence of meters makes energy consumption impossible to measure. The use of meters and the level of consumption is linked, consumption levels decreased after the installation of meters in Kiev by 3-5 times. An additional advantage for the household using its own boiler is the ability to generate heat only when it is needed. In order to switch to an autonomous source and install the boiler, the household needs to submit an application, receive approval from the city or district council, from the heat-supplier (boiler-house), and from the municipal gas enterprise (as it will use gas for the boiler). After completion of this procedure, the household will be switched off from centralised heating.

There are also advantages to centralized heating. Installation of gas equipment for heating in the apartments may contradict the building code on construction of apartment houses and ventilation. This and some other features confine the use of autonomous heating systems and reserve the need for communal heating services. Investigations have been carried out on the feasibility of shifting from centralized to local autonomous heating. It was concluded that local sources of heating are less rational for large cities with a presently well-developed system of centralized heating, such as Kiev. Municipal heat-distribution systems have well-developed infrastructure. A centralized heating grid requires a unified controlling system.

Heat and Power Plants are owned by the state. Co-generation facilities are not subject to privatization. Boiler houses have several forms of ownership. They may be (state) municipal property, belong to joint-stock companies created at the base of former municipal enterprises, or be institutional property (boiler houses belonging to hospitals, schools, or factories). Centralized district heating is provided by communal heating service companies or teplokomunenergos. Communal heating service companies are responsible for the provision of heat, hot water, and ventilation. They are subordinated to the municipal council (entity of local authorities). In large cities the subordination is more complex, including a principal body, namely a municipal council, and districts councils. At the state level, there is a State Committee on Housing and Communal Services with a supportive function, as communal heating service companies are not directly subordinated. Heat is supplied to the households, state budget enterprises, and self-financing entities at the tariff established by the municipal council. The communal heating service company owns boiler houses and may rent some facilities of institutional property.

To give an example of a consumption structure in an non-industrial city with 300,000 inhabitants: households consume 75 to 80 percent of the total amount of supplied heat, self-financing entities consume up to 10 percent, and state budget enterprises consume the rest. The tariff for one square metre of heated area is UAH 0.78 per month (UAH 9.36/m^2/year). For the same city, the ratio of heat supply and hot water supply in total service amount would be 74 to 26 percent respectively.

There are main and distribution grids used for heat-carrier transmission. These can be radial or circular (more complicated) grids. In order to avoid breaks in the heat distribution,

main grids may be connected. Quite often the radius of the grid in the city can reach or exceed 15 km. In large cities, 'city collectors' are constructed to lay heat and water grids, as well as electricity and phone cables. The heating water grids can be 'closed' and 'opened'. In the 'closed' grids the water returns to the source of heat supply. 'Open' grids give access to the hot water for final consumers. Therefore this water should meet the state standards required for potable water (DOST).

A very important step towards improving the quality of the heat supply service and the efficiency of its operations was taken by the CMU by approving the *Programme of Reforming and Developing of Housing and Communal Services in 2002-2005 and for the Period until 2010* on 14 February 2002. This programme aims at reducing energy expenditures and losses in the communal-household services sphere, implementing an efficient energy-saving policy, and providing effective investment policy. Moreover, the programme is supposed to result in the de-monopolization of the sector and the development of a competitive environment.

In order to make the process of heat production and supply more energy-efficient, it is crucial to install new equipment, such as boilers with higher efficiency for combustion processes and pipes with better insulation. It is also important to replace old sections of the pipe system where leakages and bursting may occur, as well as losses of heat due to the broken insulation. In order to improve control over the actual heat consumption, meters need to be installed. Disconnection from the heat-supply as a type of penalty used for non-payment is not always possible. The technical characteristics of the heating system in older apartment houses do not allow disconnecting of a flat (apartment) separately. Such large-scale modernization requires significant funds, which the budgets of municipal councils usually lack.

2.5.3 *Addressing the problems*

Some challenges faced by Ukrainian authorities in the field of EE are summarized:

- *Reforms to energy policy*: The state policy in the energy sector is aiming to implement reforms in the field, to develop resource base in order to favour competition between resource suppliers and to ensure national energy safety.
- *Partial decentralization of state commissions:* It has to be attributed to the local authorities.
- *Shift of social sphere:* The social sphere, which is presently extensively financed by enterprises in the energy sector, shall be transferred to local authorities.
- *More responsibility is delegated:* It has to be attributed to the local authorities to assist elaboration of new technologies.
- *Opportunities for private entities:* They will enable to operate in the field providing examples of progress.

3 FINANCING ENERGY EFFICIENCY IN TRANSITION ECONOMIES

Gaudenz Assenza, Mikael Brodin, and Ana Villarreal[300]

The following chapter provides an overview of various financial instruments for investments in energy efficiency and climate change mitigation, as well as a description of the experience of EE-21 countries with regard to their differing options for sourcing capital to these investments.

3.1 Introduction

Investments in energy efficiency within district heating, hospital heat and power supply, and municipal lighting are often technically feasible and cost efficient means to reduce wastage of energy and provide environmentally beneficial solutions. Although technical measures that are vital for improvements in terms of economic efficiency may be clearly defined, there is often a lack of practical financial opportunities available for the public entities — state or municipal — which are responsible for maintaining their systems and thereby providing qualitative energy services to their customers.

The reasons for this lack of financial opportunities are complex, originating in the countries' legacy of the Soviet Union's planned economy. The countries face underdeveloped capital markets, managed price policies deeply influenced by social and political concerns, insecurity surrounding legal aspects of non-sovereign entities funding, and a commonly shared view in the financial community that alternative businesses prove more profitable and safer to invest in than the domestic energy sector. These characteristic features of a transitional economy have been described as deeply rooted in various socio-political layers of the society itself. The unattractiveness of the energy demand sector to the foreign investor is thus not the cause of the lack of investment capital, but rather the symptom of structural inadequacy. Any description of investment opportunities in transitional economies would need to address the scope, nature, and possible impact of these structural deficiencies.

A number of such strategic barriers to effective implementation of investment proposals for energy efficiency are described in this chapter, which focuses on the realities and opportunities of financing in the five countries involved in this project. The causes of financial barriers for investments in the energy sector described in this chapter are not isolated, but rather related and even inseparable.

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The non-payments problem is a vicious circle affecting most sectors of the economy. It is one of the characteristics of post-communist transition and has seriously hampered the development of the energy demand sector. Poor liquidity and insufficient equity ratios in heavily indebted companies have prevented access to existing capital markets and has made it extremely difficult to carry out long needed investments.

The key factor behind this problem is difficult to isolate for it involves GDP collapse, high inflation, rising unemployment, and the loss of traditional export markets. Energy prices come closer to world market levels, energy providers and intermediaries are confronted with higher supply costs, and industries and households have increased difficulties to pay their energy bills. Increased retail prices, loss of traditional markets, and declining incomes contribute to the non-payments problem. The consumer's weakened ability to absorb higher prices leads to arrears in energy utilities, resulting in defaulted payments of fuel supply, government taxes, and employees' wages. This chain of inter-company arrears has eroded tax collections and thus emptied the governmental funds for energy consumption, maintenance, and upgrading. Factors leading to the non-payments problem throughout the nineties include:

- Tight monetary and fiscal policy used to curb inflation following price liberalization, which led to payment defaults by government budget entities, state owned enterprises, and households;
- Inability to disconnect supplies of electricity or fuel to non-paying customers — for social, strategic, and purposely economic reasons;
- Technical inability to disconnect individual residential heat consumers;
- Dramatic change in customer base when the share in total electricity consumption declined for industries and increased for households;
- Inability of federal, regional, and local governments to pay subsidies for power and heat used by households, failing to compensate for tariff discounts that utilities were compelled by law to offer;
- Tax laws written to focus on cash holdings and not accruals, which could spur tax authorities to freeze company accounts. This forced companies to use cash substitutes in inter-company transactions. With a fiscal policy based on cash receipts, companies often resorted to innovative schemes of barter trades, offsets, and promissory notes;
- Potential for private gains among internal stakeholders when using cash substitutes;
- Poor corporate governance derived from partial privatization of power utilities, leading to dominance of insiders;
- Conflict of power between centre and province, where locals prevented flow of cash to the centre, protecting local jobs at the expense of centrally positioned or managed utilities;
- Obscure property rights and inefficient enforcement of them, barriers to market exit or disinvestments due to undeveloped legal framework for bankruptcy proceeding, preventing liquidation of inefficient entities.

There is a distinct feature of non-profit companies, not restricted to entities in the energy sector, which is sometimes referred to as the 'catch-lever' effect. Originally a common phenomenon in centrally planned and administered economies, it might still be decisive for the momentum of energy efficiency measures in transitional economies where companies are still owned by the state or the municipality.

In a company void of profit motive, management is not evaluated on economic result but on compliance with budgeted or planned output targets, given a fixed level of resource input. Efficiency under this regime is defined as the fulfilment of output targets or as savings, when the output targets are fulfilled with the exploitation of resources below input budget. When budgeting for the next year or five-year plan, these savings would be considered in the cost estimate, concluding that an equal output is attainable at smaller input levels. Hence, allocations would be directed elsewhere by the planning organ. The management of the company would not find itself rewarded with retained profits and a larger degree of economic flexibility as in a profit-motivated company, but rather deprived of the resources saved.

Savings in a company with a non-profit motive may have a disadvantageous effect on its economic flexibility and are sometimes openly resisted. An expense budget should, from a managerial perspective, increase from one year to another, not decrease (catch lever effect). This could be considered a flaw in the system of managerial incentives, which could be contested with rigorous control measures. Although privatizing the unit could provide incentives for cost efficiency, other measures are needed for natural monopolies.

Price policy and subsidies: The viability of investments and the attraction of capital to any commercial venture depend on the project's capacity to generate a surplus to cover financial costs above the production cost. Subsidies by means of artificially low prices granted to end consumers require that costs be covered elsewhere for the energy provider. If the coverage of these costs by the municipality or by other owners ceases, as has been the case following the massive schemes of non-payments, the energy provider is saved from bankruptcy only by the legislation preventing public companies from formal liquidation. Resources must be found elsewhere, most often at the expense of the owner or the municipality.

Lack of incentives for end users to save energy: Another example of the former centralised approach to energy policies is the absence of metering devices to measure the consumption of energy on end-user level. This rules out the possibility to charge energy consumers their fair share of costs, even if the political will to do so exists. Invoicing is made on the basis of apartment size or aggregated consumer level, distorting the relation between actual consumption and actual costs. The installation of metering devices is gaining momentum in these countries for it increases the awareness of users to reduce consumption and is a prerequisite for a host of other measures to give significant reductions in energy costs.

Increasing awareness of individual consumption patterns is often coupled with increased attention to pricing of energy. In transition economies, energy costs had been a minor expense in household and most industrial sector budgets, but are now growing as prices are liberalised. When energy costs become a substantial part of a household budget, the incentive to economize these resources increases, provided that charges are made according to actual consumption levels that the consumer is aware of and able to regulate.

Lack of knowledge and institutional capacity: There is little public and managerial awareness about simple measures that can reduce energy consumption, such as the insulation of buildings. Energy Efficiency Demonstration Zones are a mean to change this situation in the EE-21 project countries. They are believed to have a decisive effect on public awareness and have put forward a good example in energy management to be replicated where similar measures are not used. Modern technology, good energy management, and a well planned financing are combined under a specific project in order to demonstrate the advantages of modern EE techniques.

Insufficient legal framework: Although progress has been made in a number of CIS countries over the last few years, the legal framework for large-scale implementation of EE measures remains weak in certain aspects. These include the assignment of responsibilities between the governmental or municipal institutions involved and the development of standards, norms, and sanctions for excessive energy consumption. Existing laws on EE are often not exhaustive enough and need supplementary legislation.[301]

High transaction costs: Many project proposals involve small investments in nominal figures, but have a high transaction cost due to feasibility studies, project preparations, and management. Investors may be reluctant to consider energy efficiency projects with high transaction costs and focus instead on projects exceeding a certain size, where the relative administrative cost is reduced to acceptable levels. In order to overcome this barrier, small-scale energy efficiency projects having similar characteristics are often bundled, seeking the advantages of larger projects in the preparatory phases.

[301] UN ECE 2001, 36.

3.2 Financial instruments

The characteristics of various methods to finance investments in Energy Efficiency are described in the following section. Investing in new energy technology for existing facilities results in a more efficient, cost saving, and ecological use of energy. Historically, the interest for this kind of investments has followed the increase of energy prices. The high fuel prices of the oil crisis of the seventies gave Western European countries a clear economic motive to invest in qualitative rather than quantitative energy generating capacities. In Eastern Europe, fuel prices are gradually reaching world market levels and there is a vast potential for return on invested capital since the region has comparatively high levels of energy intensity. A number of conditions are needed on the legislative and administrative level to realize this potential.

The mechanisms for financing measures within the current institutional framework of energy efficiency are insufficient to solve the problems inherent in the energy sectors of many transitional economies. Reforms of legal and administrative character are needed to attract capital from the private sector. The finance available is a function of perceived risk and profit expectations, political stability, a supportive administrative sector, and predictable and non-discriminatory jurisdiction.

Prior to an increase in capital supply for large-scale energy efficiency measures, governments are not only confronted with the task of making the investment climate attractive, but also of mitigating the social consequences of an energy policy exposed to market mechanisms. Direct loans to public enterprises have been ruled out by IFIs as a means of promoting investments in energy efficiency. Nevertheless, exceptions at a smaller scale are made for different types of rehabilitation projects, where there is a low degree of private sector interest compared to investment needs or where externalities such as environmental benefits are expected. Public entities' capability to generate internal funds and provide collateral for loans has been stressed as a prerequisite for IFI financing.

3.2.1 *State or municipal budget financing*

The most important financial source for measures within EE in the foreseeable future is public funds given the magnitude of the needs, the large degree of public ownership in the EE-21 project key sectors, and the limited funds available from external sources. The state of public financing available for EE in the project countries is poor and the competition with other, more prioritized sectors of the economy high. Since the potentials within this field are a reflection of each country's macroeconomic development, a more specialized treatment than the one this book could provide is needed. Special national programmes that include financial measures for EE will be presented. For further reference, subchapter 3.3 presents a brief review of public financing of each country analysed.

3.2.2 *Grants*

Many western countries provide grants under certain programmes to finance EE measures in Eastern Europe, as well as IFIs and other organizations. The conditions under which the grants are given vary among these organizations. Grants are often given to finance the transfer

of knowledge or project feasibility studies. The following organizations may be of interest for stakeholders since they provide grants for the energy sector, energy efficiency, and climate change mitigation.

The United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank are the implementing agencies of the Global Environment Facility (GEF). GEF is a facility that finances activities addressing six serious threats to the environment, which are biodiversity loss, climate change, degradation of international waters, ozone depletion, land degradation, and persistent organic pollutants. The activities on climate change constitute the second largest group. GEF is the financial mechanism for the United Nations Framework Convention on Climate Change (UNFCCC). It acts according to the guidelines worked out by the COP on policy, programme priorities, and eligibility criteria. Climate change activities are divided into four areas: removing barriers to energy efficiency and energy conservation, promoting the adoption of renewable energy by removing barriers and reducing implementation cost, reducing the cost of low GHG emitting technologies, and supporting the development of sustainable transport.

Project proposals to GEF must correspond to national or regional priorities, be supported by the countries involved, and improve the global environment or work towards reducing its risks. The applicant country should be a party of the appropriate treaty and be eligible to borrow from the World Bank or alternatively, receive technical assistance from UNDP. The funding options of GEF are manifold. Full-sized projects are assisted through the GEF's implementing agencies and operational focal points in the respective country. Medium-sized projects are flexible and receive 'expedient' grants of less than one million dollars. The Enabling Activities Grant seeks to assist for example, in national inventories, strategies and action plans. The Project Preparation and Development Facility's funding is divided into three blocks and can finance from $25,000 to $1,000,000 for project preparations in various stages. The Small Grants Programme can offer up to $50,000 and the Small and Medium Size Enterprise Programme works with the IMF for positive environmental impact and private sector investment opportunities.

Global Environment Facility - Read more on: www.gefweb.org/

The Northern Dimension Environmental Partnership (NDEP) is an initiative from the European Commission, the EU member states, and the partner countries. The Northern Dimension Area is defined as an area stretching from Iceland to the west across to northwest Russia, from the Norwegian, Barents, and Kara Seas in the north to the southern coast of the Baltic Sea. Countries outside the EU are Estonia, Latvia, Lithuania, the Russian Federation, Poland, Norway, and Iceland. A special focus is made on the Kaliningrad enclave.

The NDEP was created in 2001 to coordinate the support for environmental problems, nuclear safety, nuclear waste management, and cooperation in the energy sector, transport and border-crossing infrastructure, among others. A steering group consisting of the EC, the Russian Federation, and IFIs active in the region managed the work and identified 12 environmental projects and 16 nuclear waste management projects requiring a funding of €1.8 billion. A support fund was set up in order to provide grant co-financing to IFI loans. The

fund will be managed by the EBRD. The organizations supporting the NDEP are the Council of the Barents Sea, the Barents Euro Arctic Council, the Arctic Council, the EBRD, the NIB, the NEFCO, and the NOPEF. The NDEP acts through the EU's existing financing instruments. A number of countries have pledged support to the fund.

The Northern Dimension Environmental Initiative - Read more on:
www.europa.eu.int/comm/external_relations/north_dim/index

The European Union also backs the TACIS programme to support the transition of eastern and central European countries to market economies. TACIS is intended to provide grant financed technical assistance to 13 eastern and central European countries in institutional, legal and administrative reforms, private sector and economic development, consequences of changes in society, infrastructure networks, environmental protection, rural economy, and nuclear safety. In the field of energy efficiency, the TACIS Small Grants Programme has financed EC Centres in a number of CIS cities. In Moscow, St Petersburg, and Minsk, these are co-financed by the EU Thermie programme. Although the grants primarily cover technical assistance, funding of equipment for demo purposes has been offered.

Read more about TACIS in: www.europa.eu.int/comm/external_relations/ceeca/tacis/

Since 1996, The Nordic Environment Finance Corporation (NEFCO) manages the Nordic Environmental Development Fund to finance environmental projects within the regions neighbouring the Nordic countries (see Section 3.1.3). This facility approves grants of up to one third of the total cost of the project and may be used to procure goods and services. It may also be used to reduce debt cost. Co-financing from other financing organisations and local contributions are key. The expected capitalization of the fund is DKK 35 million annually. The fund is planned to operate until 2003.[302]

3.2.3 *Lending and minority equity financing*

International financial institutions make important contributions to the financing of EE projects, as they may provide capital in an environment that is characterised by domestic capital scarcity and high investment risk.

The European Bank for Reconstruction and Development (EBRD) is the largest single investor in Central and Eastern Europe and Central Asia. The owners of the EBRD are 60 countries and two intergovernmental institutions. The EBRD's directs its activities primarily towards the private sector, but also includes the public sector. Energy and energy efficiency are only two of

[302] NEFCO, not dated/a.

the many focal areas. Common denominators of the investments financed by the EBRD are commitment to democratic principles, respect for the environment, and facilitation of efforts to create a market economy. In the energy efficiency sector, EBRD has invested €233 million in 12 projects (21 March 2001).

Micro, small, and medium projects have received over €5 million, financed through loans from intermediaries, such as local banks in the countries of operation. Equity finance is provided through the Direct Investment Facility (up to $2.5 million) or indirectly through a regional or sector private funds, where EBRD participates with a smaller stake. One of these private equity funds is 'The Dexia-FondElec Energy Efficiency and Emissions Reduction Fund', where the fund managers are FondElec Clean Energy Group and Dexia Bank of France. Marubeni Corporation and Mitsui & Co (trading companies), as well as Kansai Electric Power Corporation and Electric Power Development Corporation (utilities) are important contributors.[303] This fund for projects in Central and Eastern Europe invests through an ESCO in the energy efficiency of existing plants and equipment such as plant retrofits, fuel conversions, heat recovery systems, electric transmission grids, gas and district heating improvements, illumination, and industrial efficiency enhancements. In addition, the fund has an interest in acquiring carbon credits received from energy efficiency measures.

Read more about EBRD in: www.ebrd.org
Read more about The Dexia-FondElec Energy Efficiency and Emissions Reduction Fund in: www.fecleanenergy.com or www.fondelec.com

The World Bank is an implementing agency for the Global Environment Facility. In its regular operations, the organization assists in the development of infrastructure and of the energy sector in 28 countries of Europe and Central Asia through direct investments in member countries and technical and advisory services. The World Bank's activities are based on a set of mutually reinforcing policies for operation in the sectors, addressing de-monopolization and regulation, prices and fiscal policy, foreign trade, investment policy, social protection and environmental protection. Over the last five years, $4.9 billion has been directed to the infrastructure and energy sectors. The value of current World Bank investment projects in the energy sector amounts to $5.7 billion, of which energy efficiency accounts for nine percent. Five projects in the district-heating sub-sector address rehabilitation of heat generation, transmission, and distribution facilities, as well as metering of heat consumption.

Read more about the World Bank Group in: www.worldbank.org
Read more about the International Finance Corporation in: www.ifc.org

[303] FondElec Clean Energy Group, not dated.

The Nordic Environment Finance Corporation (NEFCO) works with countries in Eastern Europe, especially those with a close link to the Baltic Sea area. The five Nordic countries support the NEFCO, focusing on environmentally beneficial projects in Central and Eastern Europe with trans-boundary effects for the Nordic region. The main criteria for NEFCO funding are: project localisation in one of the countries where NEFCO operates, environmental relevance, long term cooperation prospects, a Nordic partner company or institution, as well as economical, financial, institutional, and technical viability.

In the event of equity investment, NEFCO may take a minority position of 24 to 35 percent in the venture. Commitments are generally made in the range of €125,000 to €3,000,000. As a rule, NEFCO prefers to participate actively in the venture with board representation. Loans are given on commercial terms and may be structured in various ways and contain equity features. NEFCO also participates in medium to long-term co-financing arrangements. The project categories NEFCO focuses on are modernization of industrial and energy production processes and investments in specific plants, equipment production processes for pollution abatement and metering, waste management, recycling, water and waste water treatment, as well as planning and consulting services.

Read more about the Nordic Environment Finance Corporation in: www.nefco.fi

3.2.4 *Performance contracting*

Performance contracting, often referred to as third party financing, has been attempted in Eastern Europe in the last few years. If the entity wishing to carry out significant investments in energy technology is barred from direct borrowing or inclusion of external owners as contributors, there are alternative financial mechanisms that might be of interest. An indirect way to attract capital to investments is to employ the services of an Energy Service Company (ESCO). The ESCO may fulfil the functions of project identification, planning, and implementation, as well as financing. The latter is accomplished by means of a contractual relation between the ESCO and the project owner, where the investment carried out by the ESCO is financed from the verified cost savings achieved. The arrangement may also be described as outsourcing, when a third party joins the originally intended financier and the project owner, carrying out contractually fixed services in exchange for a part of the savings achieved by the project.

From an investor's perspective, the management, technology, and credit risk of the project is shifted from the owner, which can be a municipal energy company, to the ESCO. In these cases, the ESCO is as dependent on the guarantees from the services as the IFI or commercial fund, in order to safeguard against municipal default. A concentration on heterogeneous project owners in the portfolio of the ESCO could be considered a substantial reduction of credit risk also for the investor in the ESCO. On the other hand, this should be weighed against the risk of forfeiting potential scale economies that are attainable from the 'pooling' of technically similar or homogeneous projects in order to avoid excessive transaction costs from preparatory phases of the contractual arrangement.

Whether this involvement of a third party means a net increase of total risk or not depends on the specific country, sector, and customer focus of the ESCO. The larger the company, the more likely it is to be active on multiple markets with many customers, thereby reducing market entry constraints, overall political risk, and currency exposure. It is also possible that a large, broad market orientation of the ESCO entails advantages for scale economies, reducing risks derived from specific business cycle fluctuations of the energy sector, compared to smaller ESCOs with a local focus. The main advantage of this is that the project owner's need for up-front capital is reduced or eliminated, when it becomes the responsibility of the performance contractor.

There are two types of contracts. The first may include energy services and financing and is referred to as a guaranteed savings contract, where payments from the project owner are made according to savings achieved. The second category might not include the ESCO in the financial agreement. It makes the project owner liable to cover the capital outlays. Payments to the ESCO from the project are not related to the actual savings achieved. The role of the ESCO may be to transfer the financing to the project owner. Under shared savings arrangements, a certain percentage of savings are for the benefit of the ESCO and standard prices for energy are set in order to reduce price fluctuations risks. Under a paid for savings contract, the capital cost and operating cost (at a fixed interest rate) are to be paid until savings have repaid the project.

Certain types of risks are present under a performance-contracting scheme, pertaining to the ESCO, the project owner, or both. The credit risk addresses the project owner's capability to serve the instalments to the ESCO. The operating or load risk is the possibility that the output may be reduced due to fluctuations in demand. The development and construction risk occurs when projects are delayed or cancelled after being started. The performance risk is the possibility that the installations do not perform as intended.

3.2.5 *Leasing*

Under performance contracting, leasing is sometimes chosen as the mechanism to provide the project owner with the necessary equipment. Leasing may take place without the participation of the ESCO. Under a leasing contract, a lessor conveys to a lessee the right to use a piece of property for an agreed period of time against payment or a series of payments. The lessor remains the indisputable owner of the property regarding financial, fiscal, and accounting concerns. Even though different countries may have diverging legislation with regard to these concerns, the right to use is not the same as the right to own. The contract length often corresponds to the amortization period of the leased asset and may include an option for the lessee to purchase the equipment at the end of the period. There are basically two kinds of leasing, which are operating and financial lease. The first type may include service, maintenance, and reparations with regard to operating the object and is not capitalised in the lessee's balance sheet. The second type however, is capitalized as an asset in the balance sheet.

The advantages of leasing include the ability to implement investments without the needing to raise capital up-front. From an accounting point of view, leasing reduces lessee pre-tax profit by the rent he pays. The amortization is however at the benefit of the lessor, unless capitalised in the lessee's books. Further, the leased object does not cause any change in the equity ratio of the lessee, since it does not have to take up loans to finance the investment. If high rates of amortization are allowed, the residual or sales value of the assets is high when

fully written off, benefiting the lessor. There might not be a need for collateral (as with loans), since the leasing object itself may be pledged under a specific agreement.

The disadvantages of leasing include the possibility of technological development outperforming the leased object, for which fees have to be paid until the end of the contract (unless there is a replacement clause in the contract). Further, the lessee needs to carefully weigh the financial advantages against the level of payments under the contract. The leasing company faces the risk that the returned equipment may lose its value. This could happen if the leased equipment cannot be dismantled (could be the case with EE equipment), if it is specialised for the initial lessee, or if it turns obsolete.

3.2.6 *Tax and customs tariff incentives*

A country that wants to promote measures in EE has a number of options to stimulate utilities, the market for technology distribution and providers of EE services, thus laying the ground for what may be called indirect financing. For instance, increasing the depreciation allowance for fixed assets from investments in EE equipment lessens the tax burden of the project owner and makes it more attractive to carry out the type of investments that the changes in valuation rules addresses. Prioritizing certain types of investments makes non-prioritized sectors comparatively less attractive and may bias availability of capital. Also, customs tariffs on imported EE equipment may be reduced or abolished, making investments less costly. This may however be objected by domestic producers of similar products or substitutes to imported equipment, fearing to lose their governmentally sanctioned competitive advantage. Nonetheless, allowing free competition on equal terms between domestic and foreign suppliers should be in favour of the end consumer interest, not only considering price aspects but also quality standards and technology development in the long run.

3.2.7 *Revolving fund*

A revolving fund (RF) is a financial scheme aimed at establishing sustainable financing for a row of investment projects. The fund may include loans or grants and is intended to become self-sustainable after its first capitalization. The objective of a RF is to invest in profitable projects with short payback time, be repaid, and use the same fund to finance new projects. Revolving funds can be an effective solution for financing EE and Climate Change Mitigation projects in economies in transition. A RF is a loan scheme, normally established for a special purpose and target group. For example, a revolving fund can be established as a bank account of a city administration used for financing EE projects in municipal social buildings such as schools, hospitals, and kindergartens.

The owners of a RF can be private or public companies, organisations, institutions, and authorities. Financial operations under revolving mechanisms are conducted against the owners' balance sheet. Resources of the RF are accumulated at the owners' accounts. The organisational structure of a revolving fund varies according to the scale and purpose of the fund, as well as its role in the owner's activity. The RF's activity can be complementary to the main activity of the owner. It can be established as a bank account of the owner or as a separate legal entity. When the RF is established as a bank account of the owner, the administrative costs will be rather low. The owner's staff can carry out the responsibilities

related to the management and accounting of the fund, in addition to their main tasks. A RF that is established as a separate legal entity will require a higher degree of administrative costs.

The operator of a RF can be its owner or the person, company, organisation, institution, or authority appointed by the owner. The owners set the rules for the RF and can be involved directly in the management of the project when the RF finances few large scale investment projects. The operator should be eligible to run activities related to the fund in accordance with the current law.

External donors and financiers are donating organisations, companies, institutions and authorities, which provide contributions for the fund in the form of grants, subsidies, different types of loans, or other type of repayable contribution. Both categories may participate in the management of the RF but do not own its resources. In some cases the management of the RF requires additional agreements with the bank the RF is located in to withdraw loans from its accounts. Choosing a reliable local bank to establish the RF is an issue of vital importance. When the owner of the RF is a state or municipal authority, there can be legislative limitations regarding the bank where the RF can be established.

Borrowers are private or public companies, organisations, institutions, and authorities eligible for obtaining finance from a RF for project implementation. There are two main types of borrowers, which are project owners and contractors. Project owners obtain the loans and implement the projects by themselves or with contractors. Contractors can be private and public companies and organisations, as well as persons acting as executors for projects financed from RFs. In some cases contractors take financial risks and act as borrowers. Such contractors can be considered as Energy Service Companies (ESCOs). The third party financing scheme, which involves ESCOs, can additionally finance a RF.

Revolving fund conditions: To accumulate resources in the RF, savings or earnings gained from projects should be repaid back to the fund within a fixed period of time, at certain time intervals. The agreed period can be:

- Shorter than the project payback period but longer than the loan's payback period (to include the loan interest);
- Equal to the project payback period;
- Longer than the project payback period.

The main factors that influence the development of a RF are the size of the initial investment, the share of savings to be repaid to the revolving fund, and the repayment period.

- The bigger the part of the savings transferred to the revolving fund, the better the fund's cash flow;
- The longer the repayment period of the revolving fund, the more resources the fund will accumulate;
- The bigger the initial investment, the faster the development process of the RF.

The following advantages and drawbacks may apply when establishing and using the RF as bank account to finance EE projects in municipalities. Advantages include:

- Generating funds for new projects;
- Simplifying procedures of application and evaluation;
- Minimizing costs for maintenance of the scheme itself.

Possible drawbacks include:

- Lack of financial resources in municipal budgets for local co-financing;
- Necessity to conduct legal assessment to establish the mechanism of repayment, which can vary among municipalities due to the complicated budget law;
- Threat of reduced nominal savings in the municipal budget due to increasing tariffs;
- Necessary availability of energy meters before starting the financing of energy saving measures for precise counting of savings to be repaid;
- High dependency on the attitude of authorities towards the issue of energy saving and establishing the RF itself.

3.3 Financing in project countries

This chapter describes financial entities or parties that may provide capital directly or indirectly (through intermediaries such as ESCOs) in an environment generally characterized by non-profit motives or excessive risk in relation to anticipated returns. The five countries of this project are examined to identify the extent of the financial mechanisms attributable to EE.

3.3.1 *Belarus*

Examples of projects: The following multilateral institutions are working in Belarus:

- The International Monetary Fund (IMF) works through the Ministry of Finances according to the Fund Charter;
- The World Bank issues grants and credits. The credits are usually offered on the following conditions: the bank provides 60 percent of funding and the borrower 40 percent. The annual interest varies from 5 to 7 percent, it has a 5-year moratorium for repayment of primary debt, and the repayment of the interests and the primary debt must be carried out within 15 to 17 years.[304]

IFIs have granted the following loans to Belarus in the field of EE:

- In 2001, the World Bank granted a $22.6 million Social Infrastructure Retrofitting loan. The total cost of the project is $40.43 million, of which $17.83 million is the Belarusian contribution from the innovation fund of the concern 'Belenergo'. The finances from this source are allocated through the regional (oblast and Minsk) energy saving programmes. The project is administered by the Republican unitary enterprise Belinvestenergosberezheniye;
- In 2002, the project 'Biomass Energy for Heating and Hot Water Supply in Belarus', was presented for GEF's approval. The term of realization is October 2002 to September 2006. The total cost of the project is $8.7 million, of which the Global Environmental Facility provides $3.1 million via UNDP. The Committee for Energy Efficiency will supply $2.1 million and $62,000 worth of in-kind aid. Local organizations will provide $1.8 and $1.6 million worth of in-kind aid. The goal of the project is to reduce the volume of greenhouse gas emissions by eliminating the factors hampering the profitable use of wood and wood waste in the heat and water supply systems. One of the objectives is to introduce firewood boilers. In the summer of 2002, phase 'B', which is connected with preparing a project proposal for the demonstration project, was finalized. It is envisaged to create five demonstration objects where various technologies of receiving heat and electric energy from timber fuel will be introduced. The realization of this project would considerably influence the volume of greenhouse gas emissions by substituting the use of traditional fuels

[304] Ministry of Economy of Belarus, not dated.

with high carbon content with biomass, which does not contribute to the net growth of emissions when used.

- UNECE finances the following projects in Belarus: (a) Energy Efficiency and Climate Change Mitigation project; (b) The project aimed at eliminating barriers for the efficient use of energy resources.

The UNECE would also aim at accelerating the process of joining the Kyoto Protocol.

Public funding: One of the recent developments in Belarus is centralizing public financing of energy efficient activities. Public funds for activities aimed at energy efficiency come from the state and local (municipal) budgets, the innovation fund of the Belenergo group, and innovation funds of Ministries and institutions. Public funding in Belarus is based on the principles of unity between all the constituent parts and is defined by the administrative and territorial division of the republic. State and municipal budgets (district and regional budgets, as well as the budget of Minsk) are independent parts of the Belarusian budget system.

The State and municipal budgets' liberty within the system is expressed in the way they are ratified: by the State law and by the decision of local Councils of Deputies. The actual allocation of funds is the responsibility of the government and local executive and administrative bodies. Since the State Energy Saving Programme 1996-2000 was launched, $37.3 million that came from State and municipal budgets were spent on energy saving activities. This figure constituted only 9 percent of the total amount of financing.

Energy saving activities introduced in regional budget organizations (state-owned) are financed through the financial departments of the corresponding oblispolcoms (regional administration) or the Mingorispolcom (city administration in Minsk) in the framework of the existing regional energy saving programmes. These budgetary funds are mostly used to install water and heat meters, replace old uneconomical boilers, as well as for heat rehabilitation of the housing stock. The State budget provides funds for energy saving activities to organizations of national subordination and partially finances the state scientific and technical programme Energosberezheniye (Energy Saving).

The Ministry of Finance allocates funds from the State budget to every branch such as the Ministries of education, public health, culture, and defence. The amount is prescribed in the Budget Act of the corresponding year. The Ministries distribute the funds among the subordinate institutions and organizations when defining energy saving programmes. Regional and branch energy saving programmes are developed, ratified, and financed annually. In the period of 2001 through 2005, the emphasis in financing energy saving activities would be extending the use of loans and internal funds of enterprises. The share of budget financing would decrease by 50 percent. Energy saving activities can be financed by the budget trust-in fund 'Energosberezheniye', a part of the state budget formed by fines, economic sanctions for inefficient use of heat and power resources, and voluntary donations.

This fund is allocated according to the budget established by the Committee for Energy Saving, which is accountable to the Cabinet of Ministers. When designating funds, preference is given to budgetary organizations and institutions. Additionally, Energosberezheniye compensates agent banks for providing favourable credits. Energosberezheniye provides one percent of the total amount of financing for energy saving activities.

The major part of EE activities is funded by the innovation fund of the Belenergo group. In accordance with the legislation, the part of Belenergo's innovation fund directed to energy saving is managed by the Committee on Energy Efficiency of Belarus. The existing sources of financing and the normative base supporting EE activities are presented in the table below.

Table 3.1 The system of financing energy efficiency activities in Belarus

Source of financing	Legal base for forming the source	Distribution of investments in energy efficiency	
		1996-2000, total M$ 370.5	2001-2005, total M$ 795.0
1. The 'Belenergo' concern innovation fund (Ministry of Energy), its part aimed at energy saving	The Budget Act allows forming innovation funds by means of including an innovation constituent into electric and heat energy production costs. Acc. to a Cabinet Regulation on realizing the Budget, 30-33% of the fund can be spent on energy saving activities.	36%	22.5%
2. Innovation funds of Ministries and Institutions	The Budget Act envisages creating innovation funds in Ministries and Institutions and using a part of them on financing branch energy saving programmes	9.3%	12.0%
3. Subsidized credits	Acc. to Cabinet Regulation #504 of March 31, 1998	4.2%	7.0%
4. 'Energo- I Resursosberezheniye' Funds of legal entities	Acc. to Cabinet Regulation #504 of March 31, 1998, can be formed by any legal entity. The funds saved after introducing an energy saving activity may be included into production costs.	1%	4.5%
5. State and municipal budgets	In acc. with the Budget Act	9%	4%
6. State budgetary fund 'Energosberezheniye'	Acc. to Cabinet Regulation #1703 of November 5, 1998, is formed by fines for inefficient use of energy	1.1%	0.5%
Own resources of enterprises	Acc. to Cabinet Regulation #504 of March 31, 1998	39.1%	43%
8. Debt capital (credits, loans and grants from IFO)	On conditions specified by the IFO	0.3%	6.5%
Total		100%	100%

Source: National Energy Saving Programme for 2001-2005.

National programmes aimed at energy efficiency: The key result of energy saving programmes implementation from 1996 to 2000 is that an increase of the GDP by 36 percent has been achieved without increasing fuel and energy consumption. GDP energy intensity has decreased by 25.3 percent. Due to a number of energy saving activities, Belarus has made savings of fuel and energy equivalent to 4 million tce (tonnes of coal equivalent). *The National Programme on Energy Saving for 2001-2005* is currently in effect, focusing on securing planned GNP growth before 2005 without increasing fuel and energy consumption and reducing GNP energy intensity from 15.1 in 2000 to 18.6 percent in 2005.

The main objectives of the programme are to reform the structure of the national economy sectors, increase the efficiency of energy carriers, and promote the use of local, secondary, and non-conventional power sources. The crucial role to be played by the government is to regulate fuel and energy consumption by creating and implementing economic incentives for rational use of the resources, namely:

- Availability of favourable credits for stakeholders in energy saving activities;
- The right given to enterprises to establish their own funds aimed at financing energy and resource saving activities;
- Financing energy saving activities within demonstration zones on state and regional level, and, by means of grants, in the public sector.
- Availability of redeemable financing for energy saving activities with a fund indexation of 1/5 of the National Bank refinancing rate at the moment of repayment;
- Premiums for fuel and energy saving;
- Economic sanctions for inefficient use of fuel and energy.

The *National Programme on Energy Saving for 2001-2005* is implemented by means of:

- Annual identification of priorities in energy saving, which serve as basis for regional and sector energy saving programmes;
- Determining tasks and target indices in energy saving and informing all ministries and departments on these matters;
- Budgetary and off-budget financing, as well as financing using bank funds;
- Organizing scientific and technical support on the basis of a separate scientific and technical programme (STP);
- Informing the public about the resources and benefits of an energy saving approach.

The following programmes will be implemented by the end of 2006:

- A programme aimed at increasing the use of wood and wood waste products for fuel, including the usage of fast growing species like willow and poplar, to substitute imported fuel by 1.9 to 2 million tce.
- Generating a capacity development programme, which provides for the installation of gas turbines, steam-turbine combined-cycles, and small heat power plants. A total of 150 MW is foreseen in different establishments by 2005, resulting in annual fuel savings of 120 to 150 thousand tce.

In 2001, a series of energy saving programmes contributed to decrease GDP energy intensity by 4.1 percent. Another programme aimed at energy saving and environment protection in 2001-2005 is the result of a joint effort between the Ministry of Natural Resources and the Committee for Energy Saving. The central part of this programme includes

a number of national projects, such as the utilization of wood and wood waste products for energy purposes, the construction of manure gas units, the use of fast growing wood (including radiation polluted wood), the utilization of solid waste for energy purposes, the introduction of hydro-power units, and the construction of lignin-fuelled experimental-industrial modules at the hydrolytic plants in Bobruisk and Rechitsa.

Sourcing funds on commercial terms: As of 2001, there were 26 banks in Belarus, out of which 21 were joint stock banks with foreign capital. Foreign capital in the bank sector equalled 11.2 percent of the assets. There were also two banks with 100 percent foreign capital. Together, these banks had 511 branch offices. Nine subsidiaries of foreign banks and financial and investment organizations from Russia, the Baltic states, Germany, and Poland were represented in Belarus. As of March 2002, 88.4 percent of all active banking transactions were carried out by the major banks, which provide services for large-scale industries and support socially important activities. This group of banks includes the stock savings Belarusbank, where 43.7 percent of total banking sector assets are concentrated, and public corporations such as Belagroprombank, Belpromstoybank, Belinvestbank, Belvneshekonombank, and Priorbank.[305]

Current interest rates as well as other conditions in Belarus vary from bank to bank. In January 2002, the average crediting interest rate in Belpromstroybank was 77.36 percent, ranging from 73.2 percent to 83.2 percent depending on the term of the credit. Belinvestbank offers short-term credits (less than one year) at 72 to 74 percent interest, long-term (between one and five years), at the National Bank refinancing rate plus 10 percent. With the purpose of financing the most prioritized energy saving activities, the Cabinet Regulation 504 of 31 of March 1998, provides that all legal entities may be offered credits at favourable interest rates. The interest rate for using this kind of credits may not exceed one half of the National Bank refinancing rate. Starting on 21 May 2002, the refinancing rate was 50 percent, from which the borrower pays 25 percent and the programme initiator 25 percent.[306] Only major banks that are authorized to support national programmes may approve the credits. Subsidized credits for energy saving activities are issued and repaid in accordance with the established procedure.

Any legal entity, private or state-owned, is eligible to receive a credit for introducing an energy saving activity in the framework of the existing energy saving programmes. Branch energy saving programmes are requested by a Ministry or an institution, regional programmes by an Oblispolkom or Mingorispolkom, and national programmes by the Committee for Energy Efficiency. The documents to be submitted to the bank include an application form, a project of indemnity contract (developed by the requester), and the decision made by a commission of experts. Compensation for the interest losses suffered by the agent bank comes from the national Energosberezheniye fund and other funds intended for energy efficiency.

With the aim of expanding the production of energy saving equipment (plate-type heat exchangers), Belinvestbank granted a 204 million Belarusian roubles lax credit to the industrial and construction concern Stroyenergo for the term of two years. The bank receives monthly compensation from the Committee for Energy Efficiency, namely from the Belenergo concern innovation fund. When applying for the credit, Stroyenergo submitted the documents mentioned above, a business plan, and the balance of the previous year, a report on revenues

[305] NBRB, not dated.

[306] NBRB, not dated.

and losses. Stroyenergo will be one of the parties in the planned ESCO. Leasing and using tax incentives are also effective means of financing activities within EE on commercial terms.

ESCOs: They are currently absent in Belarus. However, the country is highly interested in creating such companies and has made the initial moves towards this goal. In January 2002, the Chairman of Brest oblispolkom signed a protocol with the Brest oblispolkom, the Committee for Energy Efficiency, the public corporation Belinvestbank, and Stroyenergo. This protocol urged to create an economic mechanism that would provide incentives for energy saving activities in the budget sector. During the first phase, participants should produce a statute envisaging the order of financing and the oblispolkom guarantee of repayment of funds, as well as proactive financing of heat and electric energy consumption at the budget sector objects included in the energy saving activities. Budget coverage of the consumed energy resources according to the established norms, within two projected terms of payback must also be included in the statute. The order of distribution of the saved funds, which would provide for a complete repayment of debt capital including interest, stimulate the parties of the agreement, and ensure the accumulation of capital for further energy saving activities.

Stroyenergo is responsible for the preparation of the technical and economic basis and the project estimate documentation, as well as for carrying out the production, mounting, and installation. Belinvestbank will be a participant bank in this pilot project. Successful completion of the project will be the prerequisite for creating an ESCO.

Leasing: The legal framework valid for leasing of EE equipment in Belarus does not have any specific features and is therefore regulated by generally established legal standards. The basic documents that regulate leasing activity in Belarus are the Civil Code and the Cabinet Regulation dated 31 December 1997 On Leasing in the Republic of Belarus.[307] Leasing in Belarus is not subject to licensing and can be practiced by any legal entity. The subject of leasing may be any movable or immovable property that, according to the established classification, is regarded as fixed capital stock[308] and software environment. However, property intended for personal use, land, or any natural resources may not be leasing objects. Non-profit organizations may not have the status of lessee.

Non-commercial organisations, those pursuing educational, municipal, and other non-commercial goals, may not enter a lease contract in the capacity of lessee. State-run companies are however allowed to lease alongside commercial companies. The subject of leasing may be obtained on the basis of a sales contract but not as a loan agreement. It cannot be received as a statutory fund deposit either. In practice, however, exceptions are made when the subject of leasing is obtained through other types of transactions. Payments for a lease between residents of Belarus are carried out in Belarusian roubles only, regardless of the type of currency used to purchase the object of leasing. Transactions in foreign currency are permitted in cases provided by the law. The situation changes when the lessor is a bank. The National Bank of Belarus permits residents to conclude leasing bargains in foreign currency if the subject of leasing has obtained the currency. However, this does not give the contractors the right to buy

[307] Belinvestbank, not dated.

[308] Fixed stock is the total of objects retaining their natural form, used in economic activity for over 12 months and exceeding the cost of 30 minimal salaries.

foreign currency at the interbank currency exchange with the purpose of settling leasing payments. It is taken into consideration whether projects repay in foreign currency.

The two major types of leasing available in Belarus are financial and operating leasing. Banks provide financial leasing and leasing firms arrange operating leasing. Nevertheless, the portion of operating leasing in their credit portfolios is quite insignificant. International leasing (when the lessor or lessee is not a resident) is governed by two principal normative documents, which are the Presidential Decree 357 of 2 July 1998 On Joining the UNIDROIT Convention on International Financial Leasing and the Law of the Republic of Belarus 309-3, dated 9 November 1999 On Ratifying the Intergovernmental Leasing Convention.

On the whole, Belarusian leasing legislation is considered to be liberal and provides agents of management with a wide range of opportunities. This may be illustrated by the technical equipment delivery contract signed with to export electric energy from the Berezovskaya hydroelectric power plant. The Republican Unitary Enterprise Brestenergo and the Limited Liability Company Amstel Nord Investment signed a $4 million financial leasing contract for five years. The term of temporary admission regime ends in February 2004, with extensions. As of 2002, there are no practical examples of EE equipment leasing in Belarus.

Tax incentives: The Investment Code (IC) ratified in June 2001 has brought about important changes in the investment climate of Belarus. According to the IC, foreign investors receive governmental guarantees. Credits are attracted and repaid for according to the conditions determined by international, interbank, or crediting agreements. Article 91 of the IC provides tax incentives for foreign investors, which are exempt from profit tax within 3 years after the reporting of profit gained from selling production, goods, or services, excluding trade and purchasing activities. The minimal share of the foreign investor in the statutory fund should be 30 percent. Goods brought into the country by foreign investors are exempt from VAT and customs duties, excluding basic production assets, excisable goods, and goods aimed at forming the statutory fund.

Enterprises with a share of foreign investment exceeding 30 percent are entitled to license-free export of their own production and the import of goods for their production. In Belarus, legal entities may use the method of accelerated amortization with the purpose of retrofitting their basic production assets and introducing new technologies. However, there are some restrictions: the method cannot be applied to machines, equipment and transport should have a service life of less than 3 years, some kinds of aircraft fleet equipment do not apply, as well as the mobile stock of automobile transport and other unique machines and equipment. When using accelerated amortization, enterprises apply the linear (even) method of calculation. The norm of annual amortization payments for complete restoration increases by a maximum of 50 percent. Accelerated amortization may be regarded as a form of tax incentive, because it reduces the taxable amount subject to profit tax.

Legal entities of all forms of ownership may include the cost of the saved energy and materials into the cost price of their products within one year after introducing energy saving measures. These funds may be then accumulated into their own Energo-I Resursosberezheniye fund and be used to finance scientific research and introduce energy saving activities and technologies. It can also be used to repay bank credits and interest payments on credits received for implementing measures within energy efficiency. Up to 50 percent of the fund may be used to award bonuses to the staff. This mechanism is an indirect tax incentive, since it allows reducing taxable profits.

3.3.2 *Bulgaria*

The following Bulgarian financial sources and mechanisms are theoretically available to finance EE programmes and projects:[309] low-interest loans or grants from environmental funds such as the National Environmental Protection Fund and the National Trust EcoFund; commercial financing through bank loans and municipal and commercial bonds; and financing by investment companies, equipment producers, or energy service companies (ESCOs). However, barriers to efficient utilisation of the above-mentioned sources prevent the promotion of EE undertakings in Bulgaria with local capital solely. This explains why international parties financed most of the programmes implemented so far in the field of energy efficiency.

Examples of projects: *See Sourcing funds on commercial terms in this section.*

Public funding: Energy efficiency has been declared a priority task in the latest energy strategies in Bulgaria. However, the government has met difficulties in providing local financial resources for the investments. The scope of the country's public investments is determined annually in the State Budget of Bulgaria, according to the Law on the Structure of the State Budget. The Ministry of Finance is the main authority responsible for budget formation, as in compliance to Art 14 (1) of the law, it compiles budgetary forecasts for all state and municipal bodies based on analysis of the present macroeconomic trends and conditions, as well as on the financial results from the activity of the respective institution for the previous period.[310] These analyses are provided by state and municipal administrations, as well as other budgetary organisations. The projected budgets are submitted together with reports and a preliminary account of their revenues and expenditures. The Ministry of Finance analyses these parameters, discusses the results with them, and prepares a final draft budget to be discussed in the Council of Ministers. The final budget scheme is then approved by the National Assembly and is announced under the Law on the State Budget for the respective year. The state budget includes all budget revenues and expenditures of the state. The state budget for 2002 includes the following revenue items:[311]

- Tax revenues: profit and personal income tax, VAT, Excise, Import Duties.
- Non-tax revenues: State, municipal, and judicial charges and sanctions, as well as revenues from state property.

The state budget expenditures includes all expenses for public administration, national defence, security, education, healthcare, culture, science, social protection, and the judicial system, as well as for the internal and external debt. All capital expenditures are included in the second main item. All transfers and subsidies, including those for municipalities, are also included in the state budget.[312] The Currency Board Arrangement (CBA) in the country applies restrictions to budget formation and influences the national economy strongly.

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[309] Novem & EnEffect 2000, 30-31.

[310] Republic of Bulgaria National Assembly 2002.

[311] Republic of Bulgaria National Assembly 2002.

[312] Republic of Bulgaria National Assembly 2002.

Municipalities: According to Article 2 of the Law on the Local Self Government and Local Administration,[313] the territory of Bulgaria is divided into municipalities and districts. The municipality is the major administrative unit that conducts local self-government directly. There are 255 municipalities in Bulgaria, each administered by a Mayor and Municipal Council.[314] These are directly elected by the population and are responsible for providing public services to the population and for administering municipal assets.

Districts: They are larger territorial units consisting of one or more neighbouring municipalities. There are 29 districts in Bulgaria, each of which is administered by a district governor appointed by the government and supported by regional administration.[315] The District Governors and their administration are funded from the state budget. The Regional Governor implements governmental policy on the region, exercises overall control on the activities of the local administration, secures the compliance of the national and regional interest within the implemented regional policy, and performs the interaction between governmental and local authorities. For example, the Energy and Energy Efficiency Act provides that Regional Governors contribute to the implementation of the energy strategy and policy of the country and the plans for the national energy balance in their regions.[316]

Formation of municipality budgets: The resources for municipalities are annually approved by the central government when forming the State Budget. According to Article 42 of the Law on the Structure of the State Budget, financial resources for municipalities are distributed in the form of subsidies 'on the base of certain objective criteria'.[317] In fact, the most significant criterion is the report on expenditures of the previous year.

Article 51(1) of the Law on the Local Self-government and Local Administration says that Municipal Councils compile separate municipal budgets, on the base of their own revenues and transfers from the state, which are the two main sources of revenues for municipalities. Municipalities may receive transfers from the state in the form of subsidies, subventions, and loans. The central government also shares some tax revenues with municipalities. For instance, municipalities receive 10 percent of the corporate tax and 50 percent of the personal income tax of their inhabitants.[318] The municipalities' own tax revenues consist of local taxes and charges including those on immovable property, inheritance, grants, and car routes.[319]

There are different kinds of administrative charges that also contribute to the municipalities' budgets. Although municipal councils have the right to define local charges, taxes are defined by the central government only. The Constitution of Republic of Bulgaria provides that National Assembly is the only organism to have the right to define taxes, promulgated with a law. This fact suggests a comparatively low level of financial decentralisation, which means the state has a strong influence on the local authorities' finances.

[313] Republic of Bulgaria National Assembly, not dated/a.

[314] EnEffect 2001, 8.

[315] EnEffect 2001, 8.

[316] EnEffect 2001, 5.

[317] Republic of Bulgaria National Assembly 2002, Art. 42.

[318] District Administration Dobrich, not dated.

[319] Republic of Bulgaria National Assembly, not dated/b.

The municipalities do not have the right to provide tax alleviation. Large municipalities, which are regional centres, may dispose of the total of their non-tax revenues, whereas the rest of the municipalities may dispose of one half of this total.[320]

The revenues of the municipalities' budgets are formed with subsidies from the state, as well as their own tax and non-tax revenues and the revenues from municipal property and external financing.[321] Over the last few years, municipalities have taken loans for temporary financing of current deficit only. There is a restriction of 5 percent for external financing of the municipal budget deficit (equity assets and bank loans), which limits local authorities' initiatives significantly.[322] Although municipalities are given the right to issue municipal bonds,[323] this is not a real practice yet. There is only one example for a Bulgarian municipal bond issued so far, which was issued for the country's largest municipality, Sofia. The structure of this municipality's budget revenues for 2001 was as follows: 66 percent from taxes, 13 percent from non-tax revenues, 12 percent from subsidies of the state budget, and 9 percent from other sources of financing.[324] In other municipalities, especially in the smaller ones, the share of state transfers is the major source of revenues, reaching 80 percent from the whole budget.[325]

In result, municipalities encounter serious financial difficulties in balancing their budgets. The reason for this is considered to be the high dependence of the municipalities on state transfers, which are usually insufficient, leading to deficit or non-payments in municipalities. In addition to this, municipalities encounter difficulties in planning future budgets, since they are subject to annual review and changes from the government.

A study conducted by the US Triangle Research Institute in 1998 revealed that in comparison with other Central and Eastern European countries, municipalities in Bulgaria possess the least control on their own revenue, are the most dependant on the subsidies allocated by the state, and do not put aside any funds for investments and construction.[326] In fact, the coefficient of decentralisation, which shows the proportion in which resources are distributed between central government and municipalities, is over 80 percent.[327]

The share of energy costs of Bulgarian municipalities in their budget expenditures is high, often leading to delay or non-payment of energy bills.[328] The municipalities' obligations are predominantly social, healthcare, education, district heating, and electricity (NEC) payments. Two of the largest Bulgarian municipalities, Russe and Burgas, faced debts of 10 million BGN and 13 million BGN respectively at the end of 2001. Other smaller municipalities such as Montana and Vidin faced debts of 1.4 million BGN and 1.3 million BGN respectively. The municipalities that have surplus, such as Sofia, do not benefit from it, since it is re-distributed

[320] Pernik News 2000.

[321] Vassileva, Veskovska, and Manolova 2001, 171-172.

[322] EnEffect 2001, 10-11.

[323] Republic of Bulgaria National Assembly, not dated/a, Art. 51.

[324] Vassileva, Veskovska, and Manolova 2001, 49.

[325] Vassileva, Veskovska, and Manolova 2001, 198.

[326] EnEffect 2001, 8.

[327] Vassileva, Veskovska, and Manolova 2001, 229.

[328] EnEffect 2001, 7.

among the poorer regions of the country.[329] Thus, the low level of decentralisation deprives municipalities of the possibility to benefit from their own savings and provides no stimulus to save. Because of the financial difficulties in the majority of municipalities, the state applies financial 'injections' from time to time to meet their overdue obligations. In 2001 for example, the Ministry of Finance approved BGN 111 billion to cover municipalities' heating, fuels, medicine, social, and wages debts.[330]

Priorities:[331] The Law on the State Budget of 1993 (which lasted until 2000) stated that municipalities should comply with the following priorities of fund expenditure:

- Wages, social insurance and medicines;
- Food, heating, lighting, social care, health care and educational establishments;
- Sites listed in the Medium-term Programme for Public Investments (1998-2000);
- Other costs, including the payment of bank loans.

In case of violation of the priorities in budget expenditure, the Law on the State Budget for 2000 introduced sanctions such as cutting monthly transfers until corrections are made. With the Law on the State Budget for 2001, the mandatory priorities in expenditures were abolished and the Municipal Councils were given the right to establish the priorities themselves, with the exception of the money for targeted designation. However, only a few municipalities changed their priorities, until then imposed by the Ministry of Finance.

Investments in municipalities: The main regulatory act governing investments with state assets is the Law on the State Budget. It defines public investments and investments (financed under the target subsidies) made by municipalities on behalf of the state.[332] In the last few years, there has been a drastic drop in the relative share of capital costs of municipalities, the most significant in comparison with labour, current, and 'miscellaneous' costs. The reason for this reduction lies both in the country's macroeconomic conditions and in the restrictions imposed by the CBA to reduce the investment expenditures financed from the general and target subsidies of the municipalities. Local authorities have limited independence to start investment projects on their own without the support of the central government. A clear expression of this is the reduction from 10 to 5 percent of the relative share of external funds in the structure of municipal budgets, which affects the volume of allowed capital costs financed with loans.[333]

Municipalities and EE policy: In compliance with the Article 140 (1) of the Energy and Energy Efficiency Law, activities for promotion of EE and RES utilisation is supported by projects and programmes on the national, regional, and municipal level under the coordination of the State Energy Efficiency Agency. According Article 6(1), district governors are obliged to

[329] Standart News 2002.

[330] Ministry of Finance 2001.

[331] EnEffect 2001, 9.

[332] EnEffect 2001, 10.

[333] EnEffect 2001, 15.

collaborate in the implementation of the national energy strategy and plans for the energy balance of the country. All municipalities with a population over 100,000 inhabitants are envisaged to establish EE units for the promotion of EE. These units shall propose measures for the promotion of EE and RES utilisation and prepare annual municipal programmes for EE.

In other words, although municipalities are assigned a crucial role in EE, they lack the financial incentives and funds to invest in EE. Article 143 (4) of the EEEL states that 'in the budget of each municipality, expenditures for municipal EE and RES programmes shall be envisaged', without specifying how this shall be realised. Investment with state assets will never be enough as long as the local initiative is not supported on its own. Unfortunately, in the process of annual compilation of municipalities' budgets, the state does not treat achieved energy savings as a result of implemented EE projects differently than general savings. These savings are re-distributed among all municipalities, which means the municipality that has actually made savings from EE cannot benefit from them.[334]

National programmes aimed at energy efficiency: The only specialized source of financing for energy efficiency projects used to be the Energy Efficiency Fund, which was established with the help of the PHARE Programme in 1997 but dismantled in 1999. At present there is a strong necessity to establish a specialised fund for energy efficiency. However, any attempt to establish such a fund with support from the state budget fails to meet the requirements of the International Monetary Fund.[335] Other propositions for such a fund are still to be developed (see section on ESCOs).

There are however, some environmental funds that remain the most accessible sources for financing EE projects in Bulgaria. These are the National Environmental Protection Fund and the National Trust EcoFund. The Ministry of the Environment and Water manages the National Environmental Protection Fund. This fund provides loans with low interest and, in some occasions, grants to municipalities and companies for investments in projects with positive environmental effects. Some of the loans are available for five to seven years with a possible one to two-year grace period. The National Trust EcoFund is financed through a 'debt against environment' swap deal, as a result of an agreement between the Bulgarian government and the Swiss Confederation.[336] This fund also provides low interest loans to companies and municipalities, as well as grants when the recipient participates with a share of 30 to 50 percent.

Bilateral financing: Most of the EE initiatives have been financed with grants from abroad. Most of the successful projects implemented were supported by international entities such as PHARE, USAID, and GEF. Under such projects EE centres were established in Gabrovo, Stara Zagora, Russe, Dobrich, and other municipalities. As a result, the Municipal Energy Efficiency Network was created, along with a growing number of such EE centres. Nevertheless, the local sources available to continuously support these offices are limited.

[334] EnEffect 2001, 5.

[335] Novem & EnEffect 2000, 30-31.

[336] Novem & EnEffect 2000, 31.

Multilateral financing: The World Bank and EBRD provide funds mainly through loans for rehabilitation of supply site utilities. They have a few projects aimed at the demand side of EE in Bulgaria. For example, the Fund for Regional Initiatives, which provides funding for certain projects in Bulgaria, is financed by the World Bank and administered by UNDP. It supports regional infrastructure in priority and lends funding for rehabilitation of buildings and facilities in regions in which unemployment is above the national average. In those cases, retrofit may include measures for EE improvement as well.[337]

The EBRD supports the restructuring and commercialisation of the Bulgarian power sector through a power transmission project. It also assists in the preparation of the country's accession to the European Union. 'The project's objectives are to strengthen Bulgaria's electricity transmission network, regional load despatch centres, and communication system, and to provide institutional support for the national transmission and despatch company', NEC. The project was approved on 16 November 1999 and re-approved in November 2001. The total cost of the project is €150 million, of which EBRD finances a sovereign-guaranteed loan of €41.1 million to NEC, co-financed with the European Investment Bank.[338]

The EBRD is considering another EE project concerning the Sofia district heating network rehabilitation. The project aims at supporting DHC Sofia financially and through consultancy services for project implementation and commercial improvement of the company. The project cost was anticipated in 2002 to be €122 million, financed by loans of €30 million from the EBRD and €26 million from the World Bank. An additional grant component of up to €30 million is expected from the Kozloduy International Decommissioning Support Fund, as well as local contributions.[339]

European Union: The EU is of significant importance through its PHARE Programme and through other pre-accession programmes of assistance for integration into the EU structures. Most of the international cooperation projects are aimed at the supply side. However, PHARE has had some demonstration projects in Lovetch and Haskovo and a project for support of the State Energy Efficiency Agency (SEEA). Other important programmes for Bulgaria are the Thermie, Joule II, and SAVE. The *National Action Plan for Energy Savings in Bulgaria* elaborated by the SEEA is also supported by the SAVE II programme.

Global Environment Facility: The most important EE project of GEF in Bulgaria is the 'Energy Efficiency Strategy to Mitigate Greenhouse Gas Emissions, Energy Efficiency Demonstration Zone in the City of Gabrovo, Bulgaria', a municipal project started in 1998 with an expected duration of five years. The GEF granted $2.5 million to this project through the UNDP.[340] It aims at local capacity building through the implementation of EE demonstrations in the street lighting system and in retrofitting a hospital, a DHC, and a school, all in the city of Gabrovo. Due to the active involvement of the Bulgarian NGO Centre for Energy Efficiency EnEffect, GEF also supports the initiative to establish a national EE network of municipalities for EE

[337] EnEffect 2001, 18.

[338] EBRD 1999.

[339] EBRD 1999.

[340] Novem & EnEffect 2000, 38-46.

undertakings. All member municipalities have established EE Centres, affiliated to their local administrations to prepare and implement EE projects.

Sourcing funds on commercial terms: Before the 1990s, the central bank (the Bulgarian National Bank) had almost a monopolistic role in the financial system, since the bank served not only as depository of the state but also provided all major bank functions in the country. It was directly controlled by the Council of Ministers. Besides BNB, there were only two other banks in Bulgaria.[341] Subsequently, the number of banks grew and when the Law on the Bulgarian National Bank came into effect in 1991, they acquired a significant degree of autonomy. Under this law the BNB started to function as a traditional central bank with a mandate to carry out monetary policy. State banks were consolidated and many private banks entered the country.

In the beginning of 1990s, the state-owned banks had overdue loans to state-owned enterprises and the BNB provided loans (refinancing), allowing larger banks to be viable. In the course of this process, the BNB lost control over money supply (as these loans increased the size of the monetary base) and the country entered the 1996-1997 financial crisis characterised by extremely high inflation.[342] In that period of hyperinflation, one third of Bulgarian banks were closed. The Currency Board Agreement (CBA) was introduced in 1997 as the final possible effort in stabilising the national economy by putting strict order and financial discipline on the bank system and on the discretionary monetary policy.

Present commercial bank structure: With the exception of the Central Bank (BNB), the present structure of the Bulgarian bank system includes a significant number of detached commercial banks. Most of them were privatized between 1998 and 2000, changing the pattern of ownership in the banking sector significantly. Only three banks were still under state control after the privatization of Bulbank, the largest bank in Bulgaria, in 2000. These state-owned banks hold less than 20 percent of the total banking system's assets. Foreign banks are free to enter the local market in three ways: purchasing banks, opening branches, or establishing Bulgarian subsidiaries. Foreign institutions bought all Bulgarian state-owned banks that were privatized through 2000. Thus, at the end of this year, the majority of the banks, more than 73 percent of the assets of the whole banking system, were either in foreign owned banks or in foreign bank branches. If Biochim and the State Savings Bank are sold to foreigners, this number will rise to more than 90 percent.[343]

The State Saving Bank (DSK Bank) was the only saving bank in Bulgaria until it was transformed into a commercial bank in 1999. As of 15 January 2002, there were 35 active commercial banks in Bulgaria, assembled in 5 groups depending on their assets. The largest banks with assets over BGN 800 million are Group I, made up of Bulbank, DSK Bank, and the United Bulgarian Bank. Group II has assets from BGN 300 million to BGN 800 million, made up of the Commercial Bank Biochim, Bulgarian Post Bank, SG Expressbank, First Investment Bank, Raiffaisenbank (Bulgaria), Hebrosbank, and BNP Paribas. Group III is formed by seven banks with assets between BGN 100 million and BGN 300 million and

[341] The State Savings Bank handled individuals and the Bulgarian Foreign Trade Bank operated with the foreign exchange operations for the country.

[342] Miller and Petranov 2001, 13.

[343] Miller and Petranov 2001, 14.

Group IV has 11 banks with assets inferior to BGN 100 million. There are also seven branches of foreign banks including ING Bank, Citibank, and Hypovereins. A major characteristic of Bulgarian banks is that they are mostly universal, as opposed to banks that specialise on a certain type of client, region, activity, or form of credit.

Current restrictions and lending conditions: Under the currency board, the BNB cannot give loans to commercial banks (refinancing) and it can only provide the interbank money market with short-term and emergency financing. This has increased the share of bank assets attracted from non-financial institutions from 65 to 67 percent.[344] The banks in Bulgaria tend to become very cautious in their credit policy and have implemented stricter lending requirements, because they perceive a high risk of lending to the business sector of the economy. As there are still problems and fears associated with lending to the real sector (private and business sector), banks invest a large portion of their money abroad.

As of February 2002, Bulgarian Commercial Banks hold 35 percent or 4.3 billion Levs of their assets abroad, of which 3.7 billion in the form of deposits in foreign banks and 0.6 billion in foreign securities.[345] The relative share of credits to non-financial institutions and other customers within total bank assets in the post-crisis period declined to 30.9 percent at the end of 2000. This could be compared with ratios of 50 to 60 percent in well-developed banking systems.[346] Thus, bank loans to the business sector persist to be a small portion of the banks' funds, and at this point 'it is to some extend questionable whether the banking system in Bulgaria is performing its main intermediary function well'.[347]

As shown in the table below, interest rate spreads and deposit rates have been high throughout the 1990s, especially during the financial crisis because of high inflation. After the establishment of the CBA in 1997, spreads dropped and remained at 8 to 9 percent. These spreads are high considering stable inflation and deposit interest rates at 3 to 4 percent.[348]

Table 3.2 Annual interest rate spreads and deposits rates 1992–2000

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Interest Rate Spread	18.3	26.3	37.5	36.1	153.8	129.0	11.1	10.3	9.2
Deposit Interest Rate	55.8	52.0	65.1	43.7	146.4	80.8	3.0	3.3	3.0

Source: Miller and Petranov. *The Financial System in the Bulgarian Economy*.

Indeed, the CBA had a stabilisation effect, bringing inflation down and interest rates to levels consistent with Germany, the country the currency was pegged to.[349] The present base interest rate in Bulgaria is around 4 percent. As of January 2002 it was 4.78 percent. Interest rates on

[344] Miller and Petranov 2001, 17.

[345] Stariradev 2002.

[346] Miller and Petranov 2001, 40.

[347] Miller and Petranov 2001, 17.

[348] Miller and Petranov 2001, 19-20.

[349] World Bank, not dated/b.

credits to corporate loans are usually negotiable between the lending bank and the borrower. It includes a base interest rate, defined by BNB, and a risk coefficient, applied individually by commercial banks. The risk coefficient can vary significantly, depending on the purpose, risk, and term of the loan, as well as the type and liquidity of the collateral.

The majority of the banks in Bulgaria apply a 12 to 16 percent interest rate on loans, based on the formula of base interest rate plus around 10 percent. For example, the United Bulgarian Bank (UBB) applies this scheme to short term credits with maturity up to one year. For medium and long-term credits, there is 0.75 percent additional increase of the interest rate for every additional year.[350] Hence, a three-year credit would have an interest rate of about 16 percent. It is interesting to point out that long-term credits in Bulgaria have maturity of up to five years. Bulbank, the country's largest bank, applies the following classification for credit terms; short-term credits are up to one year, medium-term credits are up to 1.5 years, and long-term credits are for terms longer than 1.5 years. Bulbank's investment credits are given in euros only with negotiable interest rates, which follow the same formula of base interest rate plus an additional eight to ten percent.[351] The Bulgarian Post Bank offers long-term credits up to five years and medium-term credits above one year. The interest rate is negotiable, but based on the base interest rate of four percent and an additional eight to ten percent.[352]

On the Bulgarian market, banks compete on financial services, but not on lending terms. Due to a perceived high risk and lack of competition, interest rate spreads remain high.[353] A positive effect that suggests gradual normalisation of the market is that the interest rates on loans fall faster than interests on deposits compared to previous years. However, loans for individuals and households increase more than corporate loans.[354] In general, the private sector share of loans has grown during the post-crisis period, while the overall volume of loans has decreased and thus, private sector loans are still low relative to other transition economies. While private sector loans in Bulgaria represent about 12 percent of GDP, in the Czech Republic they have a share of more than 60 percent.[355] Still, the fact that for the last few years a large part of the Bulgarian banking sector was privatized by foreign banks is expected to bring a more liberal approach to lending practices in Bulgaria.

The capital market is not an alternative for financing, as the market for securities is not fully developed yet. The legislative framework is available but the liquidity of the market is too low to provide a viable alternative. Specialised financial institutions, common in countries with more developed financial markets, are weak or absent in Bulgaria. Mortgage and investment banks, savings and loan associations, finance and leasing companies, and public financial agencies are very limited. Since 1997, progress has been made in creating the appropriate legal and regulatory framework to expand non-bank financial activities. It is expected that the expansion of the insurance and pension sectors will favour the development of the capital

[350] Petkova, Plamena [Senior Specialist in Credits at UBB Varna], 11 April 2002, personal communication.

[351] Georgieva, Veneta [Credit inspector at Bulbank Varna], 11 April 2002, personal communication.

[352] Dimov, Dimo [Credit inspector at Post Bank, Varna], 11 April 2002, personal communication.

[353] Miller and Petranov 2001, 19-21.

[354] First Investment Bank 2001.

[355] Miller and Petranov 2001, 46.

market as well. For the moment non-bank financial institutions are too small to provide significant competition and have not gained public confidence yet.[356]

Banks and EE: As there is little competition from other institutions, banks remain the main lending authorities for financing of investment projects in Bulgaria. They will continue to exercise a strong influence on investments in Bulgaria until other financial institutions develop. Considering the persisting conservative credit activity of Bulgarian banks, options for financing still remain inadequate to the real needs of the economy. More specifically, this appears to be one of the most significant obstacles to EE investment, since bank loans are not viewed as a feasible option, although they are gradually liberalising lending conditions. The credit resources offered with interest of 12 to 16 percent at a nominal interest rate of about four percent are considered very expensive. In addition, Bulgarian banks offer short-term credits predominantly, whereas the nature of EE investments is mostly medium to long-term. There is also non-compliance in interpretation of different maturity of credits in Bulgaria and abroad. Bank loans with a maturity of three to five years are considered to be long-term credits, although they would be considered medium-term by international banking practices.[357]

An additional barrier for assuring bank financing for EE projects in municipalities, is the provision of adequate collateral on loans. In the post-crisis period, a collateral of 200 to 250 percent was required, which has recently fallen to 125 to 150 percent in some cases. The minimum amount of collateral required by Law is 125 to 130 percent from the market value of the collateral.[358] The majority of municipalities possess limited resources of their own that banks would accept as a liquid collateral. The ongoing privatization process in the last years deprived municipalities of sites with high market value.[359]

Knowledge and stimulus: Another limitation to EE investment through banks is that the latter do not demonstrate interest in financing EE projects or ESCO contracts, perceiving them as high-risk projects. This could be due to poor knowledge of the specific features of this kind of projects, which could otherwise be profitable for both banks and borrowers.[360]

Development Credit Authority: The United Bulgarian Bank (UBB) is the only Bulgarian commercial bank involved in financing EE projects. It is working within the USAID Municipal Energy Efficiency Programme (MEEP), providing the Development Credit Authority (DCA) guarantee mechanism as financial tool. Municipalities and industrial enterprises receive loans from the bank, while USAID covers 50 percent of the guarantee. The agreement was signed in 1999. The DCA EE loan portfolio is $6.25 million with validity until March 2007.[361]

The projects eligible for loans under DCA are between $150,000 and $1 million. The loans from UBB cover up to 70 percent of project costs. Larger projects can be considered either

[356] Miller and Petranov 2001, 35-36.

[357] EnEffect 2001, 16.

[358] Dimov, Dimo [Credit inspector at Post Bank, Varna], 11 April 2002, personal communication.

[359] EnEffect 2001, 16-17.

[360] EnEffect 2001, 5.

[361] Electrotek Concepts 2001.

with co-financing or with special review of the bank.[362] The loans may cover investments in all parts of municipal infrastructure including street lighting, municipal heating, and RES. The loan conditions are set by the bank and are individually negotiable between the bank and the borrower, within the standard procedures of the bank. In this sense, the interest rates applied to these loans are market based, around 14 to 16 percent.[363] But the unique feature of this agreement is that DCA provides guarantees on behalf of municipal and private industrial borrowers, which means that the required collateral from the borrower is lower. The term of loans, three to five years, is in itself noteworthy.

Examples of approved DCA loans:[364] The first agreed DCA loan from the UBB for an energy efficiency project was an industrial project at Pirinsko Pivo Brewery in Blagoevgrad, Bulgaria. With assistance from Electrotek, the business plan was prepared and later approved in June 2000. The total cost of the project was $406,000 and the DCA Loan represented 72 percent of this amount, a sum of $292,000. The maturity of the loan is four years, which makes the loan unique in Bulgarian bank practice. The project includes measures to improve the heating, steam boiler, and burning system, as well as improving illumination, and replacing the bottling line with a new, more energy efficient one.

The second DCA loan approved in November 2000 by UBB, was for a municipal EE project in the city of Pernik, Bulgaria. The total cost of the project was $399,500 and the DCA loan represented 33 percent of this amount, around $132,000. The Electrotek MEEP Team secured additional debt financing of $214,000 from a private investor. The maturity of the loan is three years. The project includes street lighting and heating system improvement in municipal buildings. Other municipalities also applied for DCA loans. In March 2000 Pazardjik received a $100,400 loan from UBB to cover 70 percent of a street lighting project. In 2001 several significant projects were financed:[365]

- In June 2001, Silistra received a $216,995 DCA loan from UBB, representing 71 percent of the total of the EE project for street lighting, building, and solar energy.
- In June 2001, Popovo received a DCA loan of $42,453, 62 percent of the toal amount needed for a solid waste transportation project.
- In July 2001, Sevlievo received a $204,362 DCA loan from UBB, 62 percent from the total amount needed for water and gas supply, street lighting, and buildings.
- In August 2001, the Industrial EE project in Elprom Elin Electroceramics Kubrat received a $232,628 DCA loan from UBB, 70 percent from the total needed.
- In 2001, Veliko Tarnovo applied for financing of $222,727 or 70 percent of the total cost for its street lighting project.

[362] Electrotek Concepts, not dated/a.

[363] Info Business, not dated.

[364] Electrotek Concepts, not dated/b.

[365] Electrotek Concepts 2001.

The implementation of energy service contracts between Rousse and Brunata had the following effect. As a result of the implemented EE measures by the energy company, the replacement of DH substations and heat pipelines, and the installation of control systems, savings in energy costs were achieved. However, Rousse was not able to meet its liabilities to Brunata because of the reduced amount of subsidies allocated to the budget of Rousse by the Ministry of Finance. The Ministry of Finance did not take the existence of a contract between the municipality and the energy services company into consideration.[366]

The role and mechanism of ESCOs is appropriate for Bulgarian conditions as there is a need not only for financial resources but also for expertise and services such as energy project design, management, and current maintenance and equipment control. In this sense, there is a great potential for ESCOs, as the municipalities are assigned a crucial role in EE policy but lack sufficient expertise in the area. The issue on how and when the steps to boost this process will be taken remains open. Although municipalities own public objects such as street lighting systems and hospitals, and although they are assigned a crucial role in the implementation of EE policy, there is no stimulus for adequate utilization of available financing.

Energy strategy: According to the new Energy Strategy of Bulgaria, part of the revenues coming from the energy sector privatization can be used for investments in energy projects with high economic and social efficiency, including EE projects, which are not yet attractive to private investors due to the lack of an appropriate environment.[367] The strategy envisages that 'changing of some taxation laws is a prerequisite for the establishment of energy service enterprises and their operation as profitable commercial entities.' In that case, it is expected that legal and organisational possibilities for the development of the energy saving services market will appear.

Leasing: The leasing contracts are specified in Article 342-347 of the Bulgarian Commercial Law.[368] The Law specifies the obligations of the lessor and lessee, but puts no restriction on the nature of the leasing object. A leasing contract can be concluded for movable and immovable assets. In spite of the fact that leasing is included in the Commercial Law, it can be contracted between individuals, and not only between trade companies.[369] The National Accounting Standard No 17 regulates and defines leasing contracts in the Republic of Bulgaria. A leasing contract is any agreement by which a lessor places at the disposal of the lessee the right to make use of a certain asset for a contracted period of time in return of compensation. A leasing contract is also an agreement on renting of assets, in case there is a clause in the contract that provides the right for buyout in specific (leasing) conditions.[370] A special type of leasing contract allows the lessor to transfer upon the lessee all risks and benefits associated with the possession of the asset. There has to be at least two of the following three conditions, the first one being obligatory:[371]

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[366] EnEffect 2001, 18-19.

[367] MEER 2002, 19.

[368] Republic of Bulgaria 1996, Part III.

[369] Grigorova, not dated.

[370] National Accounting Standard 1998.

[371] National Accounting Standard 1998.

- The contract to contain a clause for transfer of property right upon the lessee;
- Transfer of property to take place at the end of the term of the leasing contract;
- The term of the contract to cover the major part of the asset's economic lifetime.

It is difficult to estimate the penetration of leasing schemes in Bulgaria, especially in the EE sphere. Indeed, there are companies and producers of EE equipment, mainly equipment for street and indoor lighting, that provide delivery under the condition of delayed payment in instalments.[372] This practice is viewed as suitable for those cases in which customers are reliable and guarantees exist, because of this, leasing is likely to be more popular among the industrial and commercial sectors.

Tax incentives: In general, any tax reduction in Bulgaria is subject to approval by the International Monetary Fund, in force for the possibility to introduce tax reductions for EE investments as well. In this sense, no mechanism for promotion of energy conservation and utilisation of renewable energy sources is enforced. Important by-laws to the Energy and Energy Efficiency Act, expected to specifically address these issues are not yet available.[373]

For the time being, incentives are applied only to investments in environment. For example, the tax system in Bulgaria provides profit tax relief for legal persons and for natural persons who have made donations to environmental organisations. The Law on Corporate Income Taxation, in force since 1 January 1998, envisages that 'the financial result shall be reduced with donations in favour of environmental organisations amounting to five percent of the positive financial result before adjustment for tax purposes, in case the donations are from the capital reserves at the expense of the owner.[374] There are also tax incentives available for investments in regions with high unemployment, provided that the investment is in the form of acquisition, modernisation, or reconstruction of tangible fixed assets such as buildings, equipment, transmitters, electricity transmitters, and telecommunication lines, machines, and computers. In such a case, reduction of the corporate income tax is envisaged.[375]

*Extended amortisation possibilities***:** In the National Accounting Standard No 4 accounting methods of amortisation are specifically addressed. There are linear and non- linear methods. The fist one applies amortisation to be spread proportionally over the periods that span the whole term of use of the particular asset. Non-linear methods apply different amounts of

[372] Novem & EnEffect 2000, 31.

[373] EnEffect 2001, 4.

[374] Novem & EnEffect 2000, 30.

[375] Bulgarian Foreign Investment Agency 2002, 37.

amortisation for different periods. In this sense, the amount of amortisation may be increasing or decreasing. The method of amortisation that is used depends on the discretion of the enterprise. However, only one method can be applied for a particular group of assets, which means it is not allowed to use different amortization method for assets of a same group. The method is applied consecutively throughout all accounting periods.[376]

[376] National Accounting Standard 2002.

3.3.3 *Kazakhstan*

Examples of projects:[377] The main objective of the *Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply* (UNDP/GEF) project is to improve district-heating systems in two Kazakh cities- Almaty and Kokshetau. District heating has the greatest potential for achieving cost-effective and large-scale energy savings. Because of the northern climate with cold and long winters, Kazakhstan consumes an enormous amount of energy for heating. In 2000, more than 30 million tce of fuel were used for heating, of which about 50 percent was used by the residential sector in the cities.[378] District heating systems cover more than half of heating needs in cities, but they are generally both inefficient and unreliable.[379] The reasons for this are not only technical (old and poor quality equipment), but also financial and institutional. The main financial constraints are high risks of investing in district heating combined with low creditworthiness of the companies. If we link this problem with difficulties experienced by (semi)private district heating companies to obtain state or municipal guarantees, we will find that paying for rehabilitation from internal sources is next to impossible. Institutional problems are represented mainly by lack of experience or know-how to formulate 'bankable projects', as well as uncooperative groups of stakeholders such as tenants and owners of building.

UNDP weighed these constraints against the opportunities for EE measures that are available in the district-heating sector in Kazakhstan and, in May 1998, initiated the barrier removal project.[380] Initially GEF awarded a project development grant in September 1999. The main objective of this initial phase was to prepare the ground for a full-scale project by determining and describing the main barriers to EE in the heating sector, by proposing a concrete set of measures on how to improve EE, by assessing the size of the market for EE and by finding possible co-financing.[381] During this preparatory phase, the city of Almaty was chosen as the project case study, and later on, another city (Kokshetau) was added.[382] The final feasibility report for the project was published in December 2001.

The main goal of the project was 'to remove barriers towards improved energy efficiency of hot water and heat supply in Kazakhstan, thereby lowering the overall fossil fuel consumption and the associated greenhouse gas emissions'.[383] There are also indirect advantages such as improvement in living conditions of the tenants and economic benefits for

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[377] This section includes mainly planned projects, since Kazakhstan does not have many actual energy efficiency projects in operation. Other projects in energy and EE fields are described in this section under 'Multilateral financing'.

[378] UNDP, not dated/b.

[379] UN ECE 2000a, 199.

[380] Ministry of Ecology and Natural Resources 1998, 18.

[381] UNDP, not dated/b, 16.

[382] Kokshetau was selected as a typical representative of cities in the north of Kazakhstan, where long and harsh winters require different management of district heating than in Almaty, which lies in the south of the country. The Kokshetau project is thus especially suitable for replications in this part of Kazakhstan.

[383] UNDP, not dated/b, 1.

district heating companies. The project seeks to implement a comprehensive solution, which includes the following measures:

- Assisting the authorities with reviewing and revising the structure of tariffs and problems of non-payment;
- Encouraging the heat supply companies to realize the economic advantages of EE and GHG reduction;
- Establishing demonstration projects;
- Introducing new institutional mechanisms such as ESCOs;
- Monitoring, evaluating and disseminating project results.[384]

Apart from these general measures, a number of concrete steps were proposed for heat distribution companies operating in Kokshetau and Almaty. The proposals include technical improvements (replacement or rehabilitation of old and worn-out equipment), installation of metering systems, and the subsequent change from flat-rate to consumption-based billing.[385] The expected benefits of the project include:[386]

- Reduced annual CO2 emissions by 12,000 (Kokshetau) and 5,600 tones (Almaty);
- Investment payback times of 3 (Kokshetau) and 5 years (Almaty);
- Better living standards for the inhabitants of both cities;
- Improved financial situation of local heat supply companies and thus more money available for other EE upgrades.
- Lower subsidy requirements from state authorities. If the heat supply companies become profitable, it will be easier to privatize them.[387]

The estimated investments needed to implement the project are presented in this section under 'Multilateral financing'. If the projects in Almaty and Kokshetau are successfully completed, there appears to be ample scope for replication, because the problems of heating systems in other cities are the same, and in some cases even worse. With better EE in heating systems the subsidies now paid by municipalities and the state budget could be lowered. Despite these and other economic advantages, the capital needed for commencing the projects would likely be considered too high for nearly all cities. Therefore, concessional cofinancing from other sources may be needed. In the hypothetical case of a complete rehabilitation of Kazakhstan's district heating systems, total energy savings could be approximately 2.5 million

[384] UNDP, not dated/b, 4.

[385] UNDP 2001b, 12-78.

[386] The design of the district heating systems, as well as the proposed measures to be implemented, are different for both cities, therefore the outcomes may not be directly comparable.

[387] UNDP, not dated/b, 5.

tce annually, which would lead to annual GHG emission reductions of about 6 million tonnes of CO_2.[388]

Street lighting in the city of Almaty:[389] This project was formed with the purpose of improving the exterior view of the city, increasing the extent of illumination, decreasing the operational expenses and thus lowering the burden on the municipal budget through a step-by-step transition to energy saving lamps. A special zone was created where the following measures were taken:

- The reconstruction of lighting of highways (for example, al-Faraby Avenue);
- The reconstruction of the lighting of central streets (for example, Furmanov Street);
- The reconstruction of lighting of minor streets;
- Implementation of automatic control and monitoring of a system of urban lighting.

The installation of sodium lamps on a highway saves more than 65 percent of electrical energy in comparison with the present usage by low-efficiency mercury lamps. Installation of lamps with the improved lighting engineering characteristics along the al-Faraby Avenue and Furmanov Street up to Navoi Street improves the exterior view of the street, and reduces energy consumption from 303,000 kW/h to 106,000 kW/h. The costs of reconstruction of lighting systems on the al-Faraby Avenue are estimated at $70,000. Expenses for the reconstruction of lighting of Furmanov Street, starting from Raimbek Avenue up to al-Faraby Avenue, are about $60,000.

Mercury lamps have a low service life caused by sensitivity to voltage fluctuations, poor quality of lamps, wear of fixtures' electrical parts, and lack of reflector protection against moisture and dust. Dirty reflectors are a significant cause of inefficiency. The system's operation costs are high due to the deterioration of lighting fixtures and use of low-efficient lighting sources (50 lm/W). The expenditures on Almaty's street lighting system are a burden on the city budget.

In contrast with inefficient mercury lamps, the installation of sodium lamps of high pressure on central and main streets of the city with a capacity of 150W will provide energy savings of 40 percent while increasing the illumination of the streets by 20-25 percent. The modern technology offers better protection against exposures, increases the period of service, increases reliability, improves safety, and reduces the operating expenses by almost 50 percent. Expenses for installing 100 lamps of the sodium type are about $12,500. Overall, there are 940 lighting points. Estimates show a considerable decrease in the installed capacity of Almaty's lighting system after reconstruction (from 235 kW to 141 kW). A sodium lamp's service life is 16,000 hours, which exceeds almost nine times the service life of a mercury lamp and, consequently, cuts maintenance costs after the replacement of lamps.

[388] UNDP & GEF, not dated, 1.

[389] UN ECE, abridged and revised project information on the 'EE Demonstration Zone of the City of Almaty'; complemented by information from the 'Business Plan Summary: Energy Efficient Modernization of Street Lighting in Almaty' by R. Ukasov.

Automatic controlling and monitoring of systems of urban lighting by means of computer control divides the lighting system into zones of lamps with different operation regimes. This leads to a further decrease in energy consumption of up to 40 percent. In addition to the above mentioned benefits, the implementation of the project is expected to lead to:

- Safer traffic and fewer criminal occurrences due to better illumination of streets;
- More effective input by specialized companies that run lighting systems;
- Improved environmental indicators (for example, reduced GHG emissions and local air pollution)
- The demonstration of economic viability of environmentally-friendly projects.

The *Increasing the Economic and Ecological Efficiency of the North-Eastern Thermal Complex*[390] project is scheduled to take place in a demonstration zone of Almaty. The main objective of the project is a rehabilitation of the heat production and distribution system in this part of the city. The measures include installation of a new steam turbine and heat meters at the consumers, as well as rehabilitation of the distribution network. The benefits include better production efficiency in the heat sector and reduction of energy consumption. The overall costs are estimated at $4 million, of which 55 percent ($2.4 million) would be covered by loans from international sources, the rest from domestic sources. The project has quite a long payback time, as the estimated annual savings are only $240,000, but several benefits do not have direct monetary value, for example, the resultant environmental improvement in the region. The project start year was 2002 and the duration is three years.

The *Increasing the Efficiency of District Heat Supply in Astana* [391] project aims at improving the efficiency of the district heating system in the capital. The project is similar to the above-mentioned project in Almaty. The local district heating is inefficient and costly – five times more expensive than, for example, in Sweden. Since rehabilitation would be very expensive, the installation of autonomous heating systems was selected as the best option to improve the efficiency of heat production. Expenditures are estimated at $2.25 million and are expected to be covered by a loan from international sources. The projected financial savings after implementation of this project are very high - about $2.4 million annually. The project is expected to lead to considerable emissions reductions: 1,259 tonnes CO_2, 1,353 tonnes NO_2, and 2,587 tonnes SO_2 annually.

Energy Saving and Increasing the Efficiency of Heat Supply [392] is a project in the demonstration zone in Atyrau, a city located in west Kazakhstan at the bank of the Caspian Sea. The proposed project consists of the following three components:

- Rehabilitation of the heat isolation of the distribution grid, which is in a state of disrepair with losses of 46 percent. The costs would be $2.4 million and the annual savings $1.4 million, which makes the payback time attractive.

[390] UN ECE 2002.

[391] UN ECE 2002.

[392] UN ECE 2002.

- Installation of heat meters in buildings. It was estimated that lack of meters was responsible for 12.1 percent losses in the network and introduction of metering would lead to significant savings by the customers. The initial costs of $1.6 million needed for installation would be quickly recouped by annual savings of $1 million.
- The last component is represented by improving the technical control systems in 42 central points of heat networks. The costs for doing this were estimated at $2.65 million, but the payback time is not favourable. The annual savings are estimated at $0.25 million, so that it would take more than ten years to pay back the investment.

The overall benefits of the project should be visible in the financial area (reduction of distribution expenses, heat tariffs, profitability of the company), as well as in the environmental field. The fuel consumption would be lowered by 31 thousand tce, which would cause a significant decline in the level of emissions. Although the implementation was projected to start in October 2000 and should last for three years, the Project Identification Form does not show what share of overall costs of $6.6 million would be paid by whom.

Public funding:[393] There is no fund in the national budget allocated for an energy saving programme on the national scale, and local funding is scarce and fragmented. However, the legal and institutional basis for action to conserve energy exists. The National Energy Saving Programme was elaborated with support from USAID and adopted by the Government of Kazakhstan in 1996. The Energy Saving Law was adopted by the Parliament of Kazakhstan in 1997. In accordance with the Energy Saving Law, the Ministry of Energy and Mineral Resources is responsible for elaboration and realization of energy saving policy in Kazakhstan.

On the regional and local (city) level, administrations are responsible for the implementation of energy saving programmes. Each local administration is assigned to undertake appropriate energy saving activities in the public sector. The most advanced of them have an energy saving programme adopted by local municipalities. Such activities as heat metering and reducing energy consumption in the public sector are funded from municipal budgets in accordance with the capacity of the municipal budgets and needs. Most public buildings connected to district heating have heat metering. Some municipalities that own municipal district heating utilities spend a significant amount of money – often hundreds of thousand of dollars annually – to rehabilitate and to support municipal district heating because of the annual negative balance of the utilities. Improving the efficiency of street lighting is also one of the areas of municipal activities.

Despite these attempts to improve energy efficiency, there is not much success in conserving energy in Kazakhstan, which has partly to do with the lack of financing and implementing mechanisms in the National Energy Saving Programme and executing the Energy Saving Law. As a result, the energy intensity of Kazakhstan is much higher than the OECD country level (GDP/PPP) fuel intensity – 0.72toe/$1000; GDP (PPP) electricity intensity – 1.07 kWh/$1000.[394]

[393] Doroshin, Gennady, 14 November 2002, personal communication (email).

[394] UN ECE 2000a.

National programmes aimed at energy efficiency: Realizing that the energy intensity of the country is too high, the government of Kazakhstan adopted the National Programme for Energy Saving (NPES) in 1995, one of the first environmentally related policy programmes since independence in 1991. NPES was developed with the help of USAID and included the following priorities:[395]

- Increasing end-user energy prices;
- Installing equipment to measure energy consumption;
- Assessing various financing options, including demonstration zones and multilateral bank funding;
- Setting up special agencies, both state-run and independent, to coordinate savings policies;
- Focusing primarily on energy savings in the industrial sector and investments with costs recoverable in less than one year.

Based on experiences from similar programmes in OECD countries, the last point was emphasized and the government decided to concentrate on the industrial sector, where the largest and fastest reduction of energy intensity could be achieved. The programme of energy savings in the industrial sector was supposed to be implemented in three steps:

- Short-term implementation where the payback time would be less than 6 months, project length of maximum 2.5 years and minimum plant equipment modification.
- Medium-term implementation with a payback time of less than 3 years, project duration of maximum 5 years, and plant modification up to several million US $.
- Long-term implementation with payback time of about 6 years, 9 years from the starting point to procurement of the projects. In this time frame, new plants could be built or old ones could be completely rehabilitated.

NPES included ambitious objectives such as lowering 'fuel consumption by 25 percent as the result of implementation of the short and medium-term programme and by 40 percent- as the result of implementation of the long term programme.'[396] The first stage of the programme was projected to take place in the period of 1995-2000, but it is difficult to evaluate the results due to lack of data. The priorities of NPES were well chosen, but there are no indications that they were implemented as planned. Although there were improvements in some of the privatized companies, the rest of the economy has not achieved significant reductions of energy intensity, mainly due to a lack of funds. This could be reversed with continuing growth of oil revenues, which would allow the government to invest some of this windfall into non-oil sectors to avoid the phenomenon of 'Dutch disease'.

The next step after NPES was the incorporation of measures to increase energy conservation in the legal framework. The law on energy conservation was adopted in

[395] Pilifosova et al 1997, 343-345.

[396] Main Administration for Hydrometeorology of the Republic of Kazakhstan 1999, 29.

December 1997 and became one of the first pioneers in the FSU.[397] The structure of the act follows a model adopted in Russia, but according to UN ECE, the Kazakh variant introduces innovations such as 'the clear distinction between the spheres of competence of the Government of the Republic, the local executive and representative organs of government and the republican ministries and departments'.[398] The main objective of the law is 'to regulate the social relations in the field of energy conservation in an effort to create economic and institutional conditions for ensuring the efficient use of fuel and energy resources, and development of non-conventional renewable energy sources'.[399]

The highest body to implement the law is the Ministry of Energy, Industry and Trade. Its task is to unify and coordinate the state energy conservation programmes, to promote international cooperation and to secure monitoring and supervision of the law.[400] A working group was created at the Almaty Institute of Power Engineering and Communications to transform the law into practice through EE promotion centres:

- A national EE centre that is responsible for demonstration projects, monitoring, and auditing;
- A training and skills development centre where personnel would be trained with international know-how, responsible for organisation of workshops and seminars;
- A database and information centre that is responsible for publication of relevant literature, dissemination of information.[401]

The cost of implementing these centres was estimated at $500,000 in 1999, but it is not clear whether any of these centres have actually been established.[402] Without specialized bodies that promote EE and coordinate implementation, it is unlikely that energy saving becomes a priority as suggested by the Law on Energy Conservation. The law contains concrete incentives, which may work in theory but which may not be appropriate in the Kazakh context. For example, the law stipulates that entities, which lower their energy consumption through efficiency measures, can get a discount on prices and tariffs of up to 25 percent; and those using non-traditional renewable energy sources can get up to 50 percent.[403] This provision has been rarely used, because of the low level of prices and tariffs. The enterprises do not consider the reduction of prices as a sufficient incentive to justify the initial investments that are needed for EE. Hence, very few companies have started to invest in EE on their own.

Bilateral financing: Kazakhstan has been a recipient of aid on a bilateral basis since it gained independence in 1991. There were a small number of projects in the field of energy efficiency financed by bilateral sources. The most active organization has been the U.S. Agency for

[397] Some sources translate it as 'Law on Energy Efficiency' or 'Law on Energy Savings'.

[398] UN ECE 2000b, 25.

[399] UN ECE 2000b, 24.

[400] UN ECE 2001, 83-84.

[401] UN ESCAP 2001.

[402] Main Administration for Hydrometeorology of the Republic of Kazakhstan 1999, 14.

[403] UN ECE 2000b, 19.

International Development (USAID). This agency has provided support for the elaboration of a national energy efficiency programme, including the evaluation of the energy savings potential of the heat supply sector. The implementation of the project took place from 1994 to1995.

From 1996 to 1998 Kazakhstan participated in the US Country Study Programme (SNAP), which focused on developing national action plans to address climate change and its adverse impacts. With the support of SNAP, Kazakhstan researched climate change issues and prepared a GHG inventory for the year 1990. The research dealt with Kazakhstan's vulnerability to climate change and the country's adaptation potential. The research also identified mitigation options for the reduction of GHG emissions. As a result of this analysis, improvement in energy efficiency was listed as one of the main mitigation options to reduce greenhouse gas emissions into the atmosphere in Kazakhstan.

In 1997-1998, USAID sponsored an energy efficiency audit of the Almaty District Heating System, as well as efficiency improvement measures and a study of the institutional and policy impediments to energy efficiency in Kazakhstan. To show practical results of EE improvements, USAID set up an EE demonstration zone consisting of 8-unit flat buildings in the city of Atyrau (West Kazakhstan). The project was implemented between August 2001 and May 2002. The primary goal of this pilot project has been to demonstrate, document, and provide training to show that energy savings and improved comfort in residential district heating could be accomplished quickly and effectively by using readily available technology. The most recent USAID project is 'Improved Management of Critical Natural Resources', which has an EE component. One of the objectives of this programme is to demonstrate more efficient technology and management techniques in the energy and water sectors. In 2002, the planned funding is $2.7 million, and the proposed 2003 budget is $2.8 million. The estimated completion date is 2005.[404]

USAID is not the only bilateral organization that has implemented EE projects in Kazakhstan. For example, the Dutch Climate Change Studies Assistance Programme supported the development of a GHG inventory for 1994. The result of this project was the started preparation of the Initial National Communication of the Republic of Kazakhstan under the UN Framework Convention on Climate Change. Scandinavian countries and their donor organizations are also active in EE projects around the world, albeit not yet in Kazakhstan. The prospects of their future involvement in the country are uncertain, but there are some precedents in Central Asia.

For example, DANIDA, the Danish bilateral development cooperation agency, already provided financing of technical assistance in cofinancing with Danish export credits for rehabilitation of the district heating system in Bishkek (Kyrgyzstan) which shows an interest in projects in Central Asia. The Swedish and Norwegian agencies, SIDA and NORAD, could also be possible funding sources in the future. Another possibility is to obtain money through national trust funds via UNDP, as some states provide substantial funds for this organization. A similar funding scheme was implemented in Turkmenistan, where UNDP financed a demonstration project for Danish district heating equipment, worth $0.5 million with money obtained from UNOPS Denmark.[405]

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[404] USAID 2002.

[405] UNDP 2001b, 8-9.

Another innovative way of getting bilateral funding is through obtaining export credits. Various European countries have established export credit agencies, such as KfW (Kreditanstalt für Wiederaufbau) in Germany and EKF (Eksportkreditfonden) in Denmark. If an export credit is granted, the agency takes over the credit risk from the exporting company. Loans from these institutions cover generally only deliveries from EU countries, not local material and works. Preconditions for obtaining a loan from these institutions are:

- Approval of the recipient's solvency by the lending institution;
- Bank guarantee from recipient, issued by an approved bank;
- Municipal guarantee, together with a credit rating of the municipality; and
- A down payment of 15 percent of the contract amount.

These credits are commonly used for financing district heating equipment in case the district heating company has selected the supplier and accepted the supply offer, for example, after comparison with world market prices and an offer from other suppliers. Usually such credits are used for equipment from one supplier only, but one main supplier could offer to apply for credit for a package of equipment from several suppliers. The borrower in Kazakhstan will have to provide a bank guarantee from a bank in Kazakhstan, which can be approved by the export credit agency. The supplier will have to organize the local financing, following the procedures of the national export credit agency. Having approved the Kazakh bank, the foundation will provide a guarantee for the loan to the bank of the supplier. Finally, this bank lends the capital to the Kazakh bank, which lends it on to the district heating company to finance the equipment. Due to the guarantee, the bank of the supplier can offer a very favourable credit interest rate (typically around 5 percent annually and the pay back time of 5 years). The E.C.F.-guarantee will cost a fee of around 7 percent of the credit (only once). This financing is flexible and simple in case the selection of the supplier is clear and the price is acceptable. The only problem for the borrower can be to obtain the bank guarantee.[406]

Multilateral financing: As other EIT's, Kazakhstan has relied heavily on multilateral aid in the form of loans, grants, guarantees and other forms of support. In some areas, the multilateral financing is the only option, as the domestic capital is nonexistent and foreign private investors are interested only in the sectors that are most profitable, as in oil and gas exploration. The most active multilateral institutions (MIs) are the Asian Development Bank, the European Union, the World Bank, the European Bank for Reconstruction and Development, and various agencies affiliated with the United Nations.

Asian Development Bank: The Asian Development Bank (AsDB) started its operations in Kazakhstan in 1994. The overall sum of AsDB's loans provided to Kazakhstan between 1994 and 2001 amounts to $512 million in 13 projects.[407] The main objective of AsDB is to foster economic growth, but the priorities of the Bank include other development assistance goals such as improving the conditions in agriculture, infrastructure rehabilitation, and water supply

[406] UNDP 2001b, 8-9.

[407] AsDB 2001.

and sanitation programmes. So far none of the projects that have been implemented were directly related to energy efficiency. The only exception was a project called 'Rehabilitation and Environmental Improvement of the Almaty No. 1 Heat and Power Station', which was proposed in 1995. The aim of this project was to replace old equipment with modern, efficient and more environmental technology, but since no subsequent publications from ADB have mentioned this project, it is reasonable to assume that the board did not approve it or that it was not implemented or completed.

Although the Country Investment Plan for 2000-2002 does not mention intentions to invest in the energy sector,[408] AsDB has two smaller initiatives in energy efficiency. The first activity, initiated in 2001, is 'Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement (PREGA)'. Kazakhstan was invited to participate in the programme and the relevant authorities expressed an interest to do so.[409] Second, the Bank administrates a Cooperation Fund financed by the Danish government, which aims at promoting EE in rural areas of Asia. A brief article about this fund was published in the newsletter of AsDB's mission in Kazakhstan, but so far there are no projects supported by this fund in Kazakhstan.

European Union: The main share of aid from the EU to Kazakhstan has come through TACIS (Technical Assistance Programme for the Commonwealth of Independent States). This initiative started in 1991 and provides grant-financed technical assistance to support the process of transition to market economies and democratic societies.[410] Kazakhstan has been participating in the programme from the beginning. Between 1991 and 1999, Kazakhstan received $109.1 million through TACIS – the third largest amount after Russia and the Ukraine.[411]

The EU considers energy efficiency as one of its priorities, which has been reflected by the number of projects implemented so far. In 1994-1995, a study was undertaken to analyse EE improvements in public transportation in Almaty. As a result of the project, concrete steps were proposed, which would lead to higher EE. These steps included better routing and scheduling, more suitable maintenance of the bus fleet and upgrading vehicles.[412] Another TACIS project in the field of EE was the establishment of an energy efficiency centre in Almaty. This centre offers the 'Energy Bus' service, which provides EE advice for businesses. A team of experts with special equipment offers on-site energy audits for industrial enterprises and suggest possible EE improvements.[413]

The latest EE project financed by the EU was implemented in 1998 under the TACIS-Bistro programme and dealt with improving EE in the health sector.[414] A demonstration

[408] AsDB 1999, Appendix 5.

[409] Climate Change Coordination Center of Kazakhstan, not dated/a.

[410] European Commission 2000a, 4.

[411] European Commission 2000c.

[412] For a detailed list of proposals, European Commission 1996, 23-25.

[413] European Commission 2000a, 47.

[414] Bistro is a part of TACIS and refers to small projects which are initiated by local offices of the EU. For example from 1998 to 1999, only €0.8 million ($784,000) were allocated to Bistro out of a total TACIS budget of €23.8 million ($23.1 million). European Commission 2000b, 22.

project was set up in a hospital in Almaty. Through low-cost measures such as timers for lamps and the separation of electric circuits, the project achieved significant EE results with a payback time of less than 5 months.[415] Although currently there are no EE projects financed by the EU in Kazakhstan, energy issues remain on the agenda, for example through the INOGATE (Interstate Oil and Gas Transmission to Europe) programme, which aims at enhancing the oil and gas transport networks between the EU and the FSU to improve energy security.

European Bank for Reconstruction and Development: The European Bank for Reconstruction and Development (EBRD) was founded in 1991. Its main aim has been to help the countries of Central and Eastern Europe and the FSU in the transition to democracy and a market economy. Since its establishment, the EBRD has become the single largest investor in this region.[416] EBRD applies the following conditions to its financing: the financing of the Bank may not exceed 35 percent of the total amount financed. By insisting on the contributions of other investors, the Bank ensures that its projects have 'a multiplier effect', that is, additional benefits to the country, including the mobilization of private investment and co-financing.

The first project for Kazakhstan was approved in 1995. Since then, the Bank has provided nearly $783 million in loans for projects with a total value of nearly €1.7 billion.[417] Although EBRD did not have any project aimed solely at EE, there have been two of them in the energy sector. Both of them have sought to rehabilitate the thermal power plants with objectives to improve the dependability and efficiency of electricity and heat generation, upgrade delivery networks, cut losses and enhance environmental outcomes. In the case of Karaganda Power, which started in 1998, a loan of $40 million was provided. This project is still under way.

In the case of Altai Power, the $32 million loan has been stalled because the US company AES, which operates that power plant, has been involved in a dispute with the government over tariff issues. According to EBRD plans for the period 2001-2002, priority was accorded to two sectors: natural resources (mainly oil and gas) and the promotion of small and medium-size enterprises, but there is also a positive outlook for EE, as the Bank proclaims that some of the future investments are likely to focus on the upgrading of electricity distribution networks, rehabilitation of district heating networks associated with combined heat and power plants, and the modernisation of aged generation plants.[418]

World Bank: The World Bank started its operations in Kazakhstan in 1992. Between 1992 and 2002, total commitments of the World Bank in Kazakhstan have reached $1.88 billion, of which $1.34 billion have been disbursed by 2002.[419] Overall, twenty-three loans have been approved, which include five adjustment loans, ten investment deals, and eight investment

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[415] Abdrazakova 1999, 67.

[416] EBRD, not dated/c.

[417] EBRD 2002, 1. If we compare the ratio between these sums (value of projects/funding from EBRD), we will find out that it is one of the lowest among all EITs. That may indicate that the Bank has had difficulties finding cofinanciers for operations in the country.

[418] EBRD 2000b, 20.

[419] World Bank 2002a. About $1 billion was allocated to adjustment loans that are characteristic for the initial transformation period.

loans that are still under implementation.[420] The Bank provides the credits at favourable conditions – around 6 percent in $, with 10 years pay back time and 2 years grace period. However, a national guarantee is required and there may also be requirements concerning policy regarding organizational issues and social security.

In 2000-2001, the World Bank prepared a new strategy for Kazakhstan, which focuses on four objectives: reforming the public sector, promoting broad based private sector led growth, supporting the most vulnerable, and protecting the environment. From this plan we can conclude that energy or even EE is not a priority. Despite this fact, one of the biggest projects of the World Bank in Kazakhstan is in the electricity sector. Approved in 1999, the 'Electricity Transmission Rehabilitation Project' project consists of loans provided by the World Bank and EBRD to KEGOC, the state company that operates the transmission grid in Kazakhstan. The project seeks to improve the poor conditions of the electricity transmission network, as now it is highly unreliable with many blackouts and heavy losses. The total amount of the loan is $258.4 million, of which $140 million (54 percent) is to be covered by the World Bank, $56 million (22 percent) by the EBRD, and the remaining $62.4 million (24 percent) by KEGOC from internal cash generation. The loan has very favourable conditions including a 20 years maturity and 5 years grace period. The estimated completion date of the project is in December 2004. Although the disbursement is somewhat slower than expected, local representatives of the World Bank are optimistic that it will be finalized on time and even consider follow-up activities. In the energy efficiency area, the World Bank has supported a number district heating rehabilitation projects in the former communist countries. The prospects of similar investments in Kazakhstan are questionable, as one UNDP study claimed that the idea of such a project was rejected by the local World Bank office in Kazakhstan.[421]

United Nations Development Programme: UNDP has operated in Kazakhstan since 1993. Its funds are low compared to other MIs. In 1999, UNDP disbursed only $1.9 million for projects in Kazakhstan.[422] Still, we have to take in account that UNDP also obtains additional funds through other channels such as GEF, UNICEF, the WHO, and bilateral donors. UNDP's main objectives can be subsumed into three themes (1) social development and poverty alleviation, (2) effective governance, economic management and building democracy, and (3) environmental management and sustainable development.[423]

Since environmental issues and sustainable development constitute one of the main pillars of the UNDP's mission, energy efficiency fits perfectly into the organizational objectives. Indeed, the only large project in Kazakhstan that concentrates solely on EE and is financed by MIs has been prepared by UNDP with funding from GEF. The name of the project is 'Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply' and it belongs to GEF Operational Programme No. 5: 'Removal of Barriers to Energy Efficiency and Energy Conservation'. The objective of this project is to improve district-heating systems in two Kazakh cities - Almaty and Kokshetau. The project seeks to remove barriers towards improved energy efficiency of hot water and heat supply, thereby lowering the overall fossil

[420] World Bank 2002b.

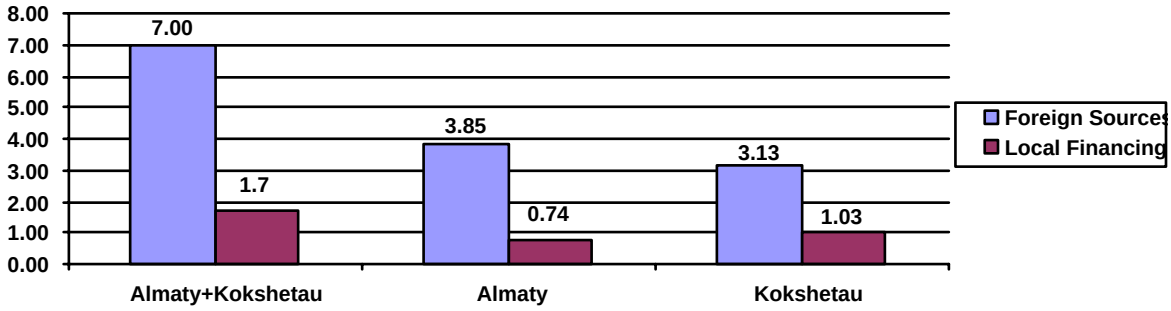
[421] UNDP 2001b, 10.

[422] UNDP 2001a, 9.

[423] UNDP, not dated/e, 1-2.

fuel consumption and the associated greenhouse gas emissions.[424] The estimated investments needed to implement the project are presented in the figure below, which shows that the foreign share is more than three times higher than the local financing. The foreign share is a grant by GEF and the local financing comes from the government of Kazakhstan, municipalities and heat supply companies in both cities.

Figure 3.1 Removing barriers to efficiency in heat and hot water supply (in $ million)



Source: UNDP, 2001.

If the projects in Almaty and Kokshetau are successfully completed, there appears to be ample scope for replication, because the heating systems in other cities are in the same, if not worse, conditions. However, the capital needed for commencing the projects would likely be considered too high for nearly all cities. Therefore, concessional cofinancing from other sources may be needed.

GEF Small Grants Programme: After the Rio Summit in 1992, this programme was established to support sustainable development by providing grants up to $50,000 to small community projects based on GEF Operational Programmes. Grants are awarded directly to civil society organizations, including NGOs and Community Based Organisations (CBOs). So far, more than 3,000 projects have been approved in 63 participating countries. More than $117 million have been disbursed (plus $66 million cofinancing), and 15 percent of this amount has been allocated to climate change projects.[425]

In Kazakhstan, the Small Grants Programme started in 1997 after a successful preparatory phase. The goal was 'to contribute to achieving global environmental benefits through community-level action to conserve biodiversity, protect international waters and reduce the

[424] UNDP, not dated/c.

[425] UNDP, not dated/d.

likelihood of adverse climate change'.[426] Because of the vast land area of the country, it was decided to limit the programme to the three most environmentally sensitive areas: the Aral Sea, the Caspian Sea and the Tijan-Shan Mountains. The executors of the grants are NGOs and CBOs, which serve dispersed rural populations.[427]

There are several key requirements for the programme. First, the participation of the local population and active cooperation of stakeholders is required for getting the grant. Second, the executors have to show their commitment to the project by making a financial contribution, either in cash or in-kind. Third, the executors must secure the sustainable operation of the project after the funding from GEF is terminated, for example, extending the life of the project through private or donor financing. Since commencement of the programme, 63 projects or planning grants have been implemented in Kazakhstan with a total grant amount of $839,583.[428] Out of these 63 projects, none of them have been in the EE sector (four are in the renewably energy sector).

The lack of EE projects is caused by the fact that EE projects are relatively demanding in terms of experience, know-how, and technology. In the light of these difficulties, many Kazakh NGOs and CBOs that may be interested in EE rather opt for other areas such as biodiversity or clean water management. Continuing capacity building provided within the programmes of both GEF and other MIs may result in more experts in EE and RE, which could lead to an expansion of these projects under GEF Small Grants Programme.

Sourcing funds on commercial terms: Since 1993 the Kazakh banking system has been a two-tier system with the National Bank of Kazakhstan (NBK) comprising one tier and private and state-owned banks the other. Commercial banks have been divided into two groups according to expected compliance with international standards. The sector remained relatively unaffected by the 1998 Russian financial crisis and a major devaluation of the domestic currency, the Tenge, in 1999.

Reforms in the banking sector have been enacted to make bank activity comply with international standards. The reforms focus on deposit insurance funds, capitalizing banks, reducing the number of banks, and increasing the share of foreign equity in the sector. By 2001, four banks (Kazakommertsbank, Halyk Savings Bank, Bank Turan Alem, and the Dutch ABN Amro) accounted for 60 percent of sector assets and 63 percent of deposits, which makes the sector fairly concentrated. A further decline in the number of banks due to strict minimal capital requirements is expected. A small number of foreign banks have entered the market. The sector has witnessed a development of products for the individual and small business segment, within leasing, mortgages and consumer financing.

The National Bank of Kazakhstan has developed the legal framework for the circulation of bills of exchange, which will enhance the banks' access to refinancing. A payment system of international standard, containing the interbank transfer system and the retail payments system, has been developed for the more advanced category of the bank sector. Public confidence in the banking system is still low, which causes capital flight and limited deposits. Because of overall low capital levels, medium and long-term financing are difficult to access. In August

[426] GEF 1999, 11.

[427] GEF Kazakhstan 1999, 3.

[428] UNDP 2002.

2002, interest rates on loans to legal persons ranged between 17 and 25 percent. Foreign loans must be registered with the National Bank if the term exceeds 180 days.

Box 3.1 The 2002 IMF evaluation of Kazakhstan (excerpt)

Although the growth of commercial bank balance sheets in Kazakhstan since early 2000 has been impressive by any standard, a comparison with other transition and developing economies suggests that the financial sector in Kazakhstan is still at an early stage of development. Broad money relative to GDP, which is considered a general indicator of financial system depth, stood at 15.3 percent at the end of the year 2000.

A more nuanced picture emerges for banking system credit to the private sector, which provides a more focused measure of the intermediation function of commercial banks. At 11.6 percent of GDP at the end of the year 2000 and 15.6 percent at the end of September 2001, credit to the private sector is still lower in Kazakhstan than in most comparator countries. With continuing macroeconomic stability and economic growth, it therefore seems reasonable to expect that the financial deepening in Kazakhstan could continue in the medium to long term, though not necessarily at the speed observed during the last two years.

The credit expansion in Kazakhstan in 2000 and 2001 was financed predominately by domestic rather than foreign liabilities. While credit to the private sector grew from 154 billion Tenge at the end of 1999 to 467 billion Tenge at the end of September 2001, the net foreign assets of commercial banks declined by only 49 billion Tenge.

Legal entities accounted for most of the growth of deposits through the end of the year 2000, probably reflecting their improved profitability relative to 1999. By contrast, during 2001 individual deposits grew particularly fast, reflecting higher confidence in commercial banks, not least because of the new deposit insurance scheme for individual depositors. The implementation of capital amnesty in June and July 2001, which lead to the conversion of US dollar cash holdings of close to $300 million into term deposits, provides further evidence of strengthened confidence in commercial banks.

Although confidence in Kazakh commercial banks has increased, the national currency does not appear to inspire the same measure of trust and dollarization remains high. At the end of September 2001, enterprises held 48.8 percent of their deposits in US dollars, a little more than at the end of 1999 (46.5 percent). For households, the corresponding shares are 73.6 percent at the end of September 2001 vs. 46.6 percent at the end of the year 1999. More than one half of all bank loans are also denominated in US dollars.

Access to commercial bank credit became more widespread among firms and households. As late as mid-1999, a survey undertaken by the World Bank found that bank credit was available only to a small number of large enterprises, mostly in the natural resources sector. As this situation was found to be an obstacle to sustained economic growth, the much wider access to bank loans now enjoyed by many non-resource firms represents an important achievement in the process of economic transition in Kazakhstan.

Short-term (up to one year) and medium to long-term loans each account for about half the total, with only minor fluctuations since the end of 1999. Industry and trade each receives about one third of total loans, with a marginal increase in the share of industry since early 2000.

The continuing heavy emphasis on relatively short-term loans for working capital finance suggest that banks still view the overall economic and legal environment as too uncertain to move into longer maturities on a larger scale or expand into other types of loans. For example, in collateralizing loans, banks reportedly tend to rely not on individual assets but rather seek legal title to the firm as a whole. At the same time, banks are reportedly refining their procedures for credit risk appraisal to assess firms' formal as well as informal cash flow.

The profitability of banks in 2000 was lower than during the previous two years with gross profits at 5.5 percent of assets and net profits at 1.3 percent. In 2001, judging from results for the first half of the year, profitability appears to have held up. Interest rates on both deposits and loans declined slightly from mid-2000, with the gross interest margin by and large unchanged. As inflation also declined, both rates remained broadly constant in real terms and at the same time, the return on government securities has fallen substantially; government securities have usually made up more then one tenth of banks' total assets over the last two years. Low returns on government paper help to explain the decline in profitability as well as banks' willingness to increase lending to customers where returns as well as risks are higher.

Because of the rapid expansion of bank balance sheets, the capital adequacy ratio for the banking system as a whole has declined from 28 percent at the end of 1999 to 20 percent in mid-2001. The corresponding prudential norm calls for a minimum level of 12 percent; NBK data indicate that it was met by all banks but one in mid-2001. Largely as a result of the tightening of minimum capital requirements by the NBK, the number of commercial banks in Kazakhstan declined from 55 at the end of November 1999 to 43 in mid-2001. In the process, some very small banks were converted into non-bank financial institutions with more limited activities such as credit unions.

With profitability at best stagnating over the last two years, pressure has increased on banks to cut costs. Because of economies of scale especially in retail banking, concentration in the industry looks set to increase. The most obvious example is the ongoing struggle for the control of Halyk Savings Bank, the formerly state-owned, second largest commercial bank, which has a large deposit base and an extensive retail-banking network throughout Kazakhstan. The recent auction of the remaining state shares saw the largest commercial bank, Kazkommertsbank (KKB), vying for control with two consortia consisting of financial institutions and industrial firms. A group led by Mangistaumunaigaz won the auction, but as KKB already controls nearly one third of Halyk Bank, the future structure of the bank is not yet clear.

Once the new control structure at Halyk Bank evolves, more mergers are likely to follow, as medium-sized banks may need to reposition themselves to compete with the larger banks. From the point of view of banking supervision, this process will require continuing vigilance as it raises concerns about a possible increase in monopoly power. In addition to banking supervision, international competition can help to maintain a competitive environment. Already, free entry of foreign banks to the country has led to the establishment of two large foreign banks as well as smaller ones. The planned, gradual liberalization of capital outflows will give Kazakhstan investors additional options for investing abroad.

Several banks have obtained credit ratings from international rating agencies. Apart from providing an assessment of the financial health of individual banks, these ratings are comparable across countries and thus give a sense of the state of the financial system in

Kazakhstan in relation to other developing and transition economies. As of December 2001, Moody's had given identical ratings to the three largest banks (KKB, TuranAlem, and Halyk) for their long-term bank deposits, financial strength, and short-term deposits. While Kazakhstan's banks are probably the most advanced among the CIS countries, they still lag behind many of the advanced emerging markets.

In sum, the financial deepening that occurred in Kazakhstan in 2000 and 2001 represents substantial progress in the development of the financial sector. It was driven by the growth of domestic deposits that reflected local customer's enhanced confidence in the banking system. Although growth has been rapid during the last two years, the levels of broad money and bank credit relative to GDP are still substantially lower than in most of the more advanced transition and developing economies. At the same time, the financial health of banks is probably stronger in Kazakhstan today than in other CIS countries with similar financial system depth.

Loan quality improved significantly through the end of 2000, but has deteriorated somewhat since then as credit was extended to a large number of new borrowers. Although banks have begun to develop new markets such as consumer loans and mortgages, most additional lending occurred along traditional lines, providing relatively short-term fully collateralized working capital financing. With a booming economy, there was strong demand for such credit even though real interest rates remained relatively high. Also, the strong emphasis on familiar types of loans economized on the limited administrative and risk assessment capacity of banks. The deterioration in loan quality is counterbalanced by the high level of provisioning for problem loans, the history of banks recovering a large share even of 'loss' loans, and the extensive use of collateral. While this situation does not appear to pose an immediate risk to the stability of the financial system, a large, sustained downturn in the Kazakh economy could depress the profitability of firms and hence the value of collateral to the point where widespread borrower insolvency becomes a serious threat. Banking supervision has an important role to play in containing inappropriate risk-taking by helping to strengthen the risk assessment capacity of commercial banks and by fully implementing the recent improvements in consolidated supervision.

This evaluation is summarized and adapted from: IMF, 2002. 'Republic of Kazakhstan: Selected Issues and Statistical Appendix.' *IMF Country Report no. 02/64*. Washington, DC: International Monetary Fund: 32-42.

ESCOs: Energy service companies are a new and innovative source of financing for EE projects. There have been many good experiences with ESCOs both in industrial and in transition economies (such as Hungary, Ukraine, and the Czech Republic). Also the Kazakh entities (both private and state) have expressed their interest in establishing ESCOs in Kazakhstan. Nearly all EE projects that have been proposed emphasized the advantages of ESCO solutions.

In 1998, the draft of 'Framework for Climate Change Technology Cooperation in Kazakhstan' was published. This document expressed support for international third party financing and the creation of national ESCOs. The costs were estimated at $500,000, of which $430,000 would be covered by international sources and $70,000 from domestic ones. The Ministry of Energy, Industry and Trade together with the Ministry of Finance were assigned to

be the leading agencies of this project. It is not clear why this endeavour has not materialized.[429] The most recent UNDP project 'Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply' also aims to overcome financing barriers to EE by promoting ESCOs. However, it does not plan to establish an ESCO itself but rather emphasizes local training and capacity building that would consequently lead to preparation of projects that would attract third party financing.[430] Despite this and other similar efforts, there are currently no operating ESCOs in Kazakhstan and the opportunities of them still remain unexploited.

Leasing:[431] The practice of leasing in Kazakhstan started with the Governmental decree #1851 'On Agricultural Leasing' in 1995, which was similar to the Russian Temporary Regulation on Leasing, but concerned only the agricultural sector. Only in 1999, when necessary changes were made to the Civil Code through 8 clauses in Paragraph 2 ('Leasing') of Chapter 29 (Property Hire [Lease]), the legal framework was in place. The Civil Code specifies that, 'pursuant to a leasing contract, the lessor undertakes to acquire property from a supplier specified by the lessee and to provide this property for the lessee's temporary possession and use for entrepreneurial purposes in exchange for payment. The leasing contract may stipulate that the supplier and equipment to be acquired are to be chosen by the lessor'.

Leased property may consist in any kind of non-consumable property, except securities and natural resources; however, unlike in Russia, leasing of land is allowed. In 2000, the Law on Financial Leasing #78-II was adopted, which enabled banks to take on leasing as a new financial instrument and to form leasing subsidiaries. The legislation in Kazakhstan does not address issues regarding taxation, currency and customs regulation, for which references are made to corresponding specific legislation. It provides for mandatory registration of the leasing contracts with the authorities, but leasing activity is not subject to licensing. The time frame for the leased assets to remain with the lessee must not be less than 80 percent of the depreciation term, and a maximum 13 years for the leasing contract to be valid.

The law foresees the following types of leasing:

- Buyback leasing, meaning that the supplier and lessee are the same entity;
- Bank leasing, where the lessor is a bank;
- Blanket leasing, service on the leased asset is performed by lessor;
- 'Pure' leasing, lessee performs service and maintenance on the leased asset.

Taxation of leasing operations is regulated by the Law on Taxes and other Mandatory Payments to the Budget, #2235 from 1995. The income tax rate for legal entities is 30 percent. Interest on loans taken to acquire capital assets is deductible from taxable income. No accelerated depreciation for leased assets is allowed, however. Turnover from the provision of financial services (including leasing) is exempt from VAT. Property tax is calculated as one percent of the depreciated value of assets.

[429] Katyshev and Pilifosova 1998.

[430] UNDP, not dated/b, 15.

[431] IFC 2001.

Among the first movers on the financial lease market were ATF-leasing (backed by Almaty Trade-Finance Bank) and BTA-Leasing (Bank TuranAlem). The main clients were corporate clients of the banks within the fuel and energy sector, metallurgy, transport, trade and agriculture. Domestic as well as imported goods are being leased.

Macroeconomic background and estimates of the demand for leasing services: The development of leasing services depends on the overall macroeconomic situation in the country. Leasing companies need access to affordable long-term capital, as well as some degree of confidence in the solvency of clients within the four to six years usually covered by lease agreements. Currently Kazakhstan's macroeconomic situation is quite favourable for development of the leasing industry. The overall economic growth expectations are high. Stable exchange rates and the strict monetary policy of the National Bank are helping to control inflation, which has been in the single digits for several years. However, because of the tight monetary policy carried out by the National Bank, interest rates are kept at nearly 30 percent; most potential borrowers, especially from the manufacturing sector, cannot afford to take loans. Consequently, major banks accumulate unused financial resources amounting to $1-2 million per month for each of the major banks.

Despite the above-described situation, there is a very strong demand for financial resources in virtually all sectors of the economy. According to various estimates, 40 to 80 percent of all equipment used in the economy is outdated and needs to be replaced or modernized. Specialists from the European Bank for Reconstruction and Development (EBRD) note that since 1991, capital investments have failed to cover obsolescence of fixed assets. However, starting from 1997, a solid growth of investments in fixed assets was registered in Kazakhstan. Investments in purchase and renovation of fixed assets in the Republic increased from $1.57 billion in 1997 to $2.4 billion in 1998 and $2.2 billion in 1999. EBRD estimates that leasing could account for 10 percent of gross investment in fixed capital, which means that leasing market potential in Kazakhstan is probably about $220-250 million. Local industry experts suggest that officially provided investment figures reflect only the needs and investments of major enterprises. If established and emerging small and medium sized enterprises are taken into account, the estimates could double, meaning that the leasing market of Kazakhstan may be worth up to $500 million.

Historical development and current status of major market players:[432] The year 1989 was marked by the establishment of several local leasing companies and can be considered as the birth year of the leasing industry in Kazakhstan. Leasing firms such as 'Kramds-leasing', a subsidiary of Turan Bank 'Turanleasing', Joint Venture 'Kaztechleasing' and others were created in 1992. In 1994 the National Leasing company, 'Asia-Leasing', was established as a joint stock company with the participation of several Kazakh enterprises and banks. These companies focused their activities on import and further direct selling of equipment to companies in Kazakhstan. Consequently, these operations did not qualify as real leasing schemes. In the beginning of the 1990s leasing companies enjoyed a relatively favourable tax regime, and import of all the equipment intended for leasing was exempted from VAT. However, the originally established leasing companies failed to attract significant amounts of financial resources needed to carry out successful projects and with the abolition of the VAT exemption all of these companies

[432] Historical information provided is based on the facts outlined in EBRD 2000a.

ceased to exist. The Leasing Department established by the government in May 1995 to work on legal issues related to leasing was also shut down after a short period of operations.

In Kazakhstan the first real leasing company, Central Asia Leasing (CAL), was established in 1997 following joint efforts of International Finance Corporation, Kazkommertsbank (KKB) and Leaseholding, a Dutch-based holding company serving as the managing and technical partner. IFC, KKB and Leaseholding contributed to the initial capital. CAL's objective was to offer lease/hire-purchase agreements for equipment required for growth by local private enterprises in various industries, but especially in export related sectors with feasible foreign exchange incomes. Registered in September 1997 and operational until the end 1998, CAL signed only one lease agreement. There were many sound projects available, and CAL had to turn down many good proposals because the increase in its capital never took place. CAL was closed, not due to the absence of demand or internal factors, but because of external obstacles.

Currently two major lease players dominate on the market: 'Halyk Leasing Company' and 'BTA Leasing'. Halyk Savings Bank of Kazakhstan established the Halyk Leasing Company. TuranAlem Bank established BTA Leasing on 4 August 2000. One of the key distinctions between the companies is in their targeted groups of potential clients. Halyk Leasing Company focuses its attention on larger clients with some of the most recent leases signed for $1.7, $2 and $6 million. Among key projects financed by Halyk Leasing Company are purchases of road construction equipment, production lines for manufacturing shoes, and food processing projects. BTA Leasing works mainly with small and medium sized enterprises. Projects financed by BTA Leasing include purchase of mini oil-refineries for enterprises in Western Kazakhstan, dental equipment for a private dental room, and a bus for one of the local tourist companies.

Another difference between the companies lies in their key marketing and management techniques. BTA Leasing started by researching potential clients interested in leasing schemes and then identified suppliers of the appropriate equipment. Halyk Leasing Company took the opposite approach, found suppliers of various types of equipment and then researched corporate clients interested in leasing those types of equipment.

Currently each company has a package of financial leases approved by their credit committees worth approximately $7 million. Industry specialists estimate that the overall Halyk Leasing Company market share is 45-50 percent, while the BTA Leasing share is about 40-45 percent. BTA Leasing signs up to 70-80 percent of all leases for small and medium sized enterprises, while Halyk Leasing Company deals with approximately 80-90 percent of all leases for larger companies. Despite the present limited volume of financial leasing transactions, industry experts inside and outside of the two companies believe that there is strong potential for rapid development of the market. Annual growth rates for the next 2-3 years are projected to exceed 100 percent. Halyk Leasing Company plans to double the volume of its portfolio of signed leases by the end of the year.

Both companies agree that priority sectors in the leasing market of Kazakhstan include:

- Oil industry, including oil extraction and refining;
- Mining;
- Agriculture;

- Road and general construction;
- Various types of vehicles;
- Equipment for different import substituting enterprises.

However, in order to grow more actively the market needs to overcome several challenges:

- Lack of qualified specialists capable of designing and managing complicated financial schemes;
- Limited available amounts of 'cheap' money. Currently most of the leases are signed at annual interest rates ranging from 18 to 26 percent;
- Absence of legal provisions allowing for higher rates of amortization.

Tax incentives:[433] The Law of the Republic of Kazakhstan on Energy Conservation provides in Article 12 various incentives for enterprises and individuals if they implement energy saving measures. This article contains the following provisions:

- Enterprises and individuals, reducing the consumption of fuel and energy resources by one percent of the established norms, shall be entitled to have the price of fuel and energy tariffs reduced by 1.5 percent. The total reduction of prices and tariffs may not exceed 25 percent.
- Enterprises and individuals using non-conventional and renewable energy sources for not less than 25 percent of their consumption of fuel and energy resources shall be entitled to have the price of fuel and energy tariffs reduced by up to 50 percent.
- The reduction in prices and tariffs shall be made up from territorial energy conservation funds on the basis of an expert energy appraisal.
- For agricultural districts and districts with a complex environmental situation up to 80 percent of the cost equipping and building plants, structures and other facilities using non-conventional and renewable energy sources and alternative forms of fuel shall be reimbursed from the republican and local budgets. A list of districts shall be drawn up by the Government of the Republic of Kazakhstan at the proposal of the local executive authorities, the State energy inspectorate and the environmental agency.
- Enterprises and individuals developing, manufacturing and building plants, structures and other facilities using non-conventional and renewable energy sources and alternative forms of fuel shall enjoy tax concessions of the income derived from this type of activity, as determined by the Tax Code of the Republic of Kazakhstan.
- Enterprises and individuals achieving real savings in fuel or energy shall enjoy tax concessions on the income derived from introducing these measures, as determined by the Tax Code of the Republic of Kazakhstan.'

[433] UN ECE 2000b.

The real impact of these incentives has remained doubtful, as the authorities do not have sufficient funds to cover them. The transfer of EE technologies is also difficult, as there are no customs fees exemptions or reduction on EE equipment.[434] The draft of the Law of Republic of Kazakhstan on Investments however grants, in its Article 17, customs fee exemptions under following conditions:[435]

- Unavailability on the territory of the Republic of Kazakhstan of manufacture of similar equipment, raw materials and primary goods;
- Insufficient manufacture of similar equipment, raw materials and primary goods on the territory of the Republic of Kazakhstan in order to carry out activities with respect to the investment project;
- Non-conformity of similar equipment, raw materials and primary goods manufactured in the territory of the Republic of Kazakhstan to the requirements shown within the project.

This exemption is granted for one year with possible extension up to five years.

[434] Kuratov, Solyanik, and Svitelman 2000, 8.

[435] BISNIS, not dated.

3.3.4 *Russian Federation*

Although energy efficiency was declared a priority in Russia's new energy strategy, the system to finance energy efficiency measures is not yet well developed. The traditional source of financing – budgetary funds allocated for energy sector – is scarce. Russian financial institutions are not yet ready to support project-financing schemes. The share of financing of energy efficiency coming from these sources is therefore relatively low. Many energy efficiency projects in Russia are mostly financed through organizations based in the territory where the project takes place.

However, the energy efficiency projects already carried out show that it is also possible to raise funds to be invested in energy saving and technological equipment. The 23 Demonstration Zone projects proved that in the Russian economy, investments by multilateral institutions and foreign governments could be made under the guarantees of the Government of the Russian Federation, local governments, and Russian financial institutions. With the development of energy cooperation between Russia and the United States, the European Union, and a number of other countries, more opportunities for financing energy efficiency measures appear. The following key barriers hinder investors from taking advantage of financial opportunities in Russia:

- Inadequate commercial legislation (bankruptcy laws, contract enforcement, performance responsibility of contractors, dispute settlement and enforcement of arbitration decisions) to guarantee the return of investments;
- Most Russian financial intermediaries do not have sufficient assets to provide credits and do not support project financing schemes;
- Russian political situation may cause uncertainty for certain investors.

The articles below provide examples of energy efficiency projects implemented in the Russian Federation and describe the financial opportunities available for them. The last paragraph on 'Tax Incentives' describes the foreign investment regime in Russia.

Public funding: In Russia, public funding is distributed via the budgetary system, which consists of a federal budget, budgets from federation subjects, and local budgets. The budget provides for current and capital expenditures. Current budgetary expenditures support the functioning of state and local authorities. Financial assistance to other budgets or certain sectors of the economy in the form of subsidies is also included within current budgetary expenditures. Capital budgetary expenditures provide for innovation and investment activities. These include expense items assigned for investments in functioning or newly established legal entities, in accordance with an approved investment programme, and assets provided to legal entities as budgetary credits for investment purposes. Financing of energy efficiency measures may be obtained from the budget in the following cases:

- Budgetary credits to legal entities (not state or municipal unitary enterprises). A credit from the budget may be provided to a legal entity on the basis of an agreement concluded in accordance with the general rules of Russian civil legislation. The borrower of funds must provide a credit security (limited to bank guarantees, bail, or property mortgage for a sum equal to the credit), which should be of high liquidity. A

mandatory prerequisite to the provision of the credit is the prior examination of the borrower's financial situation. The credits are provided to legal entities for the goals specified in the respective budget. For example, the Law on Federal Budget for 2002, has established that the credits from the federal budget may be provided 'for carrying out investment projects in coal industry on a competitive basis for a period of three years, in the total amount not exceeding RUR 1,700 million, with the credit rate established at the level of 12 percent per year'.

- Provision of subsidies, including grants and other financial aid from the budgets of different levels, if provided by federal or regional target programmes, federal laws, or decisions of municipal representative authorities.
- Budgetary investments. The expenditures to finance budgetary investments are established in the budget if they are included in a federal or regional target programme, or if they are in accordance with a decision of a competent federal representative body, a representative body of a subject of federation, or a municipal authority. In the Federal budget for 2002, over 2,260,000 roubles were allocated for the Federal Target Programme *Energy Efficient Economy*.

The main feature of public financing is that the funds to be spent during the financial year should be established on the stages of drafting, discussion, or adoption of the budget or target programme. It is not possible to influence the allocation of funds from the budget on the other stages of budget execution.

National programmes aimed at energy efficiency: Following the adoption of the Energy Strategy of 2000, the authorities worked out the Federal Target Programme *Energy Efficient Economy for 2002 through 2005, and for the perspective up to 2010*. This programme was created to decrease the power intensity of Russian industries and to assure that the country's needs of energy resources shall be met.[436] The programme is supported by the federal budget and the assets of the Ministries-contractors (Minenergo, Minatom, among others). The main purposes of the programme are to realize the energy strategy of the Russian Federation, to employ energy saving technologies and equipment, to decrease production costs in the energy sector (including transport, processing, and consumption of energy resources), to mitigate the negative effects of the energy sector on the environment, and to improve the maintenance and broaden the export of fuel and energy. The Programme includes several sub-programmes:

- *Energy efficiency of Fuel-Energy Complex* (Minenergo) aims at modernising and increasing the safety of oil-extracting, gas, coal and power industries, as well as at efficiently supplying the northern regions of the country with energy.
- *Safety and Development of Atomic Energy* (Minatom) aims at securing functioning atomic plants, constructing new ones, and supplying atomic plans with fuel.
- *Energy efficiency in the Sphere of Consumption* aims at promoting energy efficiency in power-consuming industries, agriculture, housing and communal services, transport, organisations of federal budgetary sphere, and industries of FEC.

[436] Russian Federation Government 2001a.

The executors of the Federal Target Programme (FTP) and its sub-programmes are to be determined on a competitive basis. The realisation of the FTP would require RUR 7004.66 billion, of which RUR 50.26 billion would be allocated from the Federal Budget. The rest of financing would be provided from the assets of governmental contractors:

Table 3.3 Sources of financing of the FTP 'Energy Efficient Economy' (billions RUR)

	2002-2005	2006-2010
Total	2958,671	4045,989
by governmental contractors:		
Minenergo	2703,901	3690,349
Minatom	181,66	286,16
Minpromnauki	34,68	33,4
Minselhoz	4,1	4,02
Mintrans	3,76	4,21
MPS	5,24	3,8
Gosstroy	25,33	24,05

Source: Federal Target Programme 'Energy Efficient Economy' for the years 2002-2005, and for the perspective up to 2010 (Government Resolution of 22 January 2001 No 83-r).

The expected outcomes of the FTP are overcoming negative tendencies in the development of industries of FEC, reaching the necessary levels of exploitation and production of energy resources, and reducing energy intensity of Russian GDP by 13.4 percent in 2005 and 26 percent in 2010, compared to 2000.

Bilateral financing: In the field of EE and environmental protection, Russia cooperates with the United States. The US has a number of EE groups, some of which have permanent presence in Russia. In 1993, the Alliance to Save Energy started operating in Russia in its westernmost city, Kaliningrad.[437] It then expanded its activities to the national level. The Alliance to Save Energy's Kaliningrad programme has received funding from the Honeywell Foundation, the Rockefeller Foundation, and USAID.

The *Kaliningrad City Central Heating System Improvement* project started in 1997. That year, the Alliance assisted Kaliningrad in applying for a World Bank loan for improvements of the city's central heating system. This is one of the largest and most important development projects in Kaliningrad, where it has a very high profile and is considered to be one of the most successful in local economic development. It focused on upgrading the district heating system, which

[437] ASE, not dated.

serves the most populated part of the city. The programme includes upgrading two boiler houses, as well as more than 10 km of distribution networks. The total cost of the project is $10,343,000, including a $5,346,000 loan from the World Bank. The programme is still under way (about $4.5 million of the loan has been used) and the Alliance continues its work with city officials to ensure the project's successful implementation.

The Alliance project coordinator in Kaliningrad continually advises the members of the project-working group at Kalingrad's City Hall. It has organized a special workshop for approximately 35 people including Kaliningrad's City Hall, the Kaliningrad Regional Environmental Inspection, the Kaliningradteploset municipal company, the Yantarenergo utility, Yantargosenergonadzor (energy inspection), GasOil (Gazprom subsidiary), and other local organizations. Upon the project's completion, more than five miles of pre-insulated piping will have been laid and the project will generate enough savings to finance the conversion of a nearby generating station from coal to gas. The project will result in an approximate annual reduction of 12,000 tonnes of greenhouse gases. With annual fuel savings of $1.6 million, the project would pay back the investment made by the city in three years.

Multilateral financing: It provides more opportunities for project financing in Russia, where sourcing funds on commercial terms are scarce. However, they usually have strict lending criteria and conditions. Multilateral financing in Russia is impeded by a number of factors, including immaturity of commercial law, inadequate regulation of contract enforcement, performance responsibility of contractors, dispute settlement, and bankruptcy laws.[438]

European Bank of Reconstruction and Development (EBRD): EBRD is a multilateral institution created to assist economies in transition to develop into market-oriented economies. EBRD applies the conditions of not financing more than 35 percent of the total amount needed, thus insisting on the contributions of other investors. The EBRD seeks to ensure that its projects have 'a multiplier effect', additional benefits to the country, including the mobilization of private investment and co-investment.[439] Russia is one of the EBRD's priority countries of operation, where it has already invested more than €800 million in the energy sector. EBRD insists that in order to obtain further financing, Russia needs to structurally reform its energy and banking sectors and improve its commercial legislation. On 25 June 2002, EBRD's Business Group Director for Energy, Peter Reiniger, announced that Russia could possibly obtain $350 million in investments in the next few years for oil and gas projects, if the country reforms its oil and gas monopolies. For example, if the country provides non-discriminatory access to pipelines.[440] Some project examples include:

- In July 2001, the EBRD gave a $90 million loan to Rosneft, a major Russian oil and gas company, subsidiary 'Rosneft-Sakhalinmorneftegaz' (SMNG). SMNG is engaged in exploration, production, and marketing of oil and gas deposits on Sakhalin Island in the Russian Far East.[441]

[438] TradePort, not dated.

[439] NEFCO, not dated/b.

[440] Interfax, not dated.

[441] EBRD, not dated/b.

- In October 2000, EBRD provided a $250 million medium-term secured loan to Gazprom in order to reconstruct parts of the unified gas supply system, upgrade the existing transport and production facilities, and establish a comprehensive Management Information System for its accounting department.
- In November 1998, EBRD financed $205 million to develop oil reserves in Perm.
- In January 1998, EBRD provided a loan for the construction of a 40MWe geothermal power station on the Kamchatka peninsula to enable the local power company to cease employing its inefficient oil-fired power generating capacity.[442]

The World Bank Group: The Russian Federation joined the World Bank in 1992 and has received more than $12 billion for 48 operations. Focal areas include improving people's living conditions, protecting the environment, and supporting reforms leading to a stable macroeconomic atmosphere. The World Bank has financed a number of projects in the district heating sphere, as part as the first focal previously mentioned. The World Bank can only loan to a government or under the guarantee of one and has strict lending criteria. The World Bank requires the financed project to yield at least a ten percent rate of economic return, while other institutions require about five percent.[443]

Table 3.4 Examples of projects

	Date of the Project and implementing agency	Project title	Amount of financing	Project description
1	IBRD; October 1997	Energy efficiency Project General Procurement Notice Loan No. 3876 –RU	$ 70 million	Components of the project: equipment to improve efficiency in the production and distribution of heat (high efficiency heating boilers, burners and automation of them), heat transmission and distribution piping and valves, heat sub distribution, units and automation of them, and heat energy meters.
2	IBRD; Last updated September 10, 2001 Active	Municipal Heating Project Project ID: RU-PE-38551	$ 85 million	Project aims to reduce the financial burden of supplying heat in municipalities
3	IBRD; May 200	Coal Mining Safety Environment Assessment Category B.PID:UAPE40561	$ 150 million	The project will support the elimination of unsafe situations and acts in the workplace, (b)
4	IBRD	Municipal heating. Environmental Assessment Category B.PID: RUPE38551	$ 70 million	Project is aimed to support the government's reform programme for housing and communal services, reduce the financial burden on municipalities associated with the supply of heat

Source: World Bank, 2002.

[442] SHAPS 2003.

[443] World Bank, not dated/d.

Nordic Environmental Finance Corporation (NEFCO): NEFCO provides various financial services to its clients when the project is economically viable, has a positive environmental effect, and is located in one of the NEFCO's countries of operation. Russia is one of these countries. NEFCO currently finances several projects in Russia, including two on district heating in Kalevala and Lahdenpohja.[444] It is necessary to underline that the NEFCO client is required to collaborate with a Nordic country co-agent, a company or an institution willing to cofinance the investment.[445] NEFCO's financing of the project does not exceed 30 percent or €3 million of the total amount needed.

UNDP/GEF: The United Nations Development Programme (UNDP) has developed a few projects in Russia aimed at EE. These are supported by the Global Environmental Facility (GEF) within its focal area of climate change mitigation. The largest project with a budget of almost $3 million is entitled *Capacity Building to Reduce Key Barriers to EE in Russian Residential Building and Heat Supply*. The table below provides basic information on this and other projects.

Table 3.5 Examples of projects

	Implementing Agency, Project Duration	Project Title	Amount of Financing	Project Description
1	GEF, UNDP January 2000, 5 months	Low cost EE measures in the Russian educational sector RUS/00/G44	$ 25,000 - GEF $ 15,000 - cofinancing.	Removal of Barriers to EE and energy conservation
2	UNDP February 1998, 52 months	Capacity Building to Reduce Key Barriers to EE in Russian Residential Building and Heat Supply	$ 2,980,000	N/A
3	GEF, UNDP, UNOPS 1999-2001	Reduction of Coal bed Methane Emissions in the Kuznetsk coal Basin, the Russian Federation RUS/97/G41	$ 199,800 – GEF	The project is executed together with Ministry of Energy of the Russian Federation

Source: UNDP Moscow Office, 2002.

TACIS programme: Within the framework of the TACIS programme, the European Union provides grant-financed technical assistance to 13 countries of Central and Eastern Europe, including Russia. Project examples include:

- *Energy Efficiency in Housing,* the EU-TACIS Moscow Project is a joint effort undertaken by Sogetec (France), Innotec (Germany), the IEMB (Germany), the city government of Moscow (Russia), the O.A.O Mos Project (Russia), among others. It's aim is to prove that EE measures may be financed through energy savings.[446]
- *Development of Minor Local Energy Resources* (ERUS 9802, 28 February 2000, two years), the project aimed at providing assistance in developing economically and ecologically

[444] NEFCO, not dated/a.

[445] NEFCO, not dated/a.

[446] IEMB, not dated.

sustainable programmes of regional development securing stable energy supply, taking into consideration national policy goals. The recipients of technical assistance are Minenergo, Energy Constructions Research Institute (NIIES), RAO UES, and local governments of Ivanovskaya, Jaroslavskaya, Pskovskaya, and Rostovskaya Oblasts. The project included 71 people monthly for the short-term experiment of the EU, 62 people monthly for the long-term experiment of the EU, 170 people monthly for Russian experts belonging to different specialities, as well as laboratory equipment for hydraulic modelling and collection of information.[447]

- *TACIS project ERUS 9606 in Novosibirsk,* finished in 1999. The project aimed at developing energy saving conceptions and assisting local state authorities in working out policy, standards, and legislation in this sphere. Education and demonstration activities were carried out. The practical part of the project aimed at the development of strategic partnerships between Russian and European producers, financial institutions, and investors. As a result, local state authorities learned to use energy resources more effectively, reducing energy costs and demands in the budgetary sphere by 20 to 30 percent.

Sourcing funds on commercial terms: In Russia, bank credit is less developed than in the countries of Central and Eastern Europe – only three percent of total investments are financed by commercial banks. Although there are a vast number of commercial banks in Russia, their overall assets are small. One of the barriers for bank crediting in Russia is the absence of a credit rating system.[448]

The Russian bank sector includes the Central Bank, credit organizations, subsidiaries, and representative offices of foreign banks. The Central Bank is an independent legal entity, vested with broad powers in the sphere of administering the credit-monetary system of the Russian Federation. However, it enters civil law relations with other banks and credit organizations. The Central Bank's activities aim at increasing the stability and reliability of the bank sector.

Since 1988, Russia has suffered from a number of bank sector reforms and crises, rapidly decreasing the number of banks. Mostly small and medium-size banks prevailed, rather general and multi-purpose ones. Some banks give credits to corporate clients, provide leasing services, and project financing. However, not all Russian banks provide credits to its clients, and most give only short-term credits. A description of credit products and tariffs of some banks selected randomly is presented as an example.[449]

- Alfa-Bank (Moscow). Besides granting credits, credit lines, and overdrafts, Alfa-Bank offers its clients project financing, leasing, and issuance of bank guarantees. In the case of project financing, Alfa-Bank finances investment projects on reconstruction, modernisation, and enlargement of Russian enterprises with a credit period of one to five years, annual credit rate of 15 percent, and total project sum varying from $500,000 to $5,000,000.[450]

[447] Tacis Project ERUS 9802, not dated.

[448] Vremia Novostei 2001.

[449] Information Centre Rating 2004.

[450] Alfa-Bank, not dated.

- Gazprombank (Tomsk, authorised bank of Gazprom). The bank provides its corporate clients short-term (three to six months) and long-term (more than a year) credits. Aiming at financing reconstruction and technical re-equipment of organisations and enterprises, the bank approves the terms and the currency of the loan established by the conditions of the investment project. The annual credit rate is usually 25 to 28 percent for credits in Russian roubles, and 14 to 15 percent for US dollar credits. The exact credit rate depends on the reliability of the client, his credit history, among other circumstances. Gazprombank reserves a priority right to obtain a credit for organisations and enterprises within the structure or cooperating with OAO Gazprom, as well as for the bank's clients with sufficient asset turnover on their settlement, currency, and other accounts.[451]
- Menatep Bank (St. Petersburg). Established in 1995, it is one of the largest Russian commercial banks. It offers its clients investment operations and issuance of bank guarantees, among others. Menatep bank participated in financing the ESCO of Rosprom Holding by providing a bank guarantee (please also see Section 3.1.2.).
- Sberbank. It is a leading Russian bank that gives credits for up to one year to corporate entities for the purposes of financing of commercial and industrial programmes. Credit rates depend on the category of the client, credit security, and existing risks.[452]

ESCO companies in Russia include Negawatt and ZEiM-ESCO. However, energy service companies are only starting to develop in Russia, and are not quite like those in the United States.[453] Some of the energy service companies of Russia are listed below, together with their main line of activity, organisational structure, and economic status.

Negawatt: ESCO Negawatt was established by the Centre of Energy Policy, a Russian autonomous NGO involved in research, scientific, and educational activities to increase EE in the framework of sustainable development.[454] Negawatt carries out energy audit and technical-economical analyses of energy consumption, design, and implementation of EE projects, as well as offering consulting and information rendering services. It also supplies EE equipment to control and register consumed energy. Negawatt offers its clients a turnkey EE package operating on the basis of performance contracts. This means Negawatt provides a full range of energy services to an enterprise by investing its own or borrowed funds on the condition that the investment be returned in the form of saved energy consumption expenditures during a certain period of time. During the past three years, Negawatt successfully implemented energy saving projects at the Moscow Medical Academy, Sechenov, CCB Almaz, Moscow Olympic Sport Complex Chaika, among others. Despite having little capital and difficulties in attracting

[451] Gazprombank, not dated.

[452] Sberbank, not dated.

[453] Maksimchuk I.D, not dated.

[454] CEP, not dated.

loans, Negawatt is one of the first Russian Energy Service Companies to carry out its activities on a self-financing basis.[455]

ZEiM – ESCO: It is another specialized Energy Service Company working on the market for energy services in Russia.[456] It was founded in 1999 as a limited partnership on the basis of the Engineering Works Agency and is now part of the Electrotechnical Holding Electroprominvest. ZEiM – ESCO specializes in automating energy production, managing consumption systems, and identifying and implementing energy saving measures. The company aims at solving energy consumption problems through the implementation of energy saving measures from energy production to energy consumption.[457] In August 2001, the company signed an agreement with the administration of Cheboksary, Chuvash Oblast (a subject of the Russian Federation), under which the former would have to develop and implement energy saving projects in the city of Cheboksary. The main target would be to diminish the expenditures of the local budget by introducing new technologies into the city's energy supply.[458] The company would also take part in shaping regional energy saving policy.

In the High Efficiency Demonstration Zone of Kirovsk, a private ESCO was set up to reduce energy consumption in the Russian apatite production sector. This sector is in the framework of ROSPROM industrial group, which is financed by the Menatep Bank, IBRD, other multilateral institutions, and a number of industrial enterprises. The details of the creation of the ESCO are under negotiation.[459] There are certain economic and legislative difficulties when setting up an ESCO, primarily the non-payments crisis. If the ESCO client does not pay, it is difficult to follow up on the case due to a lack of appropriate legislation. In some regions such as St. Petersburg, local authorities have included the adoption of the act governing the activities of ESCOs among the preliminary energy saving measures in the region. The adoption of the Federal legislation is yet to be expected.

Leasing: Russian leasing legislation has a short but eventful history. Although the Russian Federation participated in the Ottawa Convention on International Financial Leasing signed in May 1988, Russian domestic legislation on leasing began in September 1994 with the enactment of the Presidential Decree on the Development of Financial Leasing in Investment Activity marked the beginning. On 29 January 2002, the Federal Law on Financial Renting (Leasing) was amended and the norms of the Civil Code and the Federal Law were brought in conformity. In the current version, Russian domestic legislation on financial leasing is essentially similar to the UNIDROIT Convention of 1988, of which the Russian Federation is a party since February 1998.

A specific feature of the Russian Leasing Law is that it names only two parties to the leasing contract, lessor and lessee. The supplier acts on a separate 'mandatory' contract, the conclusion of which is an obligation of the parties to the leasing contract. Depending on the scope of services provided to the lessee, Russian legislation contains net leasing under which

[455] CEERI, not dated.

[456] ZEiM plc, not dated.

[457] ZEiM plc, not dated.

[458] VolgaInform 2001.

[459] Russian Energy Efficiency Demonstration Zone of Kirovsk, not dated.

the lessee bears all maintenance costs, wet leasing under which this costs are bared by the lessor, and severable leasing under which costs are shared between lessee and lessor.

Depending on the parties, leasing can be indirect, when the agent of the equipment producer is the supplier in the contract, or it can be leveraged, primarily used to finance major investment projects. Such projects usually involve several leasing companies, equipment suppliers, and banks to finance the agreement. Russian legislation also permits the sale and leaseback arrangement, which gives an owner the opportunity to sell property and become a lessee of the same, attracting the needed capital.

The Federal Leasing Law has provided for the creation of leasing companies – commercial organizations that professionally carry out the functions of lessors. There are about 80 major leasing companies in Russia, many of which are in the Russian Leasing Companies Association (Rosleasing). One of the first Russian leasing companies in the Energy Sector, ZAO Turbokon Kaluga, carries out leasing activities associated with the development and implementation of energy saving technologies for customers such as the Ministry of Defence, the Ministry of Fuel and Energy of the Russian Federation, RAO UES, and OAO Gazprom.[460] The company took part in the execution of the federal scientific and research programmes *Fuel and Energy*, *Ecologically Clean Energy*, *Energy Saving of Russia* and in a number of sub- and regional programmes. Due to the specifics of the energy sector field, primarily specialized leasing companies enter financial leasing contracts as lessors.[461]

Tax incentives: Although the Federal Law on Energy Saving has declared the promotion of efficient use of energy resources, the Russian Federation legislation does not contain provisions on tax incentives for investments in energy efficiency, tax exemptions, or grace periods. The Russian Government has not created considerable tax privileges for the producing enterprises and investors in the case of investment of capital in EE. Russian legislation contains a number of tax incentives for investors.[462]Article 16 of the Federal Law on Foreign Investment in the Russian Federation grants privileges to foreign investors whose legal status is established by laws other than those of the Russian Federation and who have the right to invest capital in Russia. Privileges are also offered to Russian commercial organizations with a foreign participant/investor. It should be noted that Article 16 only grants privileges to the investors carrying out a priority investment project, an investment project of more than one billion roubles.

[460] Turbokon Kaluga, not dated.

[461] As a rule, a lessor in the energy sphere should possess patents on the inventions and innovations in the field of energy saving, geothermal and military energy techniques.

[462] SZ RF 1999.

3.3.5 *Ukraine*

Project examples: In order to illustrate how EE projects may be implemented in Ukraine the following examples can be considered. The recent $2 million joint UNDP/GEF energy efficiency project *Climate Change Mitigation in Ukraine through Energy Efficiency in Municipal District Heating*, signed on 2 July 2002, will be implemented as a pilot project in the city Rivne. The new energy-saving model will then be expanded to other cities in the country. Rehabilitation aiming at increased EE is to be carried out on the levels of energy generation, transmission, and consumption. It is also projected to develop procedures, guidelines, and information materials for dissemination. For these purposes NGOs will be involved.

In April 2000, the International Bank of Reconstruction and Development ratified an agreement on a credit of $18.29 million for the project *On energy-saving in administrative and public buildings of Kiev*. In addition, the Swedish government granted $2 million for this project.[463] The objective of the programme is to improve energy savings of the main public buildings in the city of Kiev, including schools, nurseries, and hospitals by means of technical improvements and appropriate tariff policy. The project is to be finished in 2004 and consists of two parts:

Part A: Increase energy savings in administrative and public buildings, namely:

- Retrofit of 1,300 public buildings by installing automation facilities on heat supply stations; installing reflectors on radiators, ventilators, water pressure regulators, hot water heat-exchanges, and other means of energy-efficiency;
- Heat meters installation in each targeted building;
- Technical testing on energy consumption in buildings, which are included in the project in order to evaluate their needs.

Part B: Institutional assessment:

- Financing of auditing to evaluate existing economic status of targeted objects;
- Training technical personnel from the buildings included in the project;
- Improving the system of social assistance in Kiev to evaluate needs for subsidies.

Simple but energy-efficient measures are implemented in a number of Ukrainian cities, such as a project to improve EE in school buildings in Lviv. The following case describes heat-supply improvements carried out by the municipality together with Alliance to Save Energy.

Boarding-school no.1 in the city of Lviv (western part of Ukraine) is financed directly from the local budget. Heat supply is provided according to a traditional centralized scheme. In 1996, local authorities initiated a programme to provide each budget organisation with heat meters. In the framework of this programme, each school was equipped with a meter to enable municipal authorities to access information about heat consumption levels. Together with

[463] Verkhovna Rada of Ukraine, not dated.

Alliance to Save Energy, the municipality organized a demonstration in this school to show practical ways of decreasing heat consumption. The project included three stages:

- Mounting a system of automatically regulated heat into the building;
- Repairing windows;
- Compacting (restoring) windows.

The whole programme cost amounted to nearly $27,500. This programme resulted in a decline in heat consumption of 44 percent and a decrease of expenditures by 42 percent. Another positive result was an increase in the comfort of the school. These EE measures in Lviv boarding school attracted the interest of other municipalities. In response, the US Agency of international development provided funding for similar projects during 2000-2001.

Public funding and national programmes aimed at energy efficiency: The recently adopted (2001) Budget Code governs the system of Ukrainian public finances. In accordance with this law, state and local budgets are held separate, their only substantive link being the form of transfer payments. The oblast, rayon, and city Radas act independently to formulate and approve their separate budgets. Specific revenue sources are assigned to state and local governments, allowing these governments to determine their own expenditure priorities within specified limits. Thus, if measures for EE are included in these priorities, the determined value of funds will be available for these purposes. Financing from budgets of different levels is targeted for implementing EE measures in budget institutions. The State Treasury is given the responsibility to oversee both state and local budgets.

The tasks of distributing funds for EE and those for environmental protection are in the competency of the Ministry of Fuel and Energy, the Ministry of Economy, and the Ministry of Environment and Natural Resources. The Ministry of Fuel and Energy is involved primarily in the programmes addressing energy supply. For the year 2002, the State Budget contains such expenditure items as the programme *Maintenance of Closed Objects of CHNPP* (Chernobyl Nuclear Power Plant), which include economic maintenance of the three closed power units, and the programme *Creation of Internal Production of Nuclear Fuel.* Expenditures for the coal mining sector in the draft 2002 State budget are estimated at UAH 2.3 billion. In 2002, the estimated sum would provide an opportunity to continue the liquidation of loss making mines and open pit mines and other activities related to their liquidation. Within the budget programme, it is planned to continue to implement the *Programme for the Utilization of Production Waste to 2005*. Special funding is also invested in programmes for the development of new technologies in electric power engineering, state scientific and technical programmes, and scientific components of targeted programmes in the oil and gas industry.

Section Four of the *Integrated State Programme for Energy Saving of Ukraine* stipulates energy saving activities in budget-funded entities for five years. The funds estimated in the state 2002 budget for the programme *Intersectoral Energy Saving Measures* are planned to be used to finance equipment for energy saving at budget funded entities, providing meters for energy use and regulation, and introducing intersectoral energy saving technologies. Implementation of projects on energy saving in budget-funded entities and organizations includes reconstruction of supply networks and systems, meters and regulators for water, gas, thermal, and electric energy consumption. In 2002 such expenditures were estimated at UAH 17 million.

The *Climate Programme of Ukraine*, under the competency of the Ministry of Environment and Natural Resources, would have UAH 2 million, twice as much as in 2001. This programme is aimed at the implementation of the Main Guidelines of the State Policy in the fields of environment protection, use of natural resources and provision of environmental security. This programme also performs research on mechanisms of formation of climate, weather, and natural hydro meteorological phenomena. Improvement of the forestry system, reforestation technologies, and development and implementation of environmental and economic activities are other objectives of this programme.

Projects on the micro-level are funded with local budgets. A preliminary estimate of the project should be given to local authorities in order to include the needed amount in their budget. Despite the importance of the energy sector in Ukraine, the country still suffers from high-energy intensive production. With the purpose of achieving improvements in this area, the government of Ukraine has conducted a number of measures, the first of which was the adoption of the Law of Ukraine on energy saving in 1994.

As an executive body in the sphere of energy saving, the State Committee on Energy Saving was founded in 1995. This committee is in charge of developing legislative norms for targeted spheres, such as norms on electricity and heat-energy consumption for budget sphere organizations or norms on fuel expenditures for boilers. The committee conducts energy-related research and analysis, initiates, prepares, and participates in demo projects with dissemination of experience. It also participates in the process of selecting energy efficiency projects for financing from the state budget. In 2001, the government provided UAH 25.4 million ($4.8 million) for energy saving and the committee distributed the funds on a tender basis. The committee carries out international activity and has recently initiated the publication of manuals on energy efficiency in Ukraine. The State Committee on Energy Saving is one of the major sources of information on energy saving and projects for financing in Ukraine.

On the basis of the Law on energy saving, the *Complex State Programme of Energy Saving* (CSPES) was developed in 1997, together with the *Programme of state support for the development of non-traditional and renewable energy sources*. The *Complex State Programme* determined respective tasks for the economy of fuel-energy resources, aiming at savings of 82.7 million tonnes of fuel equivalent during the period of 1996-2000. The achieved savings for this period were 23 million tonnes of fuel equivalent. Moreover, savings were mostly achieved by organizational and low-cost measures. Better results require improved technological processes.

In order to adjust plans to the actual developments in the country, the Cabinet of Ministers of Ukraine adopted the Decree on urgent measures in order to execute Complex state programme of energy-saving (#1040 on 27 June 2000). The decree contained additional measures and adjusted indexes of the CSPES, such as the usage of regulating and stimulating mechanisms. Thus, in 2000 the State Committee of Energy Saving and the Ministry of Economy ratified a regulation on material stimulation to obtain significant results in the economy of fuel-energy resources.

In 2001, the Law of Ukraine on administrative responsibility for violation of legislation in the sphere of energy saving was adopted. This law aimed at increasing the responsibility of enterprises, organizations, and the housing-communal sphere in EE. A recent decree in the sphere of interest is the Regulation on establishing a state expert-analytical system of energy-saving management (#89, on 18 September 01). Its main tasks have been monitoring the regions in the context of EE, automation, collection, and processing of energy indexes characterizing fuel-energy complex, as well as popularization of EE measures among

consumers.[464] Non-governmental institutions also take an active role in the problems of legislative improvement in EE. For example, the Razumkov Centre for Political Studies developed the 'Concept of energy saving in Ukraine for the period until 2001', but such proposals are still under consideration.[465]

Bilateral financing: Since its independence in 1991, Ukraine has signed many bilateral agreements with other countries and institutions in order to establish a fruitful cooperation on the international arena. As to the investment climate, Ukraine has signed bilateral investment treaties with 67 countries, of which 49 are in force. The bilateral treaties determine the character of the investment relationship between Ukraine and the partner country and prevail over the Ukrainian Foreign Investment Law in the event of a conflict. Most of these treaties conform to international standards. Ukraine has bilateral treaties in force with the following countries: Austria (1996), Argentina (1995), Armenia (1994), Azerbaijan (1997), Belarus (1995), Bulgaria (1994), Canada (1994), Chile (1995), China (1992), Cuba (1995), Croatia (1997), Czech Rep. (1994), Denmark (1992), Egypt (1992), Estonia (1995), Finland (1992), France (1994), Georgia (1995), Germany (1993), Greece (1994), Indonesia (1996), Iran (1996), Israel (1995), Italy (1993), Hungary (1995), Kazakhstan (1994), Kyrgyzstan (1993), Latvia (1997), Lebanon (1996), Lithuania (1994), Macedonia (1998), Moldova (1995), Mongolia (1992), Netherlands (1994), Poland (1993), Russia (1998), Slovakia (1994), Slovenia 1999), South Korea (1996), Spain (1998), Sweden (1995), Switzerland (1995), Turkmenistan (1998), Turkey (1996), UK (1993), USA (1996), Uzbekistan (1993), Vietnam (1994), and Yugoslavia(2001). In the field of EE, Ukraine is cooperating with the following countries:

The Swedish Government: cooperation between ministries and government agencies with the purpose of integrating ecological sustainability in decision-making processes in various sectors. The ongoing establishment of environmental management systems in central government should be further developed.

The Government of Netherlands: provides the funds for projects in the field of environmental protection, which are operated by government bodies and managed by the Royal Netherlands Embassy. In principle, the main outline for bilateral cooperation is determined every two years.

The Finnish Government: one of the duties of Finland's Ministry of Environment is to coordinate preparation and implementation of environmental and energy-saving projects in Central and Eastern Europe, coordinated by the Ministry for Foreign Affairs. Finland's Ministry of Environment has supported environmental projects in the Baltic States, Russia, Ukraine, and other CEE countries.

The United States Government: the US and Ukraine are partners of the UN Framework Convention on Climate Change (UNFCCC) and members of the 'Umbrella Group' formed to overcome international obstacles in the use of market mechanisms for emission reduction. In July 1998, the US and Ukraine agreed to establish a Climate Change Sub-Group under the Committee on Sustainable Economic Cooperation of the US-Ukraine Binational Commission. The USAID Mission in Kyiv and its Environmental Division have been designated by the Department of State to play a coordinating role under the Sub-Group on behalf of all US agencies implementing climate change activities in Ukraine. USAID, along with the European Union and other partners, also helped launch the Regional Environment Centre (REC) in

[464] Verkhovna Rada of Ukraine, not dated.

[465] UCEPS, not dated.

Ukraine. REC is an independent, non-governmental organization that aims to strengthen civil society and support sustainable development by promoting environmental awareness, public participation in environmental decision-making, and regional and international cooperation.

The Canadian Government: signed a bilateral agreement with Ukraine in January 1999 and plans to conduct a three-year climate change programme through the Canadian International Development Agency. CIDA is funding CAD$ 1,326,600 for a three-year programme.

The Swiss Government: the World Bank recently began cooperation with the Ministry of Ecology and Natural Resources with bilateral funding from the Swiss government to assist Ukraine in meeting its international commitments under the Kyoto Protocol and UNFCCC by developing a national strategy.

The Ministry of International Development of Great Britain: the British Council and the company Dames and Moore granted £400,000 in 2000 to support small projects in the field of environment saving (SEPS). This programme has a planned duration of 2.5 years and foresees the implementation of 20 projects. According to the programme conditions, the participants of the programme can be state and local authority bodies or public organizations acting for the improvement of the ecological situation in Ukraine. A grant of up to $30,000 can be offered, when not more than ten percent is used to purchase equipment and not more than ten percent for project feasibility studies. Other funds such as the Fund Eurasia, the Canadian Fund of Cooperation, and the Carpathian Fund (operating in the oblasts of the Carpathian region of Ukraine in the Zakarpatska, Ivano-Frankivsk, Lviv and Chernivtsi oblasts) should also be mentioned.

Multilateral financing: Multilateral Development Banks are among the key players in the energy sector because they are large-scale and long-term lenders and they play a significant role in advising the country in the development of its energy sectors. The cash-strapped utilities in Ukraine are primarily concerned with purchasing fuel to meet the demand and they lack the funds to finance measures related to environmental and nuclear safety issues. In many cases, MDBs also demand privatization, provide assistance, and advise governments.

The European Bank for Reconstruction and Development (EBRD): It established an office in Kyiv in 1993. Until 2002, the EBRD had signed more than €1.2 billion in 38 projects, of which 27 in the private sector. The EBRD's commitments in Ukraine cover all major sectors of the Ukrainian economy including food processing, finance, oil and gas extraction, transportation, agricultural services, and telecommunications. Fifty-one percent of the EBRD's commitments went to the private sector. Examples of EBRD-financed projects include:

- *Fuel Purchase Loan Facility*: seasonal working capital facility in order to help four government-owned generating companies to buy oil. Investment of $107.5 million.
- *Kiev District Heating Rehabilitation*: to increase the efficiency of heat supply, distribution, and consumption to levels comparable with international standards and to improve the financial and commercial performance of the district heating company. The EBRD will provide a sovereign loan of $45 million.[466]

[466] EBRD 1997.

- *K2/R4 Completion Project*: loan to Energoatom to complete and safely upgrade two nuclear power plants. Approval subject to conditions including the permanent closure of the Chernobyl facility. Investment of $1.6 billion.
- *Financing of the Ukrainian energy-service company UkrESCO*: the introduction in Ukraine of the popular mechanism of energy saving on the basis of performance contracts. EBRD's loan facility has been made available to UkrESCO for purchasing energy saving equipment and providing services related to its supply, installation, commissioning, and monitoring.
- *Starobeshevo Power Modernisation Project*: EBRD has provided a loan to the Donbasenergo power generating company for the replacement of an old coal-fired boiler in Unit 4 of the Starobeshevo thermal power station with a more efficient and low polluting circulating fluidised bed boiler. The project will have a net positive impact on the environment by utilising clean coal technology that can efficiently burn low quality coal and schlamm (residues of coal washing). [467]

The World Bank: Ukraine joined the World Bank in September 1992 and received a first loan of $27 million for an institutional building project in June 1993. The World Bank approved a new Country Assistance Strategy (CAS) for Ukraine in September 2000, aimed at assisting the government and civil society in obtaining sustained growth and poverty reduction. Nearly eight percent of the total amount of loans provided by the International Bank of Reconstruction and Development (IBRD) was spent on projects in the electricity and power sector and approximately the same amount on oil and gas projects. In Ukraine, the World Bank especially focuses on projects of the energy sector. Compared to other countries in the CEE region, Ukraine accounts for one of the largest shares of investment projects with $731 million for three energy sector projects and there are four other energy projects in the pipeline. Examples of World Bank projects in Ukraine:

- *Hydropower Rehabilitation and System Control Project*: supply of turbines, generators, improvement of dispatch and system control network at hydro power plants along the Dnieper river, a National Dispatch Centre, and eight regional dispatch centres. Total investment of $190 million, including $114 million of a World Bank Loan and co-financing from the Swiss, Canadian, and Norwegian governments.
- *Coal Sector Adjustment Loan*: upon economic restructuring of the coal sector, includes corporation, price, trade, and export liberalization. Investment of $300 million.
- *Kiev District Heating Improvement Project*: improve heat production capacity, rehabilitate the district heating system, provide automation and control systems, and provide institutional support to project agencies. Total investment of $200 million.
- *Kiev Public Building Energy Efficiency Project:* improve EE in 1302 public buildings, technical audits, design of retrofits, and institutional support of proposed changes.

[467] EBRD, not dated/a.

The International Finance Corporation (IFC): It is a member of the World Bank Group and a specialized UN agency. The IFC was established in 1956 to encourage private sector activity in developing and emerging economies. Ukraine became a member of the IFC in 1993. Complementing its core investment activity, the IFC provides technical assistance and consultation to businesses and governments in developing countries and economies in transition. The focus of this assistance is privatization, SME, and capital market development. Currently, the IFC is working on four technical assistance projects in Ukraine: divestiture of unfinished construction sites (financed by USAID), corporate governance (financed by the Canadian Agency for International Development, the British Know How Fund, and the Government of Japan), business development (financed by USAID), and land reform (financed by the Canadian Agency for International Development, the governments of the Netherlands, Japan, Sweden, Norway, and Denmark, and the British Know How Fund). Cooperation with the IFC in the sphere of EE might be expressed in the form of technical assistance and microcredits.

The U.S. Trade and Development Agency (TDA): It offers assistance to newly independent states by funding feasibility studies, offering specialized training grants, and various forms of technical assistance. Since 1991 TDA has approved about $800 million for feasibility studies of more than 200 major projects in the newly independent states. Examples of projects in Ukraine implemented by TDA:

- *Pollution Control*: approved funding of $200,000 for studies on environmental investments by industrial enterprises;
- *Power Plant Re-powering*: partial funding of $400,000 for a study on transformation of a coal-fired power plant in Dnipropetrovsk to gas;
- *District Heating*: provided funding of $626,000 for a study on upgrading the Kyiv district heating system;
- *Energy Conservation*: provided partial funding of $400,000 for a study on energy conservation investment at three facilities.

United Nations: Through the United Nations Development Programme (UNDP), the Global Environment Facility (GEF) funds pilot projects to reduce barriers to implementing climate change mitigation measures. Ukraine's State Committee on Energy Conservation has received an award under this programme. The United Nations Economic Council for Europe (UN ECE) and USAID/Ukraine are cooperating to assist cities in this country to prepare climate change action plans. The four pilot cities are Slavutich, Zaporozhia, Dniprodzerzhinsk, and Mariupil. The UN ECE Project on *Energy Efficiency Investments for Climate Change Mitigation* under which the present Book is compiled, aims at facilitating energy efficiency market formation activities for the greater participation of private sector investments, products, and services in three key areas: municipal lighting, hospitals, and district heating.

The European Union: It operates five major financial programmes in the energy sector in the CEE region, which are Euratom, PHARE, TACIS, Thermie, and Synergy. Under the support of these programmes, significant financial support of TACIS ($40 million) was used to

complete the Zaporizhzhia NPP and to continue the reconstruction of two units NPPs at the Khmelnitsky and Rivne.

The TACIS Programme provides grants to finance know-how and support the process of transformation of the New Independent States and Mongolia into market economies and democratic societies. Ukraine is, after Russia, the second largest beneficiary of this fund made available through the TACIS Programme. The TACIS Indicative Programme for Ukraine 1996 -1999 envisaged a total contribution of €538 million over the four-year period. Projects and facilities were financed under the National Action Programmes and the TACIS Multi-State Programmes (Inter-State, Cross Border Cooperation, and Nuclear Safety). In 2000 TACIS granted technical assistance to Ukraine of €700,000.

In the field of EE, TACIS supports Ukraine's urgent need to diversify current energy utilisation and develop a strategy to increase overall EE. Projects also address problems such as the large unprofitable coal industry, due in part to costly and difficult mining conditions and large payment arrears to suppliers. Ukraine's large industrial base continues to pose severe threats to the environment and human health. In this area TACIS focuses on building domestic institutional capacity and regulatory infrastructure for environmental management, in order to achieve sustainable development. Environment is a key sector in the Inter-State programme and the Cross-Border Cooperation programme.

EcoLinks Partnership Grants: They build the capacity of businesses and local governments in the region to develop market-based solutions to urban and industrial environmental problems. EcoLinks is based on cross-border partnerships. By learning from each other or from US experience and capabilities, the countries in the region can address environmental issues more rapidly. EcoLinks partnerships are broadly defined, though all partnerships are expected to provide benefits to both parties. Only businesses, local governments, and associations of businesses and local governments with activities in the environmental field are eligible for the grants. The EcoLinks Grants are implemented through three regional offices in Szentendre (Hungary), Washington DC (United States), and Kiev (Ukraine). In addition, EcoLinks has local offices in Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia, Kazakhstan, Romania, and the Russian far east.

The EcoLinks partnership programme provides Challenge Grants, which can be up to $50,000 supporting one-year partnership projects or activities that address specific urban and industrial environmental problems. Requests for Applications on selected environmental topics are publicized during the year in eligible CEE/NIS countries. Eligible organizations are invited to submit a project concept describing their proposed project. Qualified proposals are selected for the next round of evaluation, the full application stage. An independent expert panel meets and selects the best applications on a regional basis. Project leaders must come from Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia, Kazakhstan, Romania, the Russian far east, Bosnia-Herzegovina, or Ukraine. They can partner with organizations in 21 other countries in the region or in the United States.

Sourcing funds on commercial terms: The Ukrainian banking system was renewed after the adoption of the Law of Ukraine on banks and banking system in 1991. This system consists of the National Bank of Ukraine (NBU) and commercial banks of various classifications. The central bank registers and oversees the activities of commercial banks, is responsible for monetary circulation, and may intervene on the open market in order to influence the

exchange rate. In 2002, there were 189 banks registered in Ukraine, including 28 with foreign capital. Out of the 189 banks, 154 are operating with nominal capital of more than UAH 4.63 billion of UAH ($874 million).

In 1998, the bank system of Ukraine made adjustments to conform to international accounting standards. There are two State-owned banks, Ukreximbank and Oshchadbank. These banks are considered more reliable, as they are under the guarantee of the State. Moreover, Ukreximbank is one of the largest banks servicing export-import operations. The largest banks, such as Prominvestbank, Aval, Privatbank Ukreximbank, Oshadbank, and Ukrsotsbank control much of the capital and political power in Ukraine. Loans and deposits are mostly short-term (a year or six months) with high lending and deposits rates.

A number of commercial banks (such as Aval) provide credits financed according to multilateral agreements between countries. Projects that can be financed by the EBRD, Eurasia, or the German-Ukrainian Fund credit lines include the following:[468]

- Capital investment, projects in the service sphere;
- Increase of working capital for production or service companies;
- Purchase of equipment, transport means, that will be used for production, commerce, or service purposes;
- Purchase of real estate for production, commerce or service purposes;
- Main conditions pertaining to the credit recipients / target groups:
- Joint ventures – residents of Ukraine with less than 49 percent foreign capital; 30 percent of statute fund should be in the form of cash;
- Companies of private businessmen involved in the sphere of commerce, production, or services.

Loans on EBRD, Eurasia, or the German-Ukrainian Fund are micro and small credits:

Table 3.6 Micro and small credits

	Micro credits	Small credits
The amount of credit	Less than $20,000 (exclusively $ 30,000) or its hryvnia equivalent	More than $20,000 but less than $75,000
Credit duration	For circulating capital replacement – less than 12 months; fixed capital crediting – less than 18 months.	For circulating capital replacement– less than 12 months; for fixed capital crediting – less than 18 months.
The amount of employees	Not more than 20 employees	Not more than 100 employees

EBRD, Eurasia, German-Ukrainian Fund, 2002.

[468] AVAL Bank, not dated.

The Small Credit Committee of each bank involved in the international credit line programme decides interest rates. Commercial funding is still rather unusual in Ukraine due to strong requirements on potential borrowers. A poor debt servicing record among many Ukrainian companies further complicates the situation and contributes to a higher risk coefficient.

ESCOs: The first Ukrainian energy service companies (ESCOs) were founded in 1996. Despite the fact that several small private ESCOs are now operating in the country, their business is still far from the traditional ESCO's activities. Since Ukraine is a country with a high level of energy consumption, there is a need to further develop and increase the number of these important 'players' in the energy markets. Ukrainian ESCOs request assistance from Ukrainian authorities, in the form of appropriate legislation and incentives, and from foreign investment, in the form of financial and technical assistance. Although there are large potentials for the energy service sector in Ukraine, there are still barriers to its functioning. The main complications can be categorized as follows:

- Financial- lack of own capital, difficulties to raise capital externally;
- Legislative- lack of tax incentives;
- Investments risks- uncertainty in cost compensation;
- Institutional- tariffs dynamics;
- Informational- low consciousness of owners' possibilities of EE.[469]

UkrESCO: Resulting from an agreement between the Ukrainian government and the EBRD, the Ukrainian energy service company (UkrESCO) has an EBRD credit of $30 million (under the credit rate equal to LIBOR + one percent) to finance its projects. The European Union granted €3 million for investment project development. The consortium of companies Bechtel and Econeler provide technical assistance in projects. UkrESCO is the first company in the CIS to perform combined financing and turnkey energy saving contracts. The EBRD's loan facility has been made available to UkrESCO to purchase energy saving equipment and providing services related to its supply, installation, commissioning, and monitoring. The loan term is from three to five years. Common UkrESCO projects include:

- Rehabilitation and renovation of heat generation and transmission facilities;
- Cooling systems rehabilitation and upgrading;
- Reconstruction of compressed air production and distribution system;
- Automatic system of energy metering;
- Combined heat-and-power installations and heat recovery.

The *Improvement of the compressed air production and distribution systems at Gostomel Glassworks* project was implemented and resulted in:

[469] ENPORT, not dated.

- Reduction of electricity consumption by 1,300 MWh per year;
- Improvement of the quality of compressed air;
- Reduction of expenses on equipment maintenance.

The *Introduction of advanced energy saving technology in crop production* project involved purchasing agricultural machines and introducing new technology, and resulted in:

- Considerable fuel savings;
- Soil structure preservation due to reduced quantity of tractor passages and reduced pressure of wheels on the soil;
- Improvement of environmental situation.

The UkrEsco project *Increased efficiency of heat generation and transfer at Shostka Dairy* aimed at improving the existing energy supply system by replacing a boiler house with a modern unit located within the dairy and installing a separate boiler house for the residential apartment block. Operation of the two new boiler houses saves about 20 to 30 percent of fuel and 50 percent of electricity.[470]

ESCO-West: Even though there are larger companies working on the Ukrainian energy service market, there are reasons to describe more in detail the activity of smaller participants that operate under less favourable financial conditions, but are highly representative for this line of business. The following case study was prepared on the basis of the in-depth interview with Mr. Korzhyk, General Manager and co-partner of ESCO-West, carried out on 15 March 2002.

The company was established in 1997 in the city Ivano-Frankivsk, the administrative centre of the Ivano-Frankivsk region (western part of Ukraine) by a group of entrepreneurs to try the western model of third party energy services in Ukraine. The company was organized in the form of a limited liability company without external financing. The objective is the introduction of EE technologies in Ukraine and the implementation of these technologies in enterprises and public bodies in the western part of the country. The main business directions of the firm are energy audits of enterprises, problem identification, preparation of technical proposals for reconstruction, assistance in finding financing, and implementation of energy efficiency projects or 'turn-keys'.

In order to disseminate knowledge about modern energy-efficient technologies to a broader customer base, the company is currently creating a large database. This database contains information on possible energy saving solutions and measures. A problem that arose in the beginning of the company's activity was the underestimation of the importance of EE measures by the heads of different enterprises. They complained about the energy supply organizations for the high level of energy tariffs, but refused to search for possible saving potentials on their own enterprises. This situation may be partly explained by the fact that most organizations in the region use obsolete measurement equipment that distorts the real picture of energy consumption.

[470] UKRESCO, not dated.

The company realized that this was the basis for its future activities and had to be addressed first. Thus, in 1997, in cooperation with municipal authorities, the seminar 'Importance of energy efficiency and perspectives for future development' was organized to introduce the concepts of energy saving in the Ivano-Frankivsk region.

Further, the company began the installation of measurement equipment, mainly electricity meters to measure energy consumption differentiated by time zones (24 hour daily time periods). Meters of gas, heat, and hot water were also installed. Such simple measures created a higher level of awareness among customers, even though they mainly focused on the economic aspect of energy use and not on the reductions of energy consumption. In the field of measurement equipment, ESCO-West uses foreign suppliers such as Landis&Gyr and Schlumberger and domestic producers.

ESCO-West was a pioneer in the region in implementing automatic systems of commercial metering of electricity. Such systems consist of several meters that are connected with each other, gather information from different objects, and send it to the dispatch centre of the enterprise. The guaranteed savings are 4.5 percent, but they can be considerably higher. The automatic systems made for the Oblast electricity supplier Prycarpattiaoblenergo, which provides metering of electricity on inputs and outputs to the oblast as a whole, is a good example. Another system is delivered to the Ukrainian-Russian chemical industry giant Oriana.

The company also works with heat. Specialists of the company have implemented a number of projects on boiler house design. In 2002, the company had received an order to build three boiler houses in the framework of a project on decentralizing district heating systems. These boiler houses would provide houses with heat and hot water, allowing them to disconnect from the centralized heating system with high tariffs.

Another project that is being financed by local authorities is the installation of an automatic system of heat regulation in the Ivano-Frankivsk oblast hospital. It is quite a large project, as the hospital consists of a number of separate sectors. In 1999, ESCO-West was invited as an independent organization to carry out the evaluation (auditing) of the project prepared by RTI (USA) on the subject *Improving heat-supply system in Ivano-Frankivsk, Ukraine* and *Improving heat-supply system in Khmelnitski, Ukraine.*

By the end of 2000, the company had won a grant of $30,000 from the US Department of Energy in the framework of joint implementation projects under the Kyoto protocol. The granted project addressed the possibility to reconstruct the Ivano-Frankivsk district heating system (heat supply organization) in order to decrease the emission load on the environment. The project was already finished by the end of March 2002. The company had also received a state license to carry out energy audits. At the beginning of 2002, it signed a contract on conducting energy audits at the Lutsk milk-plant (west Ukraine), where the specialists of the company are working.

The company uses different types of contracts with different customers, taking into consideration the specific features of a project. In most cases, it tries to involve a scheme of advanced payment for the equipment and settlement of the remainder after the completing the services. Such a scheme is being used as a guarantee of payment for the supplier of the equipment. As a rule, there are no problems with the payment, but sometimes there are some private customers whose debts are so high that the payment under the contract needs legislative intervention. Even though the situation in the country is becoming more stable, there are some difficulties that remain such as long-term overdue debt, consequence of barter operations.

With regard to geographic coverage, the company focuses mostly on the west part of Ukraine. Many possibilities of energy service business are available in this region, a mountainous district with wood and wood processing, oil and gas production, and a large chemical enterprise. The company tries not to diversify its activities, but rather to focus on supplying EE equipment such as meters, projecting works, and auditing. Since working with institutional customers can involve a complicated bureaucratic process, focusing on private customers can be considered a more feasible way of making business in Ukraine for private organizations without external financing. Nevertheless, there are a lot of possible projects in the municipal and public sector.

The actual high tax burden and lack of economic and legislative incentives for energy conservation prevent ESCO-West from working as a traditional western energy service company. This is probably the feature that characterises the few ESCOs that are active on the Ukrainian market – they perform services within EE but without the instruments that were created by western companies in the field. Moreover, banks are not willing to cooperate along the performance contract mechanisms or providing credits for projects in the public sphere. Banks need strong guarantees for their credits, more than the state is willing or able to provide.

Since there is no special tax legislation for ESCOs, they operate under the general tax regime in Ukraine (see chapter on taxes). Quarterly profit-tax payments and monthly VAT payments put a serious strain on the company's cash holdings. The system of taxation makes it unprofitable to provide customers with credit since the company is taxed according to the action comes first, payment or work performance. Thus, customer credits put a double burden on the company, the tax and the value of the contract.

With a larger market emerging for ESCOs, a new problem is arising – availability of specialists. The performance of energy audits demands well-educated and well-prepared energy managers. In 2002, there were only two certified energy managers in the staff of ESCO-West. Cooperation with foreign companies can prove very fruitful, because the Ukrainian side needs experience. Thus, the future of ESCO-West depends, to a large extent, on its capability of adjustment to changes in the external environment, where five years of experience and constant growth in a difficult economical environment can be a good basis for future success.

Leasing: It was not an existing practice in the Soviet Union and a large number of Ukrainian legal norms on leasing were developed on the basis of European legislation. As a result, there is no essential difference between Ukrainian norms on leasing and the legal code regulating leasing in most of Western Europe. However, there are no professional leasing institutions in Ukraine. Since bank credits are expensive, it is rather difficult for a Ukrainian company to find the necessary investment capital. At the same time, foreign companies that are looking for low-cost or market opportunities in Ukraine would like to either modernize the equipment of their Ukrainian partner or sell or rent their own equipment. As a result, foreign companies and their Ukrainian partners are widely using international leasing practices in Ukraine. International leasing is a leasing agreement concluded between parties from different countries, between a Ukrainian company and a foreign natural person or legal entity.[471]

Most often, the subject of a leasing contract is production equipment. The high quality and efficiency requirements of the products force Ukrainian companies to use relatively new equipment. Both financial and operational leasing is used in Ukraine. However, Ukrainian

[471] IFC 1999.

companies and their foreign partners use operational leasing more often. The type of leasing used depends on the contract between the parties and it defines the future ownership status of the leased property. Ukrainian tax legislation determines that under an international leasing contract, the Ukrainian lessee has to pay:[472]

- Value Added Tax – 20 percent of customs value of imported property. This VAT can be returned from the state budget but this procedure is problematic due to the lack of standard operational procedures.
- Customs duty – depends on the type of imported property.
- Customs procedures – 0.2 percent of customs value of property.

Many Ukrainian leasing companies avoid using the term 'leasing'. Instead they will employ terms like long-term rent, temporal rent, instalment sale, or credit. The contradictory leasing legislation leads companies to resort to these linguistic tricks. The leasing legislation has some conflicts. For example, the depreciation rates envisaged in the Law on leasing decrease the demand for the leasing itself substantially. According to Article 4 of the law, the property rights transfer of the leased subjects is feasible after 60 percent depreciation. The depreciation rate change can affect the term of validity after which the leased subject can become property. The draft law on Leasing resolves this issue by allowing lessor and lessee to freely determine the terms of the financial leasing agreement.

According to the current law on Leasing individuals have no right to lease. The draft however foresees leasing rights for both legal entities and individuals. The same pertains to the instalment sales and credits. However, most of the leasing companies refuse dealing with individuals because of the high non-payment risk. Experts in the field are unanimous when affirming that the current legislation makes leasing complicated. They also believe that the Tax Code and Civil Code drafts pose threats for leasing operations and their approval would drastically reduce the number of leasing agreements. The practice of leasing is not widespread, although car leasing is very popular and most banks include this in their list of activities.

Tax incentives: Different governmental and non-governmental organizations in the field of energy saving have prepared surveys and propositions to create and improve economical and investment mechanisms for this field. These include tariff and tax policies, leasing operations, performance contracts, privileges in crediting, and policies of subsidies. Recently, the State Committee of Energy Conservation prepared a draft of a project on the changes necessary for the Law of Ukraine on Energy-Saving. This project includes the proposition of creating special local funds received from the conservation that can later be used as sources for further energy saving. Ukraine is now in the process of reforming the tax policy and the new Tax Code. A supportive legislation could provide the necessary privileges and incentives to improve the situation in the field of energy-efficiency.

[472] Buhgalteria, not dated.

4 CLIMATE CHANGE MITIGATION IN TRANSITION ECONOMIES: JOINT IMPLEMENTATION AND EMISSIONS TRADING

Gaudenz Assenza, Mikael Brodin, and Ana Villarreal[473]

The present chapter describes EE-21 countries' national strategies to address climate change by measures within energy efficiency. It provides a review of principles and techniques to carry out mainly Joint Implementation projects. These are one of the three so-called flexible mechanism instruments of the Kyoto protocol that were developed in order to facilitate the accomplishment of the UNFCCC objective of stabilising the concentration of greenhouse gases in the atmosphere.

4.1 Joint Implementation and Emissions Trading

The next sections introduce the flexible mechanisms under the FCCC that are or might be applicable to the project countries. A description on their potential contribution to financing energy efficiency projects is also provided. Furthermore, the national strategies and investments used for energy efficiency will be presented, together with a description of the reductions in greenhouse gas emissions achieved after the implementation of the projects.

4.1.1 *Joint Implementation*

A key underlying principle for the United Nations Framework Convention on Climate Change (UN FCCC) is flexibility in reducing greenhouse gases (GHG) across national borders to enable cost efficient reductions. This is reflected in Article 4, 2 of the UN FCCC that allows for joint implementation (JI) of GHG emission reductions between two countries. It is further elaborated in Article 6 of the Kyoto Protocol, where JI is limited to project-specific emission reductions in countries with economies in transition. A two-track approach has been developed for the countries covered in this book to either have an independent third party verify the country's emission reductions or do so themselves, if complying with additional criteria. The general rules, guidelines, and modalities for JI and emission trading were agreed on at the 7th conference of the parties in 2001. A country satisfying the following criteria may participate in JI:

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- It is an Annex 1 Party and has ratified the Kyoto Protocol;
- It has established its assigned amount of CO_2 equivalents that may be emitted in comparison with the emissions in 1990;
- It has established a national registry to record all transfer of emission reductions;
- It has informed the FCCC Secretariat who is designated the focal point for JI projects, as well as its national guidelines for approving projects, the consideration of stakeholders' comments, monitoring, and verification.

The party may perform national verification (track 1) if it satisfies the following criteria:

- It has a national system to estimate GHG emissions according to the criteria of the Kyoto Protocol;
- It has submitted a GHG inventory report annually;
- It submits supplementary information on the assigned amount to demonstrate compliance with Article 3 of the Kyoto Protocol.

General criteria have been agreed on for baseline, monitoring, and verifying projects. Baselines and Monitoring and Verification Protocols (MVP) have been developed for a number of projects under the pilot phase for JI. This has been very useful for the development of general rules, principles, and guidelines. The emergence of a common understanding of detailed technical guidelines is still in a preparatory stage. General criteria include:

- The baseline for a project is the scenario that reasonably represents the emissions that would occur in the absence of the project;
- A baseline shall cover emissions from all GHG within the project boundary;
- A baseline shall be established on a project-specific basis or using a multi-project emission factor;
- A baseline shall be established in a transparent manner;
- A baseline shall take into account relevant national and/or sector policies and circumstances;
- A baseline shall take account of uncertainties and use conservative assumptions;
- A monitoring plan to collect and archive all relevant data for the baseline and the emissions during the project lifetime;
- Documented procedures for calculation of emission reductions and leakage effects.

The additional emission reduction from a JI project is given by the difference between the baseline and the monitored emissions during the project's lifetime. A baseline estimate may be made through a general three-step decision process. The first step is assessing what would happen and which fuel and technology would be used in the absence of the project. The second step is to calculate the time it would have taken to change the fuel and/or technology

anyway. These two steps provide a basis for the generation of projected activity data for the baseline emission calculation in the third step.[474]

What would have happened in the absence of the project (step one and two) depends on factors such as the technical condition of the equipment in place, possible technological development, regulatory requirements and technical standards affecting future emissions, and the economic value of the project for the investor. When there is no immediate need to replace the equipment or when government regulation requires the project to be implemented, we may turn to an economic evaluation of the project to determine if it is additional.

Estimating when a project may have happened otherwise (step two) may depend on the technical condition or lifetime of the existing installation, which is often a matter of maintenance costs. Evaluation on the basis of economic parameters requires knowledge of the development of the market, interest rates, and costs of maintenance. Specific guidelines regarding the crediting period of ten years or three times seven years have been adopted for the clean development mechanisms (CDM), but not for JI. A credit period from 5 to 15 years and the option of prolonging the credit five years may be reasonable for energy projects.

The third step to estimate a baseline consists in applying a general equation to the project, multiplying the emission factor by the activity data to obtain the total emissions. The activity data (delivery of energy) is the same in the baseline and monitoring of the project. The emission reduction may therefore be viewed as the difference in the emission factor or rate of output per unit. This implies that the baseline is dynamic with respect to the baseline activity and that emission credit may vary over time, an unavoidable uncertainty common to all investment projects. Estimates must be made for all elements and gases included in the project and summed up. In the case of combined heat and power (CHP), two elements contribute to emission reduction — direct emissions from fuel use on site and indirect emissions from use of electrical energy. These two elements may be added in a linear fashion.

The emission reduction from reduced consumption of fuel or from a switch to a fuel with lower carbon content may be estimated directly using the equations provided in the IPCC Guidelines for National Greenhouse Gas Inventories. Emission reduction by replacing electrical energy from the grid is more complicated since several fuels are often used to generate the electricity. Several approaches have been suggested for this, such as obtaining the average of the existing plant or installing a marginal plant. Emission reductions deemed additional according to the criteria given by the Kyoto Protocol may be sold and thus generate an income for the project. The availability of funds for the projects depends on the amount of additional emission reduction envisaged by the project and its cost.

4.1.2 *Emissions trading*

Many of the countries included in this study emit less GHG than their commitment to the Kyoto Protocol. Excess emission reduction may be traded if the country satisfies the criteria for track 1 JI. A national allocation of emission quotas on industries and energy utility owners is necessary before actors, other than the national government, participate in emission trading.

[474] Martinsen 2001, 301-306.

4.2 National strategies for investments in energy efficiency

4.2.1 *Belarus*

The country's national strategy for EE and climate change mitigation may be described with reference to the energy saving policy pursued by the Council of Ministers' Committee for Energy Efficiency. The major instruments of the energy saving policy are national, regional, and sector energy saving programmes. Long-term programmes are implemented through regional and sector programmes in the following directions of energy saving:

- The concept of developing small-scale and unconventional power engineering;
- The programme to introduce steam and gas units, gas turbine units, and small-scale heat and energy plants;
- The programme to use wood fuel to produce heat energy;
- The concept of heat supply in Belarus;
- The programme of planning, reconstructing, and building small-scale hydroelectric power stations;
- Measures to increase the share of local, unconventional, and renewable sources of energy in the country's fuel and energy balance, as well as to substitute coal, mazut, and domestic liquid furnace oil for natural gas.

The state exercises control over the rational use of fuel and energy. Upon detection of violations, economic and administrative sanctions are applied. The National Energy Saving Programme was carried out for the first time from 1996 to 2000. Results include the reduction of GDP power intensity by 22.4 percent in 1999 and by 25.3 percent in 2000, in comparison with 1995. The country's GDP grew by 28.3 percent in 1999 and by 32.2 percent in 2000 (compared to 1995), but the gross consumption of fuel and energy resources (minus raw materials) remained approximately the same.

The country's estimated economy of fuel achieved from 1996 to 2000 was 6.8 million tce. From this total, energy saving activities represented more than four million tce. The remaining savings were attained through other measures. The share of local fuels in the fuel balance increased from 16.9 percent in 1995 to 18.5 percent in 2000. These results have mitigated, but not eliminated, the crisis in energy supply. Domestically produced fuels such as oil, accompanying gas, fuel peat, and firewood satisfy about 18 percent of the total demand, or 5.6 million tce per year. Thirty percent of consumed fuels have an energy saving potential of 10 million tce. GHG emissions during the period 1996-2000 remained the same as in 1995. The energy saving policy prevented the growth of GHG emissions by 13.5 million tonnes.

On 16 January 2001, the Council of Ministers ratified the National Energy Saving Programme for 2001-2005 (Cabinet Regulation # 56). Its main objectives are to decrease energy intensity to the level of industrialized countries by 2015 and to secure the planned GDP growth without boosting fuel consumption by 2005. The state will continue to play an important role in meeting these objectives and will employ legislation, normative documents, and economic stimuli to rationalize the use of fuels. Some of the primary target parameters for

2005 (compared to 2000) are: GDP growth by 23.1 percent, fuel and energy economy growth of 5,575 to 7,234 thousand tce (17.7 to 23 percent), and average annual fuel and energy economy growth of 4 percent. Considering the realized general potential from 1996 to 2000, the economy development scenarios for 2001-2005 and the general potential by 2005 of sector energy saving potentials are estimated in (thousand tce):

- Municipal sector – 2875 to 3610;
- Power engineering – 750 to 900;
- Chemical and petrochemical sector – 330 to 594;
- Agriculture – 380 to 540;
- Construction materials sector – 360 to 380;
- Mechanical engineering – 340 to 540;
- Fuel industry – 100 to 130;
- Food industry – 70 to 100;
- Other industrial sectors – 150 to 200;
- Other consumers – 220 to 240.

Other national programmes aimed at reducing greenhouse gas concentration include: the *National Action Plan for Environment Protection and Rational Use of Natural Resources in the Republic of Belarus for 2001-2005*; the *National Action Plan for Hygiene of Environment in the Republic of Belarus for 2001-2005*; the *Major Directions of the Energy Policy for 2001-2005 and until 2015*; and the *Concept of Forestry Development in the Republic of Belarus until 2015*. Furthermore, in 1999 the *National Climate Programme* was developed with recommendations from the World Meteorological Organization, at the request of the Ministry of Natural Resources and Environment Protection and the National Committee for Hydrometeorology. This programme was not ratified however, because of the substantial investments required for its implementation.

Another programme worth mentioning is the *Action Programme for Energy Saving and Environment Protection for 2001-2005*, a joint effort between the Ministry of Natural Resources and Environment Protection and the Committee for Energy Efficiency. This programme envisages specific managerial and technical activities for climate change mitigation. Belarus, poor in organic raw materials, prioritizes energy saving not only because it reduces GHG emissions, but also because of it produces economic and ecological benefits, strengthens the country's energy safety, and decreases the country's dependency on organic fuels and electric energy import.

4.2.2 *Bulgaria*

General environmental policy: In recent years, environmental policy in Bulgaria has been prioritised because of the general guiding principle of the country's accession to the EU. The programme of the present Bulgarian government contains ambitious goals and tasks for improving the overall environmental conditions in the country in accordance with EU environmental standards. The stated priorities within this programme are mainly related to

improving the capacity of its environmental institutions at all administrative levels and adopting European environmental legislation.[475] The document set 2003 as the deadline for the finalisation of the negotiations with the EC on environment.

Investments in environment: Studies from the EC and the World Bank show that the country has steadily increased its expenditures for environmental purposes from the state budget and other sources including municipalities, donors, and private investors. Since 1992, environmental expenditure ranged from 0.9 to 1.3 percent of GDP. Environmental expenditure increased from 1 percent in 1997 to 1.3 percent in 1998 and 2 percent in 1999.[476]

Nearly 40 percent of environmental expenditures are spent on air protection and restoration.[477] Still, expenditures required for EU compliance are much higher. In 1998, the World Bank estimated that the investment needed for Bulgaria to comply with the EU environmental legislation varies from €5.5 to €8 billion, regardless of the length of the implementation period.[478] For a 20-year implementation period, Bulgaria would need to invest between 11 and 16 percent of its GDP in 1998 for environmental compliance,[479] or 4.9 to 9.7 percent of the GDP at the end of the implementation period (assuming a five percent annual growth).[480] An investment of €3.1 billion to €3.3 billion is considered necessary to comply specifically with the EU's air pollution criteria, which would represent an annual expenditure of 3 to 3.2 percent of the GDP projected for 2015.[481]

Climate change policy: Bulgaria also supports international efforts to solve global climate change problems. The urgency and importance of these issues for the country has increased because of the EU common policy towards the Kyoto Protocol's ratification and application.[482] In 1995, Bulgaria ratified the UNFCCC, making the commitment to keep its GHG emissions below those of the adopted 1988 base year.

In 1998, Bulgaria signed the Kyoto Protocol under the UNFCCC, making the commitment to reduce the country's anthropogenic emissions of greenhouse gases by 8 percent for the first period 2008-2012. This reduction amounts 626 million tonnes of CO2 equivalent.[483] Bulgaria has joined other international treaties and agreements, including the Convention on Long-range Transboundary Air Pollution signed in Gothenburg in 1999. In accordance with this convention and its protocols, Bulgaria should reduce its emissions of sulphur oxide by 56 percent in 2005 and by 57 percent in 2010 (compared to 1990).[484]

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[475] MOEW 2001.

[476] World Bank 2001b, XXI.

[477] NSI 2000, 42.

[478] World Bank 2001b, 178.

[479] World Bank 2001b, 180.

[480] World Bank 2001b, XXI.

[481] World Bank 2001b, 189.

[482] MOEW 1998, 29.

[483] Doukov 1999.

[484] MEER 2002, 23.

The institutional structure, to deal with climate change issues, began with the establishment of the Ministry of Environment and Water (MOEW). The MOEW is the main body that develops, coordinates, and supervises the overall national policy and activities addressing climate change. Climate change implications of all governmental institutions are co-ordinated by an inter-ministerial expert team, supervised by the MOEW.[485] The National Co-ordination Centre on Global Change was established at the Bulgarian Academy of Sciences to support the MOEW's efforts and the network of institutions and organisations working in the field.[486] Regional Environmental Inspectorates were also established. According to the Environmental Protection Act, Article 25 (1), the Minister of the MOEW sets the Regional Environmental Inspectorates as agencies of the MOEW and determines their functions and scope. In general, the Regional Environmental Inspectorates assist the municipal authorities in their environmental programmes and activities. Article 27(3) defines their status as administrative authorities superior to municipal ones and inferior to the MOEW.[487]

The Executive Environmental Agency is a structure under the MOEW, which administers the National Automatic System for Environmental Monitoring.[488] Its function is to provide data on the state of the environment in Bulgaria for analysis and control. The National System contains data about air and water quality and emissions, as well as waste management. A regular three-month bulletin provides data from samples and analyses carried out by the Agency, the Regional Environmental Inspectorates, and the National Hydrometeorological Institute. An annual bulletin referred to as the Green Book publishes the overall state of the environment in Bulgaria.[489]

Official documents concerning climate change: After ratification of the UNFCCC in March 1995, Bulgaria prepared and submitted its *First National Communication* (NC1) in February 1996 and its *Second National Communication* (NC2) in April 1998.[490] Both documents describe policies and measures to mitigate climate change at the central, regional, and local levels. It also presents projections about future GHG emissions in the country.[491] Further on, a *National Climate Change Action Plan* (NCCAP) was adopted in 2000. These documents set the official basis and framework for Bulgarian climate change policy.

The NCCAP outlines the activities and resources needed to mitigate GHG emissions and meet the country's commitments under the Kyoto Protocol. It contains measures and projections that appear in the 1998 *National Energy Strategy of Bulgaria* and the *Second National Communication* under UNFCCC. The NCCAP includes all the possibilities available to mitigate GHG by suggesting different measures for related sectors and integrated measures for the energy sector at the national level. The main focus is to improve the EE of the activities with GHG emissions. These include light and heavy industry, commerce, services, agriculture,

[485] EnEffect 2000, 5.

[486] MOEW and Energoprojekt PLC 1998, VIII-1.

[487] MOEW, not dated.

[488] Executive Environment Agency, not dated/a.

[489] Executive Environmental Agency, not dated/a.

[490] La Rovere et al 2000, 2.

[491] La Rovere et al 2000, 9.

forestry, and households.[492] The NCCAP also deals with increasing the carbon sequestration potential of forests. It considers legislation, management, education, and behaviour options in the context of continuous reforms to achieve a market based energy sector and economy.

Emission monitoring: The *Methodology for Evaluation of Emissions in Bulgaria* was approved and published by ordinance of the MOEW in the MOEW Bulletin No 16/2000.[493] It is based on the CORINAIR methodology of 1994, which is adapted to the conditions of Bulgaria. It concerns 11 groups of sources that emit harmful substances, including TPPs, household combustion, industrial and non- industrial combustion processes, extraction and processing of fossil fuels, road and other types of transport, agriculture, and the use of solvents.[494] National emissions of dust, sulphur dioxide, nitrous oxides, methane, non-methane volatile organic compounds, and carbon oxides are controlled through the *National Automatic System for Environmental Monitoring*. The National Statistic Institute (NSI) and the MOEW are responsible for the collection of data on emissions. The MOEW collects this data through its Executive Environmental Agency and Regional Inspectorates. There are therefore two parallel emission controls in Bulgaria.

- The first is executed through the Regional Inspectorates and the Executive Environmental Agency. The Regional Inspectorates measure the emissions of 150 enterprises at least twice a year. These emissions constitute 70 to 80 percent of the country's total emissions.[495]
- The second is the actual emissions inventory carried out by the National Centre for the Environment and Sustainable Development/MOEW and the NSI. Data from about 2500 emission sources is collected once a year to calculate the total emissions.

In both cases, the CORINAIR methodology of 1994 is applied, adapted to the Bulgarian conditions.[496] The results obtained by the Regional Environmental Inspectorates are compared with those of the NSI. The national emission inventory is then prepared and published.[497] The GHG emissions inventory for Bulgaria is carried out by the National Institute of Meteorology and Hydrology and the Bulgarian Academy of Sciences, using the methodology required by the FCCC — the Intergovernmental Panel on Climate Change (IPCC). The *Second National Communication* (1998) includes GHG estimate methods following the 1995 IPCC Guidelines for National Greenhouse Gas Inventory. Its key data sources are the statistics of the NSI.[498]

National Greenhouse Gas Inventories begin in Bulgaria with the definition of 1998 as baseline year for the implementation of the UNFCCC. NC_2 presents an inventory of the GHG emissions in Bulgaria from 1990 to 1995. This includes data on carbon dioxide (CO_2), methane

[492] MOEW 1998, 5.

[493] Executive Environmental Agency 2000.

[494] Executive Environmental Agency, not dated/b.

[495] EnEffect 2000, 11.

[496]Executive Environmental Agency, not dated/b.

[497] EnEffect 2000, 11-12.

[498] MOEW and Energoprojekt PLC 1998, III.

(CH_4), nitrous oxide (N_2O), and GHG precursors such as nitrogen oxides (NOX), carbon monoxide (CO), and non-metan volatile organic compounds (NMVOCs).[499] The emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) were not addressed yet. These gases would be included in the next inventory of GHG emissions, which would be recalculated in accordance with the Revised 1996 IPCC Guidelines for National GHG Inventories.[500]

The share of Bulgaria in the global anthropogenic emissions is about 0.3 to 0.4 percent. With respect to emissions per capita and per GDP, Bulgaria is ranked among the great emitters.[501] Energy related carbon dioxide emissions represent the main share of the GHG emissions in Bulgaria, according to the analysis of the GHG emission structure in the NCCAP. These are followed by the emissions of transport and industrial processes.[502] The energy industry is the main source of carbon dioxide and sulphur oxide emissions. TPPs are the most significant source of GHG in Bulgaria, since fossil fuels prevail in the structure of primary energy resources used. They produce about 80 percent of the country's sulphur oxide emissions and 60 percent of the carbon dioxide emissions.[503]

In general, emissions from all sectors decreased in the period of economic recession. Compared to 1988, GHG emissions in 1997 decreased by 62 percent, CO_2 by 39 percent, CH_4 by 37 percent, N_2O by 31 percent, NOX by 71 percent, CO by 25 percent, and NMVOCs by 46 percent. The emissions of CO_2 represent a share of around 70 percent in the aggregated emissions, followed by methane emissions and nitrous oxide. In 1997, CO_2 contributed 70 percent to the total GHG (71 percent in 1988).[504] In 2000, only NO_2 emissions decreased. CO and SO_2 increased due to an increase in household and industrial combustion.[505]

World Bank and EC experts admit that in recent years Bulgaria has made good progress in improving its environmental quality.[506] Although some of the reduction in air and water pollution has been associated with economic decline, it also has been attributed to the increasing investments in pollution control.[507] Nevertheless, air quality remains a concern in urban and industrial areas. In general, Bulgaria has no problem in meeting its 2000 commitment under UNFCCC but emissions of CO2 are likely to exceed the Kyoto target if 'no result-oriented policy is pursued for their reduction'.[508]

Climate change policies and measures: The NAPCC is considered the foundation of climate change mitigation activities for implementation in Bulgaria. It recommends combined

[499] La Rovere et al 2000, 3.

[500] MOEW and and Energoprojekt PLC 1998, III.

[501] MOEW 1998, 8.

[502] MOEW 1998, 7.

[503] MEER 2002, 22-23.

[504] La Rovere et al 2000, 5-8.

[505] Executive Environmental Agency 2000.

[506] World Bank 2001b, 177.

[507] World Bank 2001b, 177.

[508] MEER 2002, 22–23.

measures in two groups: sector measures and integrated measures, which include administrative and legislative measures at the national level. Sector measures concern the energy supply and its consumption, suggesting technical measures for industry, transport, services, agriculture, waste management, and households.

The focus of both the Action Plan and the Energy Strategy of 2002 is the improvement of EE in the energy sector. In the field of electricity and heat generation, the strategy envisages the rehabilitation of energy capacities in major TPPs, the construction of cogeneration plants, and the implementation of policies to incentive the development of power plants burning natural gas and increase the share of energy generated by renewable energy sources. In the field of distribution of heat and electricity, issues in point are the reduction of losses of the electricity, heat, and gas transmission networks, as well as the gasification of the household sector.

The NCCAP suggests technical measures for different economic sectors. It advises to increase the carbon sequestration potential of the forests and improve waste management. The envisaged GHG mitigation measures concerning energy supply represent the same undertakings as mentioned in the Energy Strategy, which are rehabilitation and improvement of generation, transmission, and distribution capacities. The mitigation potential of the listed measures in the energy sector is very high, summing 3.3 million tonnes of CO_2 per year from the overall upgrading of the heat production plants in the country and 2 million tonnes of CO_2 from the reduction of heat losses. It also suggests more than 70 EE measures for industries such as ferrous metallurgy, non-ferrous metallurgy, chemical, light, food processing, machine building, metalwork, electrical, electronic, construction, and building material. The savings potential is also considerable in the field of services and households. The aggregated indicators of the listed measures with assessment of GHG mitigation potential of energy efficiency measures are provided in the following table.

Table 4.1 Overall potential of energy efficiency measures

Sector	Investments	Saved fuels	Saved electricity	Saved CO2 emissions	Saved CH4 emissions	Saved N2O emissions	Total saved emissions
	million $	thous tce/yr.	million kWh	Kt	T	T	kt CO2 eq/yr.
Industry	700.57	2549	1958	8713.6	211.8	1619.2	9220
Households and services	539.6	1082	669	4167	135.9	1016.2	4485
Transport	10.7	3	-	6.85	0.256	0.002	7
Efficient lighting	215(1)	-	1566	2631	33	819	2886
TOTAL	1465.9	3634	4193	15518.5	380.96	3454.4	16597

(1) - in case of self-investment the required initial capital investments are 60 million $

Source: MOEW, National Climate Change Action Plan, 2000.

Unfortunately, Bulgaria has limited local resources to invest in all the mitigation measures listed that would allow the country to comply with its Kyoto commitments. Nevertheless, Bulgaria is trying to exploit other tools available to pursue purposeful environmental and

GHG mitigation policy. For example, in the process of privatization, requirements for investments in environmental friendly technologies were one of the considerations in the selection of the winning offer.

Bulgaria applies strict environmental legislation in line with EU requirements. In recent years, the country has been praised for making 'considerable progress in harmonising its environmental laws and regulations with those of the EU, particularly in the areas of air, water, waste, nature protection, and chemicals'.[509] The fundamental environmental law in Bulgaria, which is also related to GHG emissions, is the Environmental Protection Act adopted in 1991 and amended several times. It sets the basis of environmental standards and principles in Bulgaria. The Clean Air Act adopted in 1996, the Energy and Energy Efficiency Act, and the enforcement of many other regulations are other examples of this effort.[510]

Bulgaria applies sanctions on polluters of air, water, and soil above the admissible levels and distributes the revenue into national and municipal environment protection funds. Bulgaria's new emission standards applicable for TPPs are very close to those of the EU. However, it is uncertain whether funding to retrofit existing plants with the required emission control equipment will be available, which is the reason why extension of one to five years has been given to the older power plants to comply with the new standards.[511]

There are other measures listed in the NCCAP, which have already been commenced. In the field of nuclear energy development, a series of projects for modernisation and safe operation of the NPP Kozloduy units have been implemented. The NCCAP also envisages the construction of the new NPP Belene, which is currently under discussion in Bulgaria. As to the rehabilitation of TPPs, the total capacity to be rehabilitated represents 4500 MW. Feasibility studies on the rehabilitation of the largest TPPS were completed in 1999 and rehabilitation programmes were developed to commence in 2000. In order to supply households and public buildings with natural gas to replace electricity, residual, and coal consumption, a programme has been elaborated for 400,000 households (about 1.2 million inhabitants) to be supplied by 2020.[512] This process has already started in some places, but is very slow because of the lack of funds.

[509] World Bank 2001b, 177.

[510] MOEW 1998, 21.

[511] World Bank 2001a, 11.

[512] MOEW 1998, 1.

4.2.3 *Kazakhstan*

Kazakhstan signed the UN Framework Convention on Climate Change in 1992 and ratified it in 1995. The First National Communication was published in 1998. This report contains a national inventory of GHG emissions and removals for 1990 and a baseline level for future GHG emissions. According to the First National Communication, the priority of Kazakhstan is to 'identify measures to mitigate climate change impacts in different sectors of Kazakhstan's economy, according to their priority value from the point of view of emissions reduction and GHG sinks development potential and in conformity with the principle of sustainable development'.[513]

In 1999, Kazakhstan signed the Kyoto Protocol as a non-party to Annex I of the UNFCCC and a non-party to Annex B of the Kyoto Protocol. At the fifth Conference of the Parties (COP 5), Kazakhstan notified its intention to be bound by the commitments of Annex 1 parties, and Kazakhstan is now considered an Annex I Party under the Kyoto Protocol. The Interagency Commission on Climate Change Issues was established based on a governmental decree in April 2000.[514] Its objectives are (1) to facilitate and improve interagency coordination and decision-making on the ratification of the Kyoto Protocol, (2) to participate in international climate change negotiations, and (3) to carry out activities aimed at reduction of GHG in the country under joint projects. It includes representatives from key agencies and Ministries responsible for climate change, such as the Ministry of Economy and Trade, the Ministry of Natural Resources and Environmental Protection, the Ministry of Transport and Communications, the Ministry of Science and Education, the Ministry of Justice, the Ministry of Energy and Mineral Resources, and the Agency for Strategic Planning.

The Interagency Commission has a working body, the Coordination Centre on Climate Change. The tasks of this body are to establish inventories and monitor GHG sinks and sources, to mitigate climate change, to facilitate technology transfer, to develop the regulatory framework and to participate in the international negotiation process. This coordination centre leads a number of work groups on the energy sector, the non-energy sector, the introduction of flexible mechanisms and JI projects, and the implementation of economic analyses and GHG emissions forecasts.

The Coordination Centre oversees GHG reduction projects and advises the government on issuance of credits in the form of future guarantees. The Centre evaluates potential GHG reduction projects on the basis of environmental domestic development and financial feasibility, and provides advice on carbon-offset projects. Also, the Centre handles monitoring, verification and tracking of reductions in Kazakhstan. On the regulatory side, the Centre paves the way for institutional regulation of activities within the environmental sphere, including flexible mechanisms.

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[513] Republic of Kazakhstan 1998.

[514] Climate Change Coordination Center of Kazakhstan, not dated/b.

4.2.4 *Russian Federation*

On 18 November 2004, Russia formally handed over the accession papers on ratification of the Kyoto Protocol to the United Nations. Kofi Annan congratulated President Putin and Russia for their leadership, "in making it possible for the Protocol to enter into force".[515] The Russian Federation became a signatory to the United Nations Framework Convention on Climate Change (the UNFCCC) on 13 June 1992. The UNFCCC was ratified by the country on 4 November 1994. The Russian Federation is a member of the list of Annex I countries.

The Russian Federation has hosted several projects during the pilot phase called AIJ. The Russian Federal Service for Hydrometeorology and Environmental Monitoring (ROSHYDROMET) is the focal point and evaluator of AIJ projects. The evaluations and recommendations regarding JI project acceptance are forwarded to the Intergovernmental Commission for Climate Change for approval. The commission includes high officials from the different ministries as well as the director of ROSHYDROMET. On the basis of precedence, the emission reductions should be split between the project investor and the project owners. The split may be obtained in several ways. Both a shorter crediting time than the technical lifetime or a reduced generation of annual credits compared to the total emission reduction may be applied. Proper baseline would suggest splitting in allocation of emission reductions. A minimum price for it is not established, but the different ministries have estimated the cost of the projects at $7 to $15 per ton of CO_2. The price may be based on the European as it becomes operative in the future.

The state owned holding company RAO UES views the Kyoto mechanisms as an opportunity for the implementation of energy savings and energy efficiency projects that would lead to emission reductions in Russia. The positive and progressive attitude towards the use of the Kyoto mechanisms is reflected in the establishment of the investment organization Energy Carbon Facility (ECF). The facility aims to facilitate identification and development of JI projects and to become the leading institution in this field in Russia. ECF activities include establishing consistent reporting of greenhouse gas emissions by all participating power plants and utilities. Workshops are also held to inform and establish local understanding of joint implementation and its possibilities. ECF may assist with the necessary agreements on verification and transfer of carbon credits, particularly before completion of the institutional and regulatory framework for JI projects in Russia.

Russia's international position on the issues covered by the UNFCCC has been changing since it was signed.[516] At the Conference of Parties to the UNFCCC (COP1) in Berlin in 1995, Russia suggested low obligations for the countries in transition. However, during the Kyoto negotiations in 1997, Russia realized its opportunities stemming from the financial mechanisms and began advocating emissions trading to reduce GHG emissions. Russia has surplus quotas to trade and has therefore much to gain from the Kyoto market mechanisms.

Although Russia's energy production and consumption have decreased significantly in the last decade, Russian energy expenditures per unit of GDP are 2.5 to 3 times larger than those

[515] UNEP 2004.

[516] Moe 2000, 12-18.

[517] Russia's emissions in 1990 were at the level of 2,400 million tons of CO2 equivalent, about 11 percent of the

of other industrially developed countries.[518] The following table shows an overview of emission trends in the Russian Federation.

Table 4.2 Overview of emission trends in Russia in 1990 and 1996-1999 (Gg)

	Base year 1990	1996	1997	1998	1999	Change from 1990 to 1999 (%)
Total aggregate anthropogenic emissions of CO2, CH4, N2O, HFCs, PFCs and SF6*	3,050,000	1,960,000	1,914,000	1,890,000	1,876,000	-38
Total anthropogenic CO2 emissions, excluding land-use change and forestry	2,362,000	1,495,000	1,529,000	1,505,000	1,509,000	-36
Total anthropogenic CH4 emissions	26,190	18,476	14,381	14,714	13,810	-47
Total anthropogenic N2O emissions	316	132	139	113	113	-64
Total aggregate anthropogenic emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6) in Gg CO2 equivalent	40,000	36,000	40,000	41,000	42,000	5
Net anthropogenic CO2 emissions and removals from land-use change and forestry**	154,947	-173,929	-131,557	-2,927	-211,742	-237

Notes: *excluding CO2 emissions/removals from land-use change and forestry
****In this row negative values in Gg indicate net removals of CO2 from the land-use change and forestry sector.**
Source: UNFCCC. Information on national greenhouse gas inventory data from Parties included in Annex I to the Convention for the period 1990–2002, including the status of reporting. Executive summary, 2004.

To meet the demands of the UNFCCC, the Interagency Commission of the Russian Federation on Climate Change Problems (ICC) has prepared three National Communications. The first was presented in 1995, the second in 1998, and the third in 2001. According to the National Communications of the Russian Federation, various national projects have been launched to implement measures for reduction of CO2 emissions. Since the combustion of fossil fuels and the energy sector account for 98 percent of GHG emissions, the main reduction measures taken in the country address increased EE in all sectors of the economy. The priority of increasing EE has also been declared in the new Energy Strategy for 2020,[519] adopted by the government of the Russian Federation in April 2000. According to the new

world's total emissions. Moe 2000, 8.

[518] Bushuev, not dated.

[519] The predecessor of the new Energy Strategy – 2020 was the Energy Strategy of Russia, developed in 1993-1994. It had also placed EE in all industries of the Russian economy as the highest priority. As it is stated in the Energy Strategy – 2020, the previous strategy did not completely reach the stated goal, although much has been done. The lack of technical and financial resources is suggested as the main reason for this.

strategy, 'promotion of modern, highly efficient power machines and equipment capable of competition both in the national and foreign markets' is the central element to improve energy efficiency.[520]

Following the adoption of the new Energy Strategy in 2000 (journal of the government of 23 November 2000 N 39), the federal authorities of the executive branch have worked out the Federal Target Programme 'Energy Efficient Economy' for the years 2002-2005, and for the perspective up to 2010. This programme was created to decrease the power intensity of Russian industries and secure the stable satisfaction of the country's needs in energy resources.[521] It is financed from the funds of the Federal budget and the assets of the Ministries-contractors (Mintopenergo, Minatom, among others).

The Federal Target Programme 'Ecology and Natural Resources of Russia (2002–2010)' targets unresolved problems by previous federal and regional programmes, such as atmospheric air pollution (in Norilsk, Novokuznetsk, Cherepovetz), water pollution (in the Volga region, the Urals, the Northern Caucuses), soil pollution, desertification, and the decline of flora and fauna species. The programme also addresses the depletion of the basins of the discovered natural resources and the location of the new ore and oil beds. Hopefully, these two programmes will overcome the obstacles faced by its predecessors, such as vague determinations of programme priorities, lack of coordination of the actions at various implementation levels, and the use of financial resources not in compliance with the stipulated purposes.[522]

A number of Russian journals address the obstacles faced by energy efficiency in the country and possible ways to solve them, such as the journal of Russia's Energy Efficiency Union (RSE-Inform). Russian NGOs take an active role in energy efficiency projects in the country and collaborate with Russian governmental bodies in their effort to reduce GHG emissions. Organisations such as the Russian Demonstration Zones Association, CENEf, the Russian-Danish Institute of Energy Efficiency, ACEM, and Investenergoeffect have already accumulated broad experience in the field of implementing energy efficiency projects. These organisations carry out conferences, consultations, exhibitions of energy efficient products, and are willing to provide relevant information and advice to interested parties. RAO UES-Russia is undertaking energy saving measures on its own, using its internal corporate funds within the framework of the Unified Energy System.

[520] Begak, Grotz, and Vuorio 2000, 7.

[521] Russian Federation Government 2001a, 8.

[522] Russian Federation Government 2001b, 12-14.

4.2.5 *Ukraine*

The energy-saving strategy and climate change policy of Ukraine is realized through a system of institutions and normative acts. To deal with energy saving issues, the Cabinet of Ministries of Ukraine created a number of departments in the Ministries as well as in state administrations on the regional level. Regional inspections on energy saving have been formed and are functioning (for details, see Annex 3). The Ministry of Environmental Protection and Nuclear Safety of Ukraine, subsequently reorganized into Ministry of Ecology and Natural Resources, supervised the development of the First National Communication on Climate Change (FNCCC), which was prepared by the Agency for Rational Energy Use and Ecology. Other relevant ministries, agencies, and organizations were participating actively in the process.

As stated in the FNCCC, Ukraine is a transitional economy, which provides a 'certain degree of flexibility' in meeting the UNFCCC commitments. Ukraine is one of the countries with the highest energy saving potential in the world. In the base year 1990, Ukraine occupied the fifth place among Annex 1 countries estimating the rates of GHG emissions. During the period 1990-1998, the country experienced a significant industrial decline and its corresponding reduction of emissions, placing Ukraine on the tenth place, behind USA, Russia, Japan, Germany, Canada, Great Britain, France, Italy, and Australia. Energy relative GDP is much higher than that of Western Europe and USA.

The FNCCC report states that the highest potential for climate change mitigation in Ukraine is to be found within energy saving and forestry. Forestry is mentioned because the country's index of forestation is about 14 percent, while the optimal level is considered to be 20 percent. At the same time, favourable conditions for forestry are present in Ukraine, which makes this trend quite attractive. Prioritised sectors of the national economy are energy, coal-bed methane, district heating, transport, and agriculture. National GHG inventory was prepared using the methodologies of the IPCC Guidelines for National GHG Inventories.

The energy sector is traditionally the largest GHG emitter in Ukraine. Heat and electricity production constitute 50 percent of the sector's GHG emissions, whereas commercial and residential emissions account for 20 percent. Possibilities to switch to fossil fuel with lower carbon content per unit (from coal to gas) are limited as the predominant native resource is coal, whereas gas and oil have to be imported. Important factors causing high emission rates in the sector are improper combustion processes, inefficient and outdated technologies for energy production and distribution, lack of gas purification systems in power-generating plants, and insignificant utilization of renewable energy resources. Energy intensity for electricity and heat production has been estimated at 374.7 grams of toe per kWh. Hence, the primary measures to be considered are improvements in fuel combustion in power-generating plants, better selection of fuels, avoidance of fuel mixture in the combustion process (through better quality of coal; presently, the coal-dust used requires to be burnt in a gas or fuel oil burner), and upgrade of the existing gas combined-cycle units. Switching to cogeneration with combined heat and power plants is also viewed as a potential measure in Ukraine.

Ukraine signed the UNFCCC in June 1992, ratified the convention in 1996, and become a party in August 1997. Due to the Article 4.2b of the UNFCCC, 1990 is considered as the base year to estimate GHG emission reductions (not controlled by the Montreal Protocol). As an Annex 1 Party, Ukraine can be a host country for implementation of two of the three market-

based mechanisms established by the Kyoto Protocol, which are Joint Implementation and Emission Trading.

In 1998, the *National Programme on Climate Change Response* was launched to unify the national attempts of the government and the public to address the threat of global climate change. The programme defines energy saving measures and forestry as the priority areas with the largest potential for GHG emission reduction. A host of normative documents and programmes of economic development with respect to climate change mitigation actions were developed and adopted, such as:

- The National Energy Programme in 1996
- The Programme of Restructuring of Ukrainian Economy
- The Comprehensive State Energy Conservation Programme of Ukraine
- The National Development Programmes of Industrial Sectors
- The Climate Programme
- The State Programme of Forestry and Timber-industrial Complexes Development
- The National Programme of Agro-industrial Production and Rural Revival
- The Programme of Reforming and Developing of Housing and Communal Services in 2002-2005 Years and for the Period until 2010.

These documents were used to develop three different scenarios for economic development of the country until 2015, referred to as basic, optimistic, and pessimistic. The basic scenario foresees large-scale structural changes in the national economy, in particular in the financial, fiscal, and budget policies, stimulating long-term investments and providing more profound processing of national mineral resources. Under the optimistic scenario metallurgy, chemical, petrochemical, and the machine building industry would develop actively. Under the pessimistic scenario industrial development would see slower rates of development, thus resulting in higher GHG emissions. On execution of the President's Decree No.457/2000 on 10 March 2000, additional measures were acknowledged to be necessary for fulfilment of the National Programme on Energy Saving. In the Article 3 of the document, economic stimulus mechanisms for the rational use of energy resources were defined. As mentioned in the document, the current corporate profit tax legislation provides no incentive for energy efficient production. Hence, the harmonization of different legislative acts within the national legislative system is one of the first steps necessary. The document suggests the promotion of leasing schemes to introduce compulsory in-time payments (including payments two months in advance) on the basis of other relevant laws (for details, see Annex 3).

Additionally, it is recognized that current national fiscal policy should be further improved and that the national legislative base concerning leasing options in the energy-saving sphere needs adjustments. If an enterprise takes considerable measures to reduce (internal) consumption of energy resources, it should be privileged. However, these attempts require their introduction in the legislative base, as the budget source for these privileged credits is not clearly defined yet. Norms of fuel and energy resources use and fines for irrational utilization of fuel or energy have been established.

Under the assumption of active relevant legal framework, JI projects have a significant potential in Ukraine. Results available from preliminary studies demonstrate the opportunities for GHG reductions. Investment projects that meet screening criteria are considered to be subject to JI. Following the Kyoto Protocol, possible investors, particularly from Japan, Netherlands, and Denmark, showed interest in establishing JI activities. These interests are currently at the pre-intermediate (early) stage of development. Policy-makers and NGO representatives share the opinion that the precondition for the successful development of JI projects in Ukraine is a supporting legislative, norms, and standards system, and a clear definition of the responsibilities of each institution.

Crucial factors in the agenda for JI implementation include the establishment of the necessary legislative and institutional components. Administrative bodies are needed in order to develop and monitor the database of potential projects, the inventory of GHG emissions, and the opportunities for their reduction. A regulatory body to deal with foreign investments in JI projects is also needed, since the Ministry of Economy of Ukraine tracks all projects with foreign investments, including those in JI projects. Although the Ministry of Ecology and Natural Resources (MENR) is responsible for the regulation of JI activities, the Ministry of Economy also tracks them. Finally, the establishment of a specific account in the state budget is required to receive the financing from JI project implementation.

Initially, it was not clear if the Ministry of Economy or the MENR should be authorized with regulative functions on issues of JI projects, energy saving, and climate change mitigation. At present the MENR is designated the main coordinator of all climate change programmes in Ukraine. Other ministries involved are the Ministry of Fuel and Energy and the Ministry of Economy. The Alternative Fuels Center, the State Committee for Energy Conservation, and the Institute of Energy are among the state institutions that support in the implementation of the national policy on climate change mitigation. Ukrainian NGOs are also very active in this respect and have united their efforts in 1999 by creating the NGO Working Group on Climate Change.

4.3 Examples of JI Projects

4.3.1 *Belarus*

The Republic of Belarus was not present at the Third Conference of the Parties in Kyoto. Therefore, it was not included into Appendix B, which means no quantitative obligations were imposed on the country. In 2002, the free quota for GHG emissions varies from 35 to 40 million tonnes CO_2, a sum taken from the volume of gross emissions in 1990 (reference year) minus the previous year's gross emissions. Belarus is potentially a large seller of GHG emission quotas. According to the results of GHG cadastres from different countries, power producing and fuel consuming units of other sectors of the economy produce 70 to 90 percent of total emissions. Energy saving and increasing use of renewable energy sources are key mechanisms to decrease emissions.

The Committee for Energy Efficiency of Belarus has prepared a number of projects for reducing GHG emissions, which were sent to the Global Environmental Facility, the Prototype Carbon Fund, and UNDP for financing. However, the allocation of funds has been postponed until any quantitative obligations are established and the country is included into the Kyoto Protocol Appendix B. At this point Belarus cannot participate in any JI or Prototype Carbon Fund projects. Considering Belarus' interest in emission quotas trading/transmission, UNDP in cooperation with UNECE has initiated a project aimed at eliminating barriers to the country's participation under the Kyoto Protocol in the UN Framework Convention on Climate Change. National and UNDP/UNECE experts have elaborated the appropriate project documentation.

4.3.2 *Bulgaria*

The commitment to the Kyoto Protocol is still under discussion by governmental institutions, as preliminary studies point out difficulties and uncertainties to achieve the country's reduction target. The main difficulty is providing enough investments. The NCCAP suggests that the government and private companies could provide financial sources, but existing environmental funds are limited in practice. The NCCAP suggests that the most appropriate financial sources for Bulgaria are modern financial instruments that do not rely on governmental funds, but rather on the experience and capitals of another party, such as foreign companies, international organisations, and Kyoto mechanisms. According to the NCCAP, the Kyoto mechanisms that are most appropriate for Bulgaria are the Joint Implementation (JI) and Emission Trading, since Bulgaria could gain economic, technical, and expert support on the actual development of projects and sharing of GHG mitigation units.[523]

Conditions in Bulgaria are attractive for reduction of the emissions of carbon dioxide and other GHG at relatively lower costs than would be needed for attaining the same results in developed European countries. The payback periods of investments are shorter than five years.[524] However, JI is a new policy field in Bulgaria and is not well known. Although there is

[523] MOEW 1998, 25.

[524] EnEffect 2000, 6.

no specific legislation in Bulgaria to support JI activities, the existing legislative situation is not an obstacle for its implementation.[525]

There are no officially accepted or announced criteria for JI project selection. However, the Bulgarian Ministry of the Environment and Water at the Dutch–Bulgarian workshop on JI in November 1998 did outline preferable criteria for JI. It was suggested that project investment should be made through grants instead of loans, which should be in line with national priorities. JI agreements should be made for a maximum of ten years.[526] A small unit hosted by the State Energy Efficiency Agency in Sofia coordinates the JI activities. The United Nations Development Programme (UNDP) completed a programme on capacity building for JI that supported its institutional setting.[527] The first JI partner of Bulgaria, the Netherlands, also provided support for the JI Unit in the implementation of its procurement procedure for Emission Reduction Units (ERU-PT).[528]

The governments of Bulgaria and the Netherlands started setting up pilots for JI projects until 2000. The first selected JI project was an EE project for the state-owned District Heating Company in Pleven.[529] This pilot project concerned the improvement of combustion of energy sources and automation of boilers in the DHC.[530] The main objective of the project is to increase the efficiency of the steam boilers by two to three percent and the efficiency of the DHC by seven percent, achieving at least 3,500 tonnes of CO_2 emissions reduction annually. A set of economic and financial tools for measurement and monitoring of the overall performance of the plant has been developed. The DHC management received the technical tools to monitor, measure, and regulate the production and distribution of heat. The Dutch party supplies the new equipment, a monitoring and control system, and covers the total cost of the project, $480,000. This total cost of the project includes hardware, equipment, consultants, a baseline study, a monitoring study, and training. The initial stage of the project included the baseline study and the second phase of the project was a monitoring study that took place in beginning of 2000.[531]

A Memorandum of Understanding with the Netherlands was signed on 10 April 2000. According to Article 2, the cooperation between the two parties aims at reducing emissions by three million tonnes of CO2 equivalent per year as an average for the commitment period of 2008 to 2012. According to Article 5, the Dutch party will buy claims on emission reduction units through a public procurement procedure. In accordance with the Memorandum of Understanding, the reduced CO_2 emissions are shared at the ratio 35 and 65 percent between Bulgaria and the Netherlands.

The letter of intent provides for the implementation of JI projects in a district heating plant in Pravetz, Sofia and Varna.[532] The first project aims at increasing energy efficiency and

[525] EnEffect 2000, 6.

[526] EnEffect 2000, 7.

[527] EnEffect 2000, 6-7.

[528] Novem & Eneffect 2000, 37.

[529] EnEffect 2000, 8.

[530] La Rovere et al 2000, 23.

[531] EnEffect 2000, 8-10.

[532] Stoycheva 2000, 7.

environmental management at DHC Pravetz through the installation of a combined heat and power unit. The Dutch Party contributes NGL 1 million to this project. The second project aims at optimising the heat supply system in Sofia and reducing emissions of GHG through the installation of a grid for district heating. The Netherlands' contribution to this project is of NGL 1,100,343. The third JI project aims at modernising the District Heating Company in Varna's substations. Energy saving in DHC Varna would be achieved through an adjustment of the existing substations with a NGL 999,975 investment of the Netherlands.

Bulgaria continues its attempts to achieve partnership for JI with other countries. In April 2002 the Ministers of Environment of Bulgaria and Austria signed an agreement of cooperation in the field of environment protection. The fields of partnership are specified as waste management, water and air pollution from energy and industry, climate change and JI projects under Kyoto Protocol.[533]

4.3.3 *Kazakhstan*

As Kazakhstan is in the process of complying with the commitments pertaining to Annex I parties to the Kyoto Protocol for participation in JI projects, The Interagency Commission on Climate Change (IAC) has recommended ministries to launch pilot projects on reduction of GHG emissions in order to develop and test project mechanisms, achieve governmental approval and develop the regulatory and legal basis for attracting investors. Two projects on GHG reductions have been considered and preliminarily approved by the IAC:

- The Hurricane project on gas utilization at the Kumkol oil field, which is expected to reduce GHG emissions by 500,000 tonnes;
- A project on energy saving at Uralsk Heat and Power Plant, implemented by the Japanese company NEDO and the Kazakh Ministry of Energy and Mineral Resources.

In addition, a number of bilateral agreements on JI projects, involving agencies in Netherlands, Finland, Australia, Japan and The World Bank Prototype Carbon Fund are under preparation.

4.3.4 *Russian Federation*

Having signed and ratified the UNFCCC, Russia has developed an institutional structure to carry out the measures agreed by the countries. The central authority for the performance of Russia's contractual obligations under the convention and coordination of domestic measures is the Interagency Commission on Climate Change Problems established in 1994. The Commission was to consist of the representatives of the Russian Ministries involved in the implementation of certain measures, headed by the Director of the Federal Service of Hydrometeorology. The composition of the commission has subsequently changed. Currently, the Federal Service of Hydrometeorology is responsible for the process of approval of AIJ projects and is Russia's representative before the Secretariat of the UNFCCC. Four examples

[533] Bulgarian Government 2002.

of AIJ projects implemented in the Russian Federation in the field of energy efficiency are referred to in Table 4.3. The official website of the UNFCCC contains reports on the projects' status. According to these reports, the Horticulture Project in Tyumen and the "Ushgorod Corridor" Project were successfully implemented, the Zelenograd District Heating System Improvements Project has failed to find an investor, and the Project in the Krasnodarsky region was not carried out. Although the project was developed and approved, it did not satisfy the German counteragents in terms of transparency and simplicity.

Table 4.3 AIJ energy efficiency projects in the Russian Federation

Activity title	Parties Involved (Host/ Investor)	Life time, years	GHG Impact (CO_2 equivalent in metric tonnes)	Date of report
AIJ Project "Construction of the Steam-Gas Electrical Power Station "Kuban" and Local Heating Systems in Krasnodarsky Region"	Russian Federation, Germany	4	2,700,000	August 2000
Horticulture Project in Tyumen	Russian Federation, Netherlands			1997
Modelling and Optimization of Grid Operation of the Gas Transportation System "Ushgorod Corridor" of Wolgotransgas (Gazprom)	Germany, Russian Federation	2	225,000	1997
Zelenograd District Heating System Improvements	Russian Federation, United States of America	30	1,575,040	1997

Source: UNFCC, 2001.

4.3.5 *Ukraine*

The Ukrainian Institute of Energy was created in 1997 on the base of the Institute of Energy Saving Problems of the National Academy of Sciences of Ukraine (NASU). In November 2000, the Institute of Energy started a joint Ukrainian-Canadian project to create a database of JI project opportunities in Ukraine to inform potential investors. The data of potential JI projects collected, analyzed, and estimated included total amount of investment, operation and maintenance costs, revenues, GHG effect, GHG effect over the project life, payback period, and investment per ton of emissions reduction. A web database is now available for potential JI investors. Projects were rated due to expected amount of emission reductions and cost of investment. Further information on JI-feasibility studies is available at the Institute of Energy's website. A similar database on potential projects for GHG mitigation can be found at the website of the Climate Change Initiative Centre (See Annex 1).

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Note: The links provided in this bibliography were current as of citation date. If websites are subsequently redesigned, it may happen that web links no longer work, that the information changes, or that information is no longer available. These problems have their origin in the nature of the Internet: Unlike printed books, the content on the Internet is dynamic and can be updated anytime.

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ZEiM plc. [Internet]. Available from http://www.zeim.ru

Annex 1: Useful websites

A
http://www.aceee.org
http://www.arena-eco.kiev.ua

B
http://www.balticchain.net
http://www.banki.finmaster.ru

C
http://www.cenef.ru
http://www.cenef.kiev.ua
http://www.cenef.sumy.ua
http://www.cicero.uio.no
http://www.climate.org.
http://www.climate.org

E
http://www.ebrd.org
http://www.ee-21.net
http://www.dn.se/
http://www.electrotec.com/meep/meep.htm
http://www.enport.com.ua/law/bushuev.htm
http://www.enport.com.ua/law/42-3.htm
http://www.ensi.no
http://www.eriras.ru/RU/main-ru.htm
http://www.europa.eu.int
http://www.eva.wsr.ac.at
http://www.ey.com

F
http://www.fondelec.com
http://www.fni.no

I
http://www.iea.org
http://www.ienergy.kiev.ua
http://www.ife.no
http://www.ipcc.ch

K
http://www.ru.kpmg.net
http://www.ua.kpmg.net

L
http://www.leasing.kz

M
http://www.main.gov.by

N
http://www.nationalbank.kz
http://www.necin.com.ua
http://www.nefco.fi

R
http://www.rusdem.com

S
http://www.seea.government.bg
http://www.specmedia.ru/balticchain/energy/
http://www.stem.se

U
http://www.un.org
http://www.unfccc.com
http://www.unlease.ru
http://www.usaid.gov

W
http://www.worldbank.org

X
http://www.xport.no

Annex 2: List of IFI projects/energy efficiency and environmental investment funds

Name/Fund Manager	Target Area	Type of Financing	Website
NEFCO Clean Development Mechanism	Russian Federation, Baltic Sea Countries	Debt, Equity, Grants, Mezzanine Financing	www.nefco.fi
EBRD	All	Debt, Equity	www.ebrd.org
World Bank	All	Debt, Equity	www.worldbank.com
Alternative Finance	Renewable Energy in Developing Markets	Equity	www.alternative-finance.com
Energy Efficiency and Emissions Reduction Fund, FondElec Funds	Renewable Energy in Central and Eastern Europe	Equity	www.fondelec.com
Renewable Energy and Energy Efficiency Fund	Renewable Energy in Developing Markets	Equity	www.ifc.org
Central and Eastern Europe Power Fund (CEEP)	Renewable Energy in Central and Eastern Europe	Equity	www.eifgroup.com
Central and Eastern European Investment Fund	Sustainable Energy, retrofits in Eastern Europe	Equity	www.fns.uniba.sk
European Investment Fund, EIA	Renewable Energy	Equity, Insurance	www.eif.org