PART II
Chapter 5
Soviet Union’s gas export strategy to Europe

5.1 Introduction
Shortly after the Second World War, the Soviet Union began exporting natural gas to Poland on a very small scale. Only in the 1960s did the export of natural gas expand to include other European countries that fell under the Soviet sphere of influence through the CMEA. Austria was the first capitalist country in Western Europe to purchase a small volume of gas from the Soviet Union, followed in the 1970s by larger Soviet sales to West Germany, Italy and France [Victor and Victor 2006]. In the Soviet period and before the liberalisation of the gas market in the EU, the chosen institutional framework for Soviet gas supply to Western Europe was relatively stable, with an oligopoly of importers and exporters being connected to each other through long-term contracts. Governments were typically also directly involved in the realisation of gas projects, through ownership interests and investment guarantees (see also Chapter 2) [Finon en Midttun 2004].

In this chapter a description is given of the Soviet export strategy for natural gas in Europe before the disintegration of the Soviet Union and before the European liberalisation of the gas sector, which began in the 1990s. For Europe, a distinction is made between the Central and Eastern European countries that belonged to the CMEA and the Western European countries. The export strategy is described in light of the rationale of the Soviet Union for commencing gas production and marketing it. In the analysis, emphasis will be placed on economic aspects. The chapter starts with the internal (institutional) gas market developments in the Soviet Union, Western Europe and the CMEA countries. Section 5.2 looks at the developments in the Soviet Union gas market up until the fall of the Soviet empire and of the centrally planned economic model. Section 5.3 describes the structure of the gas market in Western Europe before the gas market liberalisation and that of the gas market in the CMEA under the Soviet Union’s sphere of influence. In Section 5.4 the supply and transport of Soviet gas to the CMEA and Western Europe are discussed. The chapter ends with a concluding section.

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[109] The unofficial designation is Comecon. The CMEA was an organisation that supported economic cooperation between the Central and Eastern European communist countries, largely under the command of the Soviet Union, and was a reaction by the Soviet Union to the Marshall Plan. The CMEA had to guarantee the implementation of financial assistance to these countries, initiated by the Cominform. In this research, the CMEA-6 is used as the collective term for six countries in central and Eastern Europe with a planned economy, namely East Germany, Poland, Czechoslovakia, Hungary, Romania and Bulgaria. The Soviet Republic, Cuba, the People’s Republic of Mongolia and observers North Korea and North Vietnam, which also were part of the CMEA, fall outside the CMEA-6 group in this research. Former Yugoslavia, as associated member of the CMEA, and Albania are listed separately where relevant.
5.2 Rationale for Soviet’s gas production and exports and its institutionalisation

In the 1820s, natural gas was used for the first time for central lighting on St. Petersburg’s Aptekarsky Island. In the course of the nineteenth century, other cities followed St. Petersburg’s example.\(^{110}\) Gas was captured on a larger scale at oil production sites in Azerbaijan in the 1870s [CE/CIEP 2007]. However, gas production in the Soviet Union remained limited to 3 bcm/y until after the Second World War [Victor and Victor 2006].

5.2.1 Rationale for Soviet’s gas production and exports

During Stalin’s last governing years (1945-1953), energy consumption grew by more than 9 percent per year. The underlying causes were strong industrial growth in combination with inefficient use of energy. However, the share of gas in the Soviet energy mix remained limited (2 percent, or 9 bcm, in 1953) due to the dominant roles of coal and, to a lesser extent, oil, during this period [Victor and Victor 2006]. In 1942, gas fields were discovered in the Kuibyshev region and around the same time the development of the gas field near the village of Elshanka was commenced, largely to the benefit of the industry in Saratov, southeast of Moscow. In 1943, the first long-distance pipeline (160 kilometres) began to be used between Bouguruslan and Kuibyshev. Substantial transport of gas started three years later — shortly after the Second World War — with the realisation of the 843 kilometre-long gas pipeline between Saratov and Moscow. In the 1950s, other gas fields were linked to the gas network around Moscow.\(^{111}\) Until the mid-1950s, gas production in the Soviet Union was largely limited to the Saratov region and Ukraine [Victor and Victor 2006].

Under Khrushchev the position of gas gained importance, although at first oil was preferred due to the flexibility with which it could be used in industry. In his first five-year plan\(^ {112}\) (1956-1960) he formulated goals for equalling the American economy within 25 years. He intended to reach these goals through the modernisation of the economy, in which modern fuels received an important place because of their flexible and efficient application. In the seventh five-year plan (1959-1965) gas was increasingly consumed in the industry [Victor and Victor 2006]. The increased demand for gas by the Soviet Union’s heavy industry needed to be met with new production from the gas fields in the Soviet republics in the Caspian region (mainly Turkmenistan). In order to link the gas

\(^{110}\) In the period that Russia was ruled by tsars, under the Romanov dynasty, the following important cities, among others, were supplied with natural gas (in addition to St. Petersburg and Moscow): Kiev, Kharkov, Rostov-on-Don, Odessa, Riga, Vilno, Tver en Kazan [Victor and Victor 2006; Gazprom 2008a].

\(^{111}\) This started with the gas pipeline Dashava-Kiev-Bryansk-Moscow in 1950, followed by the Tula-Moscow and the Stavropol-Moscow pipelines [Gazprom 2008a].

\(^{112}\) The sixth in a row in Soviet history. A five-year plan formulates the goals for five years and is an important instrument in the communist centrally-guided economy. In the Soviet Union, the Gosplan established roughly policies for economic growth. The plans were in principle focused on fast industrialisation (especially of heavy industry).
fields to the markets around Moscow and elsewhere, in 1959 the North Caucasus Center gas pipeline was brought into use; this was followed in the 1960s by a corridor from Central Asia and the Boukhara-Ural pipeline [Efegil and Stone 2001]. Moreover, in the early 1960s gas was being used from the Ukrainian Soviet Republic, in particular the Shebekinsky gas field [Victor and Victor 2006; Gazprom 2008a]. This turned the satellite republics in the Caspian region and Ukraine into important areas of gas production and transit for the Soviet Union.

In the eighth five-year plan (1966-1971) the importance of the western Siberian gas reserves, located to the east of the Ural Mountains, was recognised by the then-ruling Soviet leader Brezhnev. In the same period, gas fields were also discovered in Orenburg (north of Kazakhstan), followed by the discovery of the gas fields on the Yamal Peninsula at the beginning of the 1970s (including the Bovanenko and the Kharasevey fields) [Stern 2005]. Due to the development of the gas fields in the Nadyr Pur Taz (NPT) region in western Siberia, the centre of gravity of the Soviet gas sector shifted from the end of the 1970s on:

- the geography of the Soviet production portfolio changed because gas production in the regions east of the Ural Mountains exceeded the production west of the mountains [Victor and Victor 2006]; and
- the Soviet Union became a net exporter of natural gas. Up until the mid-seventies the Soviet Union even was a net importer due to imports from Afghanistan (2.9 bcm/y) and Iran (growing to 9.6 bcm/y) [Stern 1987].

Because of the location in a permafrost area, the development of the enormous gas fields in the NPT region required new technology which at the time was available only in the West. [Victor and Victor 2006]. Due to the growing demand for natural gas in Europe, combined with an improved political climate, Europe was involved with the technical and financial realisation of the new gas projects. In addition, the increasing gas exports provided additional hard currency revenues, with which the Soviet Union could finance new industrial projects domestically and in the CMEA-6 (see also Sections 5.3 and 5.4).

The development of the new gas fields and the related trade with the West led to a budding integration of the Soviet Union in the world economy. However, the cooperation and communication between the planning ministries and state corporations necessary to

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113 The development of these regions was supplemented by the gas production in Krasnodar, on the coast of the Black Sea.

114 For a closer view of the energy strategy under Brezhnev and Gorbachev, see among others Gustafson [1989]. Most of the discoveries in Western Siberia were in the region Nadyr Pur Taz (NPT), where large gas fields such as Medvezhe, Urengoy, Yamburg and Zapolyarnoye were located (see also Chapter 10).

115 The Iranian Gas Trunkline (IGAT) pipeline, with a capacity of 10 bcm/y, facilitated imports from Iran. There was mention of an IGAT II pipeline, but as a consequence of the Iranian revolution in 1979 this pipeline was never completed. The imports were intended for the southern Soviet republics. The Afghan imports stopped after the Soviet invasion in 1979 [Stern 1999].
be able to manage the increased complexity of trading were lacking. The problems surrounding economic planning, in combination with low productivity and product quality due to insufficient price incentives, led to stagnation during Brezhnev’s later years.\textsuperscript{116} In order to address these problems, Gorbachev launched economic reforms in the twelfth five-year plan (1986-1990).\textsuperscript{117} With his glasnost and perestroika, he respectively introduced openness and social-economic reforms in order to create a socialist market economy [Gorbachev 1987]. Perestroika was also intended to guide the changes in the CMEA countries. However, the centrally-guided system no longer proved tenable due to internal and external factors, such as the declining export revenues due to decreasing oil and gas prices and the devaluation of the dollar in 1985 subsequent to the Plaza Agreement (see also Chapter 6).

\textbf{Figure 5.1} The value of Soviet hard-currency incomes, including oil and gas exports (in millions of $)

Due to the development of the western Siberian gas fields, the Soviet Union became the largest gas producer in the world, followed by the US, by the end of Brezhnev’s period [BP 2008]. In the period between 1970 and 1991, the annual gas production in the Soviet Union increased by an average of 4.6 percent per year, from 185 bcm in 1970 to 406 bcm in 1980 and 756 bcm in 1991, according to BP [2008]. Figure 5.1 shows that the gas revenues grew from $0.2 billion in 1975 to almost $4.1 billion in 1985. In total, the Soviet Union received nearly $15 billion from oil and gas exports in 1985.

\textsuperscript{116} For an extended analysis of the stagnation and subsequent policy, see among others Hanson [1992].

\textsuperscript{117} The policy period between Brezhnev and Gorbachev, during which Yuri Andropov (1983-1984) and Konstantin Chernenko (1984-1985) were the Soviet leaders, is not explicitly addressed in this research. During this period, the previous leader’s policy was continued due to these leaders’ poor health.
5.2.2 Institutionalisation of the Soviet gas sector

From 1948 to 1956, the Head Department of Natural Gas Production, which came under the Ministry of Oil Industry (Minnefteprom), was responsible for the production, transport and sales of natural gas. In 1956 this department was reorganised into the Head Department for Gas Industry under the Council of Ministers of the Soviet Union (Glavgaz). In 1963 the State Production Committee of the Gas Industry was established, which subsequently was placed under a ministry in 1965. The Ministry of Construction of Facilities for the Oil and Gas Industry (Minneftegazstroy) was separated in 1972, as a result of which the export of gas within this ministry came under Soyuzgazexport [Stern 1999].

As a result of Gorbachev’s reforms, in 1989 the Ministries of the Oil and Gas Industries were merged into one ministry. The state company Gazprom, which fell under the responsibility of the Ministry of the Gas Industry, became responsible for the production, distribution and sales of gas within and outside the Soviet Union. In 1989, through the UGTS, Gazprom gained control over 160,000 km of gas pipelines and 350 gas compressors, which connected 270 field facilities, thousands of gas fields and two dozen underground gas storages [Gazprom 2008a]. Due to the disintegration of the Soviet Union, in 1991 Gazprom lost about a third of the pipeline capacity and a fourth of the original Soviet compressor capacity.

During the Soviet period, the government continued to control all gas production in the different Soviet republics. In addition, it could influence the CMEA-6 through the CMEA energy agreements. This made coordination of the production in the different gas fields in the Soviet republics and the construction of gas pipelines within the Soviet system and to the CMEA-6 relatively easy.

5.3 Gas market developments in Western Europe and the CMEA-6

In order to be able to discuss the Soviet export strategy for natural gas, a distinction needs to be made within Europe between the CMEA countries, which were under Soviet influence, and Western Europe.

5.3.1 Gas market developments in the CMEA-6

Since the Second World War, the countries in Central and Eastern Europe have arranged their economic relations within the frameworks of centrally-guided economies, of which the Soviet Union was the economic and political leader. As a result of the economic isolation from the West due to the Cold War and their relatively resource-poor under-

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118 To this end export contracts were made by Soyuznefte Export, the export division for oil of the Ministry of Foreign Trade [Stern 1999].

119 The name ‘Gazprom’ is an abbreviation of the Russian word for ‘gas industry’. Minister Viktor Chernomyrdin was appointed as President and Chief Executive Officer (CEO) of the state company Gazprom [Gazprom 2008a].

120 This section is largely based on Van der Linde [1991]. During the Cold War, the countries in Central and Eastern Europe also depended on Moscow for the security that it offered through the membership of the Warsaw Pact.
grounds, the Central and Eastern European regions became dependent upon Soviet oil and gas resources. Only Romania, and to a lesser extent Poland, produced gas (and oil).

Figure 5.2 Gas consumption in the CMEA-6 from 1965 to 1990 (in bcm)

According to BP [2008], Romania already produced 23.3 bcm in 1965 and the Romanian gas production reached its peak in 1982 with 37 bcm, after which it declined to 28.3 bcm in 1990. In Poland, gas production peaked in 1978 at 6.6 bcm. Moreover, Czechoslovakia and East Germany availed over lignite and Poland over hard coal. As a consequence, the electricity supply was largely based on coal. Hungary, Romania and, to a lesser extent, Czechoslovakia and East Germany, also used nuclear energy for electricity production. In an absolute sense, gas consumption grew fastest in Romania. Consumption in the other countries followed several steps behind that of Romania. The total size of the gas market in the CMEA-6, excluding East Germany, grew to over 70 bcm/y at the end of the 1990s (see also Figure 5.2) [BP 2008]. With respect to the external gas imports, the CMEA-6 depended completely upon supply from the Soviet Union.

The trade relations within the centrally-guided economies were institutionalised through the CMEA. Trade within the CMEA framework was largely based on regional specialisation and barter agreements (as parts of five-year plans), within which the regional energy systems also fell. In the standard barter transactions, the Soviet Union provided the CMEA-6 with raw materials and fuels in exchange for half-finished and finished products.

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121 Polish gas production was 4.9 bcm in 1965 and 2.6 bcm in 1990 [BP 2008].
Until 1970, the CMEA played a relatively limited role in the economic and energy relations between member states, because the trade was largely organised through bilateral agreements. From the 1970s onwards the role of the CMEA grew because:

- the extensive growth model could no longer be fed through domestic energy production, in particular because the industry required modern fuels (oil and gas) in an increasing degree; and
- a gap had developed with respect to the development of welfare and technology between the Western industrialised countries and the CMEA-6, including the Soviet Union. The economic structure needed to be adjusted, so their relative position with respect to the West could be improved.

As a result, the economies of the CMEA-6 were opened, intensifying trade with the West, the Soviet Union and within the CMEA. The Soviet Union exported its development model of ‘heavy industry’ to the CMEA countries, within which the CMEA-6 was able to establish an energy-intensive industry, fed by the relatively cheap and reliable energy supply from the Soviet Union. Until the 1980s, the CMEA-6 enjoyed relatively low prices for energy and other resources, compared to world prices, through the Bucharest price system. Until the energy crisis of 1973, the prices in this system were based on the average world price over the five previous years. The modernisation of the economies of the CMEA-6 countries was largely financed with oil dollars, as a result of which they started to take part in the recycling of oil dollars. In addition, Western banks financed part of the modernisation through loans against the then low interest rate. The export of products to the West (in addition to the exports to the Soviet Union in exchange for the supply of fuel) was to yield hard, foreign currency with which the debts could be paid.

The period after the energy crisis of the 1970s changed the situation. The success of the trade with the West turned sour when the increasing interest rate after 1979 caused the countries to enter a debt crisis. In addition, the nascent mercantilist policy of the European Community (EC), combined with competition from the newly industrialised countries, the new member states of the EC and the Soviet Union, had an adverse effect on the exports of the CMEA-6. As a consequence of the increasing energy prices, the Soviet Union also was no longer able or willing to infinitely subsidise the economies of the CMEA-6 with cheap energy. The price system was revised by shortening the reference period to one year, as a result of which changes to the world price were noticed sooner. Moreover, the consumption of oil in the CMEA-6 was partly replaced by gas. Oil had become too valuable as a result of the oil crisis and had to be reserved for the transport sector and exports to the West (see also Section 5.4). Due to the one-year delay in the Bucharest price system, the CMEA-6 was confronted with relatively high resource prices after the decline of the oil price in the 1980s. Due to a lack of hard foreign currency, the CMEA-6 could not cover its energy needs with imports, and it turned for this to its domestic energy resources. The Soviet Union lost its control over the economies of the CMEA-6 as a result of increasing
domestic production, which caused inefficiencies and weakened the economies. After the introduction of market prices as a result of integration with the West, the CMEA-6 countries had to adjust their energy economies (see Chapter 7).

5.3.2 Gas market developments in Western Europe
As opposed to most CMEA-6 countries, several Western European countries had disposal over large gas reserves at the time the European gas market was introduced, starting with the discovery of the Groningen field (the Netherlands) in 1959. The gas market expanded in the first half of the 1970s due to internal production, regional imports from outside the EC and the fast establishment of an effective distribution industry [CIEP 2004; CIEP 2005]. After the 1973 energy crisis, which resulted in the development of a sellers’ market, Western policy focused on security of supply. This gave gas consumption a new impulse, where gas became an important source in the energy mix because it offered an alternative to oil from the Arabic countries (see also Figure 5.3) [De Jong et al. 2005]. The growth in gas consumption slowed in the beginning of the 1980s due to the recession and energy conservation, as a result of which a buyers’ market developed.

Figure 5.3 Total energy consumption in OECD Europe in 1973 and 1990

<table>
<thead>
<tr>
<th>Energy mix OECD-Europe countries in 1973</th>
<th>Energy mix OECD-Europe countries in 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>(100% = 1402 Mtoe)</td>
<td>(100% = 1625 Mtoe)</td>
</tr>
<tr>
<td>Natural gas</td>
<td>Natural gas</td>
</tr>
<tr>
<td>54%</td>
<td>16%</td>
</tr>
<tr>
<td>Coal</td>
<td>Coal</td>
</tr>
<tr>
<td>30%</td>
<td>27%</td>
</tr>
<tr>
<td>Others*</td>
<td>Others*</td>
</tr>
<tr>
<td>6%</td>
<td>39%</td>
</tr>
</tbody>
</table>

* Nuclear, Hydro, Geothermal, Solar, Combustible Renewables & Waste, Electricity and Heat. In 1973 share of nuclear was 1.4%; in 1990 almost 15 percent.
Source: IEA [2005].

The energy mix developed differently due to nationally-oriented policies. The traditionally industrial countries, West Germany and the UK, remained highly dependent upon their

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122 In addition, the Warsaw Pact lost its influence in Central Europe after Poland and Hungary chose to have democratic elections, thereby initiating the fall of communism, in 1989. However, other members of the Warsaw Pact, including the East Germany under the rule of Honecker, continued to see advantages in retaining the security system.

123 The share of gas in the electricity sector did not grow explosively because the European Commission considered natural gas as ‘noble’.

124 In the second part of the 1980s, the environmental aspect of energy policy became dominant due to the greenhouse issue [De Jong et al. 2005].
domestic coal production, in addition to oil and gas, even though the share of coal declined in favour of nuclear energy and natural gas. The energy mix in Italy and the Netherlands was to a large extent based on gas and oil. France, Belgium and the Scandinavian countries Finland and Sweden built nuclear power plants for their energy needs in the 1970s. In the southern countries of Portugal and Spain, the energy mix was to a high degree determined by oil; in Spain nuclear energy also played a large role [BP 2008].

In an absolute sense, West Germany and the UK developed into the largest gas markets, followed by Italy and the Netherlands (see Figure 5.4). Due to the use of nuclear energy, the French gas market grew relatively less strongly. In the south of Europe, natural gas played a limited role until the 1990s. Total consumption in the Western European countries grew from 21 bcm in 1965 to 255 bcm 1990 (an exponential growth of 10.5 percent per annum).

**Figure 5.4** Gas consumption in Western Europe from 1965 to 1990 (in bcm)

The intention of the EC to come to a joint energy policy, following the common agricultural policy, failed due to the conflicting interests of the member states during the oil crises and the following period [Matláry 1997]. With respect to the institutionalisation, the European gas market was characterised by a buyers’ oligopoly of gas companies, which had full or quasi monopolies in the national wholesale markets. In addition, most countries

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125 Within the framework of the Organisation for Economic Cooperation and Development (OECD), the International Energy Agency (IEA) had the task of coordinating this. However, the EC proved only to be able to implement energy policies that were not very politically sensitive, such as the implementation of daylight savings time in order to save energy [De Jong et al. 2005].
had a long tradition of state ownership of energy companies [Feigenbaum 1985]. In several Western European countries a centralistic policy was conducted with respect to market design, while other countries had a decentralised policy. West Germany, for instance, was regionally organised, with utilities having monopoly positions. The UK was the first country within the EC that followed the US in liberalising the gas market [Matláry 1997]. The process of gas liberalisation and integration of the gas markets in continental Europe was postponed until the 1990s (see also chapters 2 and 7).

**Figure 5.5** Gas supply in Western Europe in 1990 (in bcm)

<table>
<thead>
<tr>
<th>EU-15 suppliers of natural gas in 1990</th>
<th>EU-15 production in 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>100% = 255 bcm</td>
</tr>
<tr>
<td>Russia</td>
<td>EU-15 production</td>
</tr>
<tr>
<td>11%</td>
<td>56%</td>
</tr>
<tr>
<td>Algeria</td>
<td>Others*</td>
</tr>
<tr>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>EU-15 production</td>
<td>100% = 142 bcm</td>
</tr>
<tr>
<td>6%</td>
<td>Others</td>
</tr>
<tr>
<td>Italy</td>
<td>11%</td>
</tr>
<tr>
<td>Norway</td>
<td>22%</td>
</tr>
<tr>
<td>Germany</td>
<td>45%</td>
</tr>
<tr>
<td>UK</td>
<td>31%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45%</td>
</tr>
<tr>
<td>Others*</td>
<td>1%</td>
</tr>
<tr>
<td>EU-15 production</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Main contributors are Ireland, Denmark and Spain.
Source: own analysis, based on BP [2008]; Global Insight [2006].

With respect to gas supply, Western Europe was largely self-sufficient until the 1990s. Fifty-six percent of total gas supply was provided by Western European countries, with the Netherlands and the UK responsible for more than 75 percent of that. Norway supplied an additional 10 percent of the total supply. Outside Western Europe, in 1990 Russia was responsible for 22 percent of total gas supply (see Section 5.4). Algeria exported part of its gas to the Southern European market, in particular to France, Spain and Italy (see also Figure 5.5). LNG from other regions was not competitive with respect to pipeline gas.

Most of the export countries that supplied gas to Europe had a tradition of government control over the energy companies, varying from central-regional to local. Gas supplies were effectuated through long-term contracts, which placed the volume risk with the con-

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126 The UK, Germany and Italy produced mainly for their own markets.
127 In the 1970s, Libya was partly responsible for the gas supply to Italy. This was stopped, however, in the first part of the 1980s due to a political conflict with the Libyan leader Muammar al-Qadafi. Algeria filled the gap [Arentsen and Künneke 2003].
sumer and the price risk with the producer. The involved governments typically provided investment guarantees (see also Chapter 2) [Finon en Midttun 2004].

5.4 Soviet gas strategy in Europe
As was discussed in Section 5.2, the network inside the Soviet Union was gradually shaped under Stalin and later under Khrushchev. In 1946, gas delivery to Poland started through the Soviet Republic of Belarus, near Bialystok [Maarse 1976]. Until 1968, exports were limited to 0.3-0.4 bcm/y. At the end of the 1960s, the Soviet Union expanded its gas exports to the CMEA-6 and Western Europe. The first large Soviet gas corridor to Europe, 'Brotherhood' (Bratstvo), fed by the Shebelinka gas field east of Kiev, was deployed in 1967 and reached all the way to Prague, with links to the Polish and Austrian gas markets [Victor and Victor 2006]. In 1968, Czechoslovakia purchased Soviet gas for the first time (1.3 bcm). Poland increased its imports to 1 bcm/y, and Austria took 0.1 bcm/y (increased to 1.5 bcm/y in 1972), being the first capitalist country to do so [Stern 1987]. Total Soviet gas exports amounted to 3.1 bcm in 1970. However, the Soviet Union was a net importer due to imports from Iran and Afghanistan (see also Section 5.2).

In the 1970s, the Soviet Union started spreading its exports to other political-geographic 'partners' in the West. Through the so-called Transgas pipeline network, the 'warm' gas fields of western Siberia were linked with consumer markets. From 1974 on, the Trans Austria Gasleitung (TAG) I/II pipelines coupled this network to the gas markets in Czechoslovakia, Austria and Italy [Victor and Victor 2006]. The Italian gas company Società Nazionale Metanodotti (SNAM) was involved with a gas contract of 6.0 bcm/y [Stern 1987]. The Mittel- Europäische-Gasleitung (MEGAL) pipeline through Germany to France was also linked to the Transgas corridor, as a result of which (extra) capacity became available for Austria in 1974, in 1976 for West and East Germany, and in 1978 for France [Victor and Victor 2006]. Moreover, in 1974 the Soviet Union started with gas deliveries (1.4 bcm/y) to Neste, Finland, via a pipeline from Leningrad to Turku and Tampere in Finland [Stern 1980]. A year later the gas fields in Orenburg were linked to the gas markets of Bulgaria, Hungary and Romania through the Soyuz pipeline [Victor and Victor 2006].

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128 The prices of Soviet gas were higher than those of the gas fields in the North Sea and the Groningen field in the Netherlands. Converted to UK currency, Austria 4.33 pence per mcm for Soviet gas. Commonly, British gas from the North Sea yielded 2.87 pence and Groningen gas an equivalent of 3.11-3.48 pence [Maarse 1976].

129 From 1966 on, there was mention of developing the gas fields under Sachalin Island, in principle together with the Japanese. It would be brought to market by means of LNG (initially, delivery per pipeline was also considered). Two other concrete LNG projects were on the table. The first one was an LNG project, intended for the Japanese and US markets, which would be linked to the developments of the fields in Yakutia in Eastern Siberia. Secondly, an LNG project in Murmansk was being considered, intended for the US gas market and fed with the production of the Uren-goy field. The projects never materialised due to political and commercial obstacles [Kosnik 1975; Stern 1999].
After the oil crisis, the Soviet strategy of only supplying political-geographic ‘partners’ in the West with gas was changed. The atmosphere of détente offered conditions for making additional gas deliveries possible, within which shared interests in the gas infrastructure helped bring together the two ‘blocks’. Through increased gas exports to the West, the Soviet Union was able to increase its hard currency revenues and realise additional gas deliveries to the CMEA-6 in order to partly replace oil consumption [Victor and Victor 2006; Stern 1987]. In addition, the Soviet Union needed Western technologies and financing for the long-distance pipelines, the compressors and for the development of the western Siberian gas fields under permafrost [Gustafson 1985]. After the oil crisis, Western Europe became more interested in gas because of the desire to diversify its fuel sources, in particular to reduce the dependence on oil from Arab countries. Moreover, in the West, which was experiencing an economic crisis at the time, the supply of technologies and materials contributed to more employment opportunities [Victor and Victor 2006; Stein 1983].

The CMEA-6 increased its imports from the Soviet Union in the second half of the 1970s by 15 bcm/y. In addition, Yugoslavia began to consume Soviet gas (see Figure 5.6). In Western Europe, gas delivery to France started (for a total of 4 bcm/y) in 1976/78 through the above-mentioned MEGAL pipeline. Starting in 1978, West Germany, Austria and Italy increased their imports from the Soviet Union, respectively with 2.5 bcm/y, 1.0 bcm/y and 1.0 bcm/y [Stern 1987]. In 1980, total Soviet gas exports amounted to 49.2
BCM, of which 55 percent was imported by the CMEA-6 and 45 percent by Western Europe (see also Figure 5.6).

However, the Soviet invasion of Afghanistan in 1979 and Reagan’s power politics from 1981 onwards caused a revival of the Cold War. This negatively affected Western consensus about the new oil and gas exports from the Soviet Union and led to a number of US sanctions.\[130\] For the US, the Soviet gas deliveries to Western Europe provided a first opportunity to stop part of the Soviet hard currency revenues, thus accelerating the collapse of the system [Victor and Victor 2006; Stein 1983]. Despite the resistance, negotiations for additional gas deliveries (40 BCM/y was being discussed) were commenced between Soyuzgasexport and West European companies, initially with Ruhrgas in West Germany [Gustafson 1985]. In the so-called ‘gas for pipe’ agreements, new gas projects were facilitated which included export contracts for the materials that could be used by the Soviet Union for realising the gas infrastructure.\[131\] Moreover, the infrastructure was largely financed by Western banks, supported by government guarantees or concessional loans. In addition to providing government guarantees, the Western governments were needed for political support.

American resistance eventually led to the delay of the construction of the East-West gas corridor and that the goal became to achieve a limited growth of gas imports for the sake of security of supply [Stern 1987; Victor and Victor 2006].\[132\] The end result in 1984 was a capacity expansion of 30 BCM/y to Western Europe, with Ruhrgas, Gaz de France, SNAM and the Austrian Österreichische Mineralölverwaltung (OMV) engaging in new contracts with Soyuzgasexport, respectively for 10.5 BCM/y, 8.0 BCM/y, 5.0 BCM/y and 1.5 BCM/y [Stern 1987].\[133\] As a result, the Ukrainian Soviet Republic and Czechoslovakia developed into hubs for the gas flows from the Soviet Union to Europe (see also Map 8.2).\[134\]

\[130\] By means of the sanction of December 1981, the US prohibited their corporations, such as General Electric, from supplying the Soviet Union with materials which could be used for gas production and compressors. This prohibition was later extended to Western Europe [Gustafson 1985; Victor and Victor 2006; Stein 1983].

\[131\] The expansion of the capacity from Moscow to the CMEA-6 and Western Europe was realised through additional compressors and gas pipelines. In addition, the gas infrastructure between the western Siberian fields in the permafrost regions and the gas network around Moscow needed to be expanded and extended. The increased Soviet trade outside the sphere of influence of the Soviet Union created tension between both internal and external policies and between commercial and diplomatic policies. See also: Gustafson [1985].

\[132\] The market share of the Soviet Union – and other countries outside the EC – should not be larger than 30-35 percent in order to prevent too high of a dependence on a single country.

\[133\] The Soviet Union also expanded its contract with Finland with 1.1 BCM/y. In 1988, the contract with the Swiss Swissgas, which was signed in 1982, also started (0.56 BCM/y) [Stern 1987].

\[134\] This was a choice against the shortest route to West Germany, which would have been through Belarus, Poland and East Germany. In addition to the fact that the existing network of pipelines and storages could be used, there were other economic and political factors. From the point of view of the Soviet Union, transit through Poland was politically risky. In Poland, the Solidarity movement was causing instability. The thwarting of the new gas programme by the US might have been much more effective if a choice had been made for transit through an instable Poland, which was on a progressive course. Moreover, from the West German perspective, a pipeline through East Germany was
In the 1980s, the growth opportunities for Soviet gas export diminished as a result of increasing competition, especially from gas production in the North Sea, and the development of a buyers’ market in the 1980s. The Soviet Union tried to adjust its strategy with respect to three aspects [Stern 1987]:

- the Soviet Union entered into new long-term contracts with new countries and their state companies. In 1986, a contract with the Turkish state energy company Botas was closed for 3.3 bcm/y;\(^\text{135}\)
- the Soviet Union investigated the opportunities for selling gas outside long-term contracts through the spot and short-term markets. However, due to the postponed European gas liberalisation this did not (yet) happened; and
- the Soviet Union tried to increase the reliability of their gas supplies (in particular during winter periods) through additional investments in production and midstream facilities.

Altogether, the Soviet gas deliveries to Europe increased to almost 100 bcm in 1990, of which the CMEA-6 (including former Yugoslavia) and Western Europe (including Turkey) both were responsible for about half of the exports. At that moment in Central and Eastern Europe, Czechoslovakia was the largest buyer of Soviet gas (11.3 bcm), followed by Poland (7.6 bcm) and Romania (6.6 bcm). In Western Europe, Germany took off most Soviet gas (23.9 bcm) in 1990, followed by Italy (12.9 bcm) and France (9.5 bcm). The Soviet share in the total EU-27 consumption rose from the 1980s to over 20 percent and in 1990 to 31 percent (see Figure 5.6). The percentages vary strongly by country, as the CMEA-6 countries were relatively dependent upon the Soviet Union for their gas supply, while in Western Europe Finland, Austria and Germany were most dependent upon the Soviet Union for their gas consumption (see also Chapter 10).

5.5 Conclusion

Gazprom’s strategy for the 21st century is partly the result of past choices, which to some extent determine the path-dependency of its current strategy making. During the Soviet period, Khrushchev brought gas to the fore of the energy mix in order to modernise the Soviet economy, whereas under Stalin gas was only used at a regional level. Because of this, the gas network and gas fields in Soviet states in Central Asia, the Caucasus region and the Ukraine were included in the European part of the Soviet Union. Under Brezhnev the gas production in western Siberia was started, as were exports to the CMEA-6 and a number of Western European countries. Gorbachev introduced reforms which, among other unacceptable. In the gas programme, contracts were also signed with Italy and Austria, among others, as a result of which transit through the Ukraine was cheaper. However, this problem was not decisive for connecting the pipeline to the Ukraine. (After all, an extra branch line would have been sufficient.) [Victor and Victor 2006].

\(^\text{135}\) Negotiations with other countries were very slow or even removed from the agenda. Greece began as early as 1985 with negotiations. However, the first gas supplies were delivered only in 1996. Negotiations about gas exports to the Scandinavian countries, with the exception of Finland, kept disappearing from the agenda [Stern 1987].
things, placed the Russian gas interests under the control of the national gas company Gazprom.

The CMEA-6 had the same economic model as that of the Soviet Union, in which the state was responsible for the planning of the gas sector. Up until after the energy crises of the 1970s, countries in Central and Eastern Europe could be ‘subsidised’ with cheap energy and other natural resources due to the delaying effect of the price system. Starting in the 1980s the Soviet Union was no longer able or willing to continue subsidising the economies of the CMEA-6 with cheap energy. The economies of the centrally planned states weakened as a result of, among other things, the lack of price incentives and the debt crisis that followed the oil dollar recycling. In contrast to the CMEA-6, the West had a greater capacity to restructure its economy due to the presence of a direct price signal.

The Western European gas market was nationally organised until the liberalisation of the energy market at the end of the 1990s. The national gas market was (regionally) monopolised and the energy policy started to become determined by market circumstances. Gas took on an important position in the energy mix, partly due to diversification policies after the energy crises in the 1970s, even though the gas share varied widely per country. Through oil-indexed long-term contracts, Western Europe was dependent to a large degree on a number of large export producers for its gas supply, particularly from the Soviet Union, the Netherlands, Norway and Algeria. A number of countries, including the UK and the Netherlands, were largely able to provide for their own gas needs.

The Soviet Union began its exports to Europe with Poland in 1946. Up until the 1970s the exports were expanded only marginally to include small volumes to other countries within the CMEA-6 in order to free up the oil export to the CMEA-6 for export to the West. Austria was the first in Western Europe to receive Soviet natural gas, in 1968. In the second phase, Soviet exports were expanded within the CMEA-6 and Western Europe. In the third phase, the gas supplies to these two regions were substantially increased via the so-called ‘gas for pipe’ agreements, despite delays due to American resistance. In the second half of the 1980s consumption in both regions was disappointing as a result of the economic recession and the development of a buyers’ market in Western Europe. Due to the fact that a relatively small number of organisations and countries were involved with the financing and organisation, the realisation of the large gas projects was relatively simple.

The Soviet Union tried to increase its income of hard currency by selling gas to Western Europe. With these extra revenues it was able to finance gas delivery to the CMEA-6, whereby the economies of the CMEA-6 were modernised and the dependence on oil was reduced. Furthermore, Western technology was crucial for the development of the gas fields in West Siberian permafrost areas and for long-distance transport. Western banks largely provided loans, and governments gave guarantees and political support. After the
oil crisis, Western Europe was more interested in gas imports from Russia because of the drive for diversification of oil and extra employment opportunities. Soviet investments in the gas industry, including the exports to Europe, were part of a centrally-planned economy and were coupled with neither a ‘netback value’ nor a certain required rate of return. Thus the development of the Soviet gas industry was based primarily on a centrally-planned vision.