



**Economic and Social  
Council**

Distr.  
GENERAL

ENERGY/WP.3/2000/3  
8 December 1999

ORIGINAL : ENGLISH

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ECONOMIC COMMISSION FOR EUROPE

COMMITTEE ON SUSTAINABLE ENERGY

Working Party on Gas

Tenth session, 26-28 January 2000

Item 5(a) of the provisional agenda

**ENERGY AND GAS SITUATION IN THE ECE REGION IN 1998**

Highlights

Note by the secretariat

**MACROECONOMIC AND ENERGY DEVELOPMENTS IN 1998**

**A. The macroeconomic situation 1/**

1. The worsening of economic conditions in countries in transition clouded economic development in the ECE region in 1998.

2. According to the ECE Economic Survey of Europe in 1999, the rate of gross domestic product (GDP) growth in North America was 3.9%, compared with increases of 3.9% in 1997 and 3.4% in 1996. The 1998 increase, as in 1997, in GDP was the largest annual increase since 1988. A combination of strong gross fixed investments and real household expenditures, fuelled by buoyant stock

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1/ Excerpted from "The economic situation in the ECE region in mid-1999": Economic Survey of Europe, 1999, No.2, New York and Geneva, 1999.

markets, seems to be responsible for the robust economic growth in North America.

3. In western Europe, the average annual rate of economic growth was 2.6% in 1998 compared with 2.7% in 1997. As in the past, the four big countries (France, Germany, Italy and United Kingdom) grew somewhat slower than the remaining small European economies. Economic activity was underpinned by export growth and growth in domestic demand, in particular by the relatively high level of the business fixed investments. The cyclical slowdown in the second half of 1998 reflected in the main the weakening of industrial activity in response to falling export demand.

4. At the same time, economic growth in central and eastern Europe generally weakened in 1998 (1.5%) in comparison to 1997 (2.3%) and 1996 (3.8%). In the CIS countries, GDP was estimated to have fallen by 2.8% in 1998 mainly because of the bad performance of the Russian Federation and Ukraine. Except for the Republic of Moldova and Kyrgyzstan, other CIS countries exhibited positive growth rates. In the Baltic States, there was a deterioration in economic performance in 1998 with estimated GDP up by 4.4% compared with 8.4% in 1997 and 4.1% in 1996. It has been estimated that considerable additional efforts are required to overcome the general fragility of most of the transition economies.

#### **B. Energy situation 2/**

5. In the framework of the weakening of the growth of GDP in almost the whole region, gross energy consumption increased slightly from 5044 Mtoe in 1997 to 5051 Mtoe in 1998. Consumption of solid fuel was the only one to decrease (1.9%), while consumption of the other fuels climbed: natural gas (1.3%), crude oil (0.3%) and nuclear (0.4%).

6. In North America, gross energy consumption remained almost unchanged in 1998 while in western Europe it grew 1.1% compared with 1997. In central and eastern Europe and in the Commonwealth of Independent States, taken together, energy consumption declined 0.5%.

#### **NATURAL GAS CONSUMPTION IN 1998**

7. As noted in the same document for 1997 (ENERGY/WP.3/1999/3), the framework for the development of natural gas consumption is given by the general economic structure and trends, patterns of energy consumption and competitiveness, lifestyle, climate, relative resource availability, economic

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2/ Data used hereafter are from BP Amoco Statistical Review of World Energy (1999).

and energy policies and various other factors. The framework is in general stable and considerable time is required if related substantial changes are going to appear. One of the things that will not change for the foreseeable future is the clear regional character of the natural gas industries with North America, Europe and Asia-Pacific as three separate markets. Although, in general, they share some common features, such as inter-fuel competition and a relatively strong link to crude oil developments, each regional market operates in a specific and different way with important consequences for natural gas regulations and prevailing patterns of pricing and rate-making. However, the increasing role of LNG trade in the world total natural gas trade means that the fuel is transported over increasing distances which might modestly contribute to the "harmonization" of market conditions in those three still separate regions.

8. Despite the impact of the economic crisis in selected countries, the share of natural gas in the structure of energy consumption in the ECE region increased by 0.3 percentage points. The energy consumption structure changed only slightly in 1998, compared with 1997, to the benefit of natural gas (0.3 percentage points) and liquid fuels (0.7 percentage points). At the same time, crude oil was still the dominant energy fuel in the region, capturing 37.2% of the total energy market (compared with 37.1% in 1997), followed by natural gas (29.2%) and coal (21.3%). The respective shares of crude oil and natural gas varied considerably among the main ECE sub-regions, with North America and western Europe having a more than average market of oil and the Russian Federation and CIS of natural gas. With regard to energy production in the ECE region, natural gas continued to be a clear leader, followed by crude oil and coal.

9. World natural gas reserves stood at 146.39 trillion cubic metres at the end of 1998, representing an increase of 1.1% over 1997. Proved reserves in the ECE region reached 68.45 trillion cubic metres or 46.8% of the world's total. In the same year, the reserve-to-production ratio for the world was 63.4, with significant differences for some major groups of countries constituting the ECE region: North America 11.4 (United States 8.8), Europe as a whole 18.3, and the Former Soviet Union 83.4.

10. After a small drop in 1997, natural gas consumption in the world increased by 1.3% reaching 2240.5 billion cubic metres (bcm) in 1998, up from 2211.2 bcm in 1997. At the same time, the ECE region consumed 1638 bcm of natural gas, an increase of 1.0% compared to 1997. The region continues to reduce its share in world natural gas consumption from 75.4% in 1996 and 73.6% in 1997 to 73.1 in 1998, to some extent due to relatively unfavourable developments in economies in transition. Both eastern and western Europe recorded growth last year. On the other hand, gas consumption in North America fell relatively sharply when compared with 1997 : 3.4%. After the

first recorded increase in the consumption in 1996 in the last seven years or so, the other CIS countries again increased consumption in 1998. In total, gas consumption in the CIS increased from 518 to 529 bcm in 1998.

11. Natural gas production in the ECE region was 1.3% higher in 1998 than in 1997 (approximately 1,624 bcm), and it was above the region's consumption by 0.3 percentage points. North America recorded zero growth in production. At the same time, gas production in countries of the Former Soviet Union increased by 2.6% when compared with 1997.

12. As before, despite selected changes in the sectoral use of natural gas in 1998 in the ECE region, the domestic sector clearly dominated in North America and western Europe, with industry and power plants taking most of the fuel in CIS and eastern and central Europe. It is evident that significant structural changes are not possible in the gas industry in the short and even medium-term. It is usually a long-term process which goes beyond year-to-year market considerations. The year 1998 was no exception.

13. As opposed to developments in 1997 when the total worldwide trade of natural gas increased modestly by 1.5%, in 1998 it jumped by 3.6% reaching 446.2 bcm, which is approximately 19.6% of the world's marketed production. Trade of LNG reached 25.3% of the world total gas trade in 1998, compared with 25.7% in 1997, while the share of pipeline trade increased from 74.3% to 74.7%. The world largest importers continue to be the United States (91.0 bcm), Germany (73.6 bcm) and Japan (66.1 bcm) while the CIS (122.1 bcm), Canada (87.3 bcm), Norway (42.6 bcm) and the Netherlands (36.4 bcm) are the leading exporters.

14. It has been estimated that gas prices decreased considerably all across the ECE region. The decrease, however, was not uniform in North America and in Europe. Henry Hub prices in the United States declined 18% to \$2.08 per mmBtu. At the same time, in 1998 border prices in western Europe (EU cif) fell less - only 14%, to \$2.27 per mmBtu. Europe continues to be a fairly heterogenous region with regard to gas price movements: natural gas prices in the United Kingdom fell only 5% to \$1.92 per mmBtu.

**ANNEX****FIGURES AND TABLES**

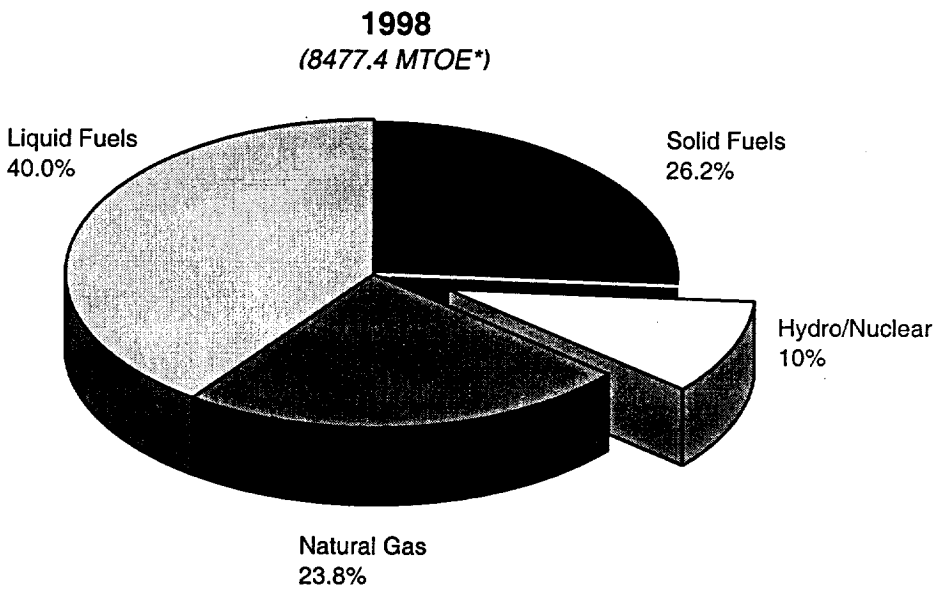
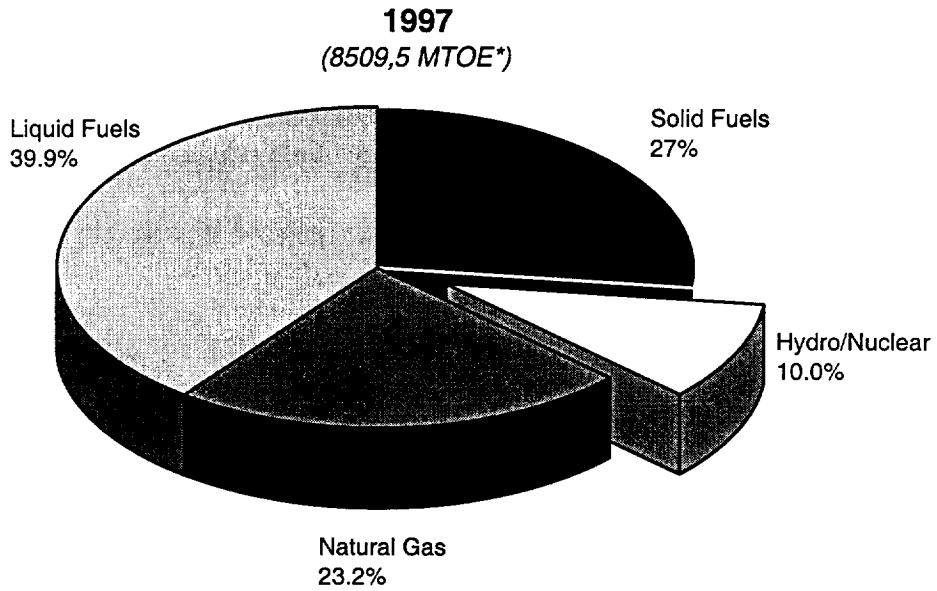
- Figure 1: World primary energy consumption in 1997 and 1998
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**DEFINITIONS AND EXPLANATIONS**

The definitions and explanatory notes to the tables are described in the sources publications.

Sources: The secretariat relied primarily on non-ECE sources of information for the preparation of the above tables, so as to provide a global framework on a regional basis for comparable data on long-term trends and recent developments.

Figure 1  
**World Primary Energy Consumption in**



\* Millions tons of oil equivalent

Source: Statistical Review of World Energy, 1998 and 1999.

Figure 2  
**Primary Energy Consumption in the ECE region in**

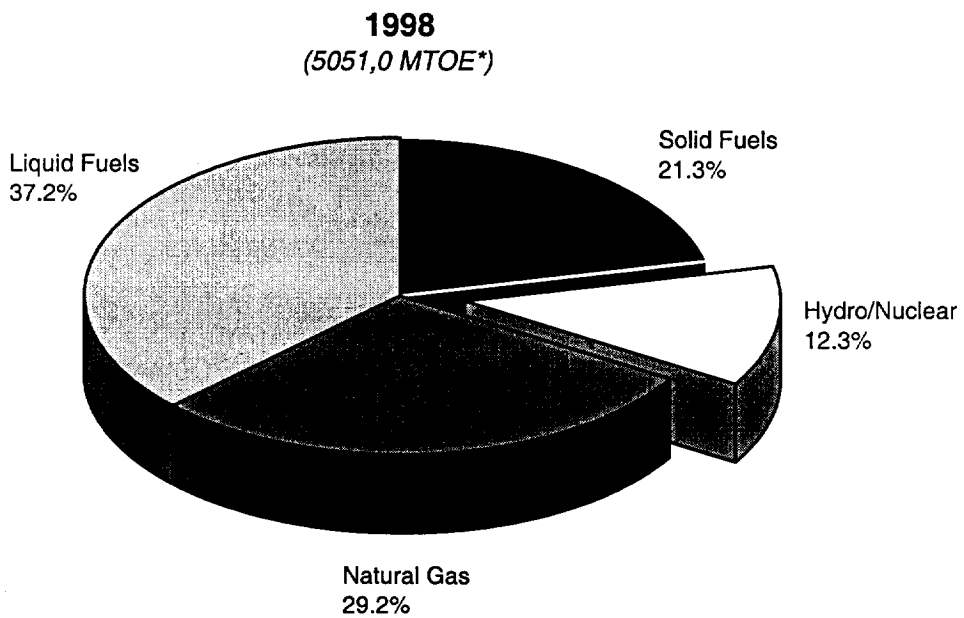
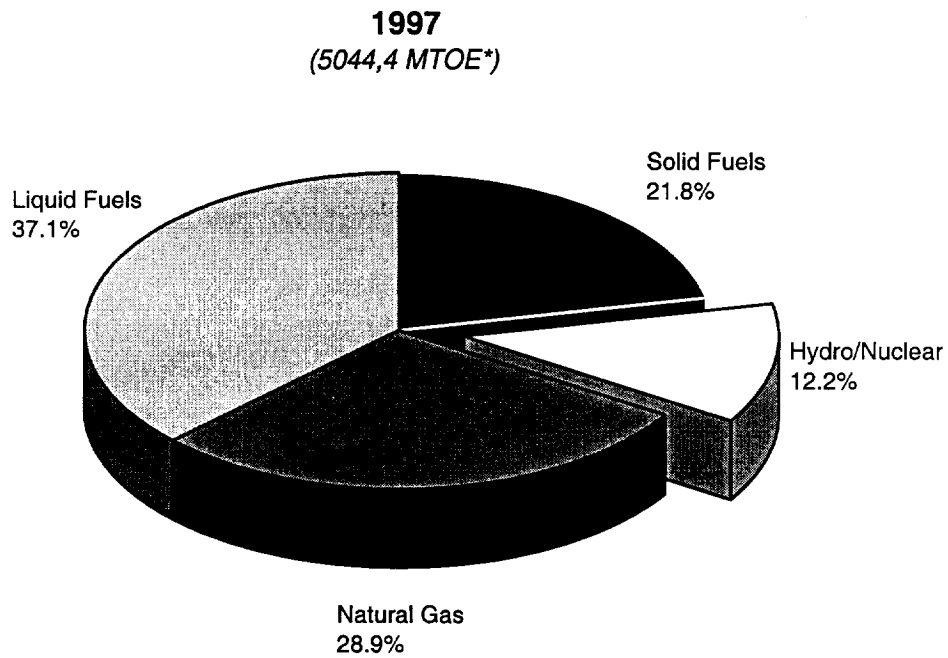


Table 1

**WORLD PRIMARY ENERGY CONSUMPTION BY REGIONS**

( million tons of oil equivalent )

	NATURAL GAS			LIQUID FUELS			SOLID FUELS			HYDRO/NUCLEAR			TOTAL PRIMARY ENERGY CONSUMPTION			NATURAL GAS SHARE IN %								
	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998				
Western Europe	281.2	318.1	314.8	334.4	659.1	683.5	678.3	678.1	254.4	258.2	235.8	234.3	257.0	270.4	272.0	271.3	1 451.7	1 530.3	1 500.9	1 518.1	19.4	20.8	21.0	22.0
Eastern Europe	528.0	531.9	504.0	526.2	281.2	253.0	267.2	265.9	320.3	302.8	307.3	282.7	86.7	89.6	93.5	91.6	1 216.2	1 177.3	1 172.0	1 166.4	43.4	45.2	43.0	45.1
North America	626.3	635.6	636.7	614.5	886.8	912.5	928.6	935.6	519.1	539.1	554.4	559.6	262.4	266.3	251.8	256.8	2 294.6	2 353.5	2 371.5	2 366.5	27.3	27.0	26.8	26.0
<b>EC&amp;E REGION</b>	<b>1 435.5</b>	<b>1 485.6</b>	<b>1 455.5</b>	<b>1 475.1</b>	<b>1 827.1</b>	<b>1 849.1</b>	<b>1 874.1</b>	<b>1 879.6</b>	<b>1 043.8</b>	<b>1 100.1</b>	<b>1 097.5</b>	<b>1 076.6</b>	<b>806.1</b>	<b>828.3</b>	<b>817.3</b>	<b>819.7</b>	<b>3 962.5</b>	<b>3 661.3</b>	<b>3 644.4</b>	<b>3 651.0</b>	<b>28.9</b>	<b>29.4</b>	<b>28.9</b>	<b>29.2</b>
Mexico & Latin America	98.2	103.6	107.4	109.9	265.4	277.5	291.9	298.6	22.5	23.5	25.1	24.6	46.9	48.4	51.9	52.6	432.8	453.0	476.3	485.7	22.7	22.9	22.5	22.6
MIDDLE EAST	118.4	128.3	142.8	154.6	186.5	190.5	201.7	204.2	5.6	6.3	7.0	6.8	1.2	1.1	1.2	1.0	311.7	326.2	352.7	368.6	38.0	39.3	40.5	42.2
AFRICA	37.9	43.1	45.8	43.8	102.7	110.3	111.6	112.0	87.8	89.7	91.6	95.9	9.4	9.4	9.8	10.3	237.6	252.5	258.8	262.0	16.0	17.1	17.7	16.7
ASIA & AUSTRALASIA	193.6	211.0	225.8	233.0	845.2	885.4	915.2	894.6	1 001.0	1 037.4	1 071.5	1 015.5	151.3	154.2	163.1	169.4	2 190.8	2 288.0	2 376.6	2 312.5	8.8	9.2	9.5	10.1
<b>WORLD</b>	<b>3 833.8</b>	<b>4 071.0</b>	<b>4 077.3</b>	<b>4 058.4</b>	<b>5 228.9</b>	<b>5 312.0</b>	<b>5 395.5</b>	<b>5 368.0</b>	<b>2 210.7</b>	<b>2 257.0</b>	<b>2 292.7</b>	<b>2 219.4</b>	<b>814.9</b>	<b>838.4</b>	<b>843.3</b>	<b>853.0</b>	<b>9 138.1</b>	<b>8 368.8</b>	<b>8 508.8</b>	<b>8 477.8</b>	<b>23.2</b>	<b>23.6</b>	<b>23.2</b>	<b>23.8</b>

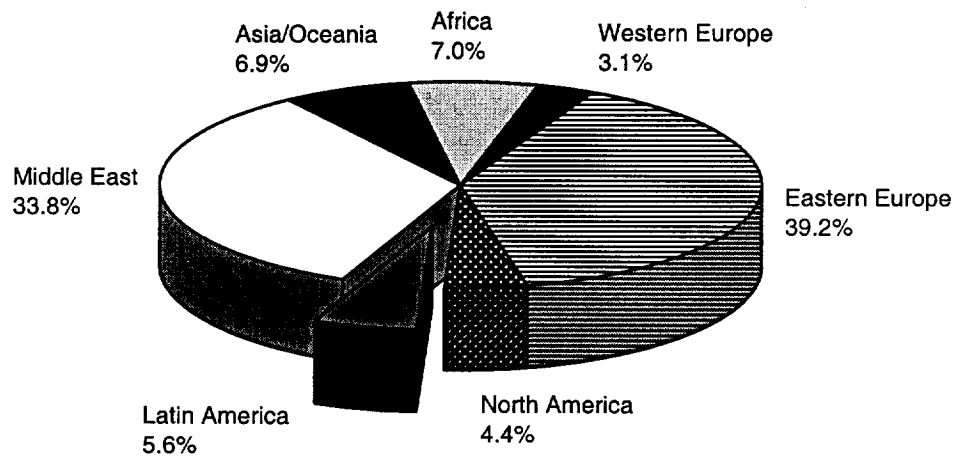
Source: BP Amoco Statistical Review of World Energy 1999

Note: PRIMARY ENERGY : commercially traded fuels only, excluding such fuels as wood, peat and animal waste.



Figure 3  
**World Proved Natural Gas Reserves**

1 January 1999



**Total ECE Region 46,7 %**

**Table 2**  
**WORLD NATURAL GAS PROVED RESERVES, MARKETED PRODUCTION AND CONSUMPTION**  
 ( billion cubic metres )

	PROVED RESERVES		MARKETED PRODUCTION		CONSUMPTION	
	1998	1999	1987	1998	1987	1998
<b>WESTERN EUROPE</b>	<b>4 883</b>	<b>4 573</b>	<b>255</b>	<b>254</b>	<b>357</b>	<b>374</b>
Austria	22	22	1	1	7	8
Belgium	0	0	0	0	13	14
Denmark	110	110	8	8	4	5
Finland	0	0	0	0	3	4
France	19	19	3	3	35	38
Germany	340	350	17	17	79	80
Greece	8	8	0	0	0	0
Ireland	11	11	2	2	3	3
Italy	300	230	20	19	54	57
Luxembourg	0	0	0	0	0	0
Netherlands	1 740	1 790	67	64	39	39
Norway	1 480	1 170	47	48	0	4
Spain	17	17	1	1	12	13
Sweden	0	0	0	0	1	1
Switzerland	0	0	0	0	3	3
United Kingdom	760	770	87	90	86	89
Ex-Yugoslavia	67	67	2	2	7	6
Turkey	9	9	0	0	11	10
<b>EASTERN EUROPE</b>	<b>57 374</b>	<b>57 344</b>	<b>646</b>	<b>666</b>	<b>554</b>	<b>584</b>
Albania	2	2	0	0	0	0
Bulgaria	4	4	0	0	4	3
Ex-Czechoslovakia	19	19	0	0	13	13
Ex-USSR	56 710	56 710	623	644	493	529
Hungary	90	90	4	3	11	11
Poland	149	149	4	4	11	10
Romania	400	370	14	14	22	18
<b>NORTH AMERICA</b>	<b>6 550</b>	<b>6 550</b>	<b>702</b>	<b>704</b>	<b>707</b>	<b>682</b>
Canada	1 840	1 810	157	160	75	70
USA	4 710	4 740	545	544	632	612
<b>ECE REGION</b>	<b>68 807</b>	<b>68 467</b>	<b>1 603</b>	<b>1 624</b>	<b>1 618</b>	<b>1 640</b>
<b>LATIN AMERICA</b>	<b>8 100</b>	<b>8 010</b>	<b>121</b>	<b>122</b>	<b>119</b>	<b>122</b>
<b>MIDDLE EAST</b>	<b>48 880</b>	<b>49 530</b>	<b>167</b>	<b>181</b>	<b>159</b>	<b>172</b>
<b>AFRICA</b>	<b>9 870</b>	<b>10 220</b>	<b>94</b>	<b>101</b>	<b>51</b>	<b>49</b>
<b>ASIA / OCEANIA</b>	<b>9 080</b>	<b>10 170</b>	<b>240</b>	<b>246</b>	<b>251</b>	<b>259</b>
<b>WORLD</b>	<b>144 737</b>	<b>146 397</b>	<b>2 224</b>	<b>2 274</b>	<b>2 198</b>	<b>2 242</b>

Source: See Table 1.

Note: PROVED RESERVES: 01-01-98:1998; 01-01-1999:1999

TABLE 2 (a)

WORLD NATURAL GAS PROVED RESERVES,  
MARKETED PRODUCTION AND CONSUMPTION

(percentage share of world total)

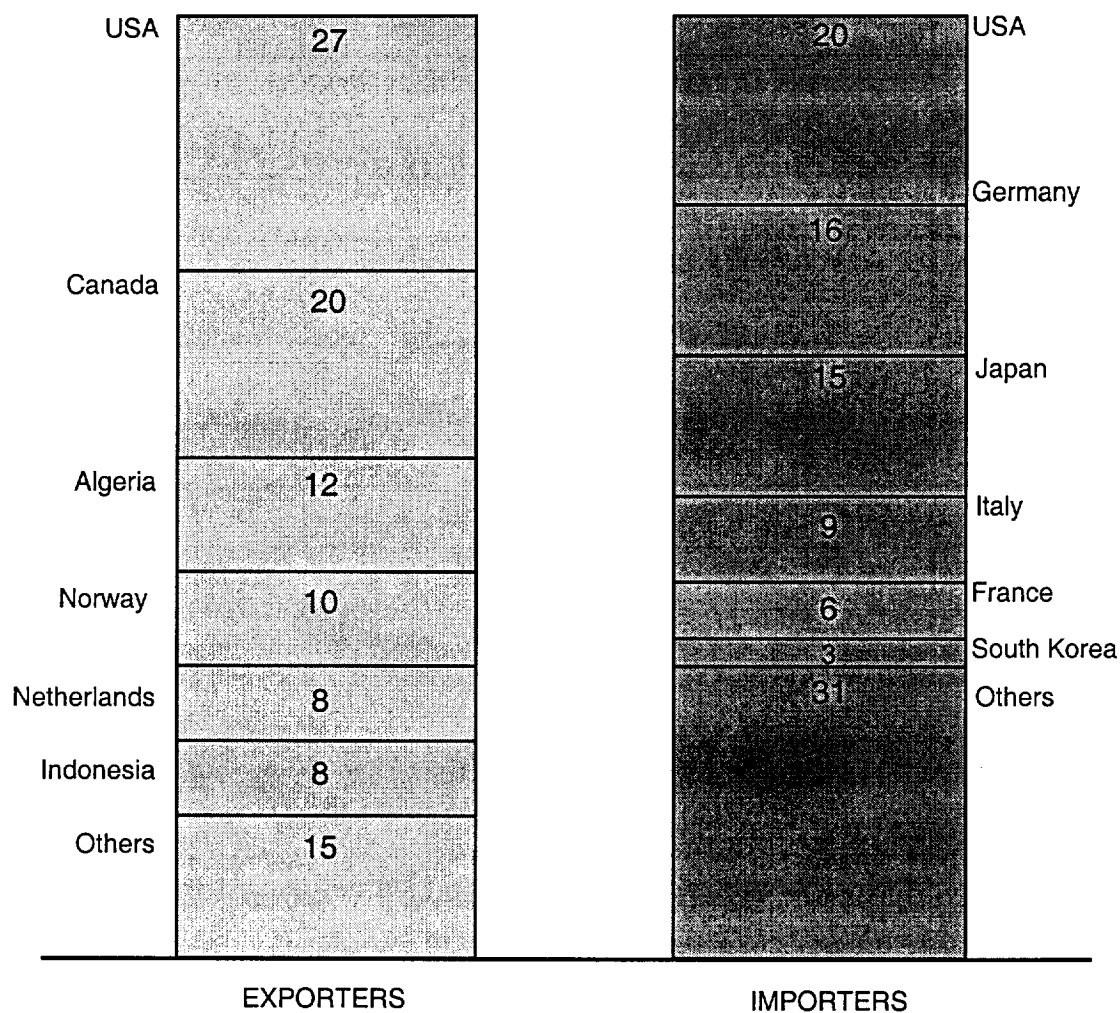
	PROVED RESERVES		MARKETED PRODUCTION		CONSUMPTION	
	01.01.97	01.01.98	01.01.97	01.01.98	01.01.97	01.01.98
WESTERN EUROPE	3.4	3.1	11.5	11.2	16.2	16.7
EASTERN EUROPE	39.6	39.2	29.0	29.3	25.2	26.1
NORTH AMERICA	4.5	4.5	31.6	31.0	32.2	30.4
ECE REGION	47.5	46.8	72.0	71.4	73.6	73.1
LATIN AMERICA	5.6	5.5	5.4	5.3	5.4	5.4
MIDDLE EAST	33.8	33.8	7.5	8.0	7.2	7.7
AFRICA	6.8	7.0	4.2	4.5	2.3	2.2
ASIA / OCEANIA	6.3	6.9	10.8	10.8	11.4	11.6
WORLD	100.0	100.0	100.0	100.0	100.0	100.0

Source: See Table 1

Note: PROVED RESERVES: 01.01.98 : 1998; 01.01.99 : 1999

Figure 4  
**World Natural Gas Trade in 1998**  
 (Percentages)

$446.2 \times 10^9 m^3$   
 Pipeline: 74.7%  
 LNG: 25.3%



Source: See Table 1.

Table 3

WORLD NATURAL TRADE IN 1997/ 1998 BY REGIONS  
( billion cubic metres )

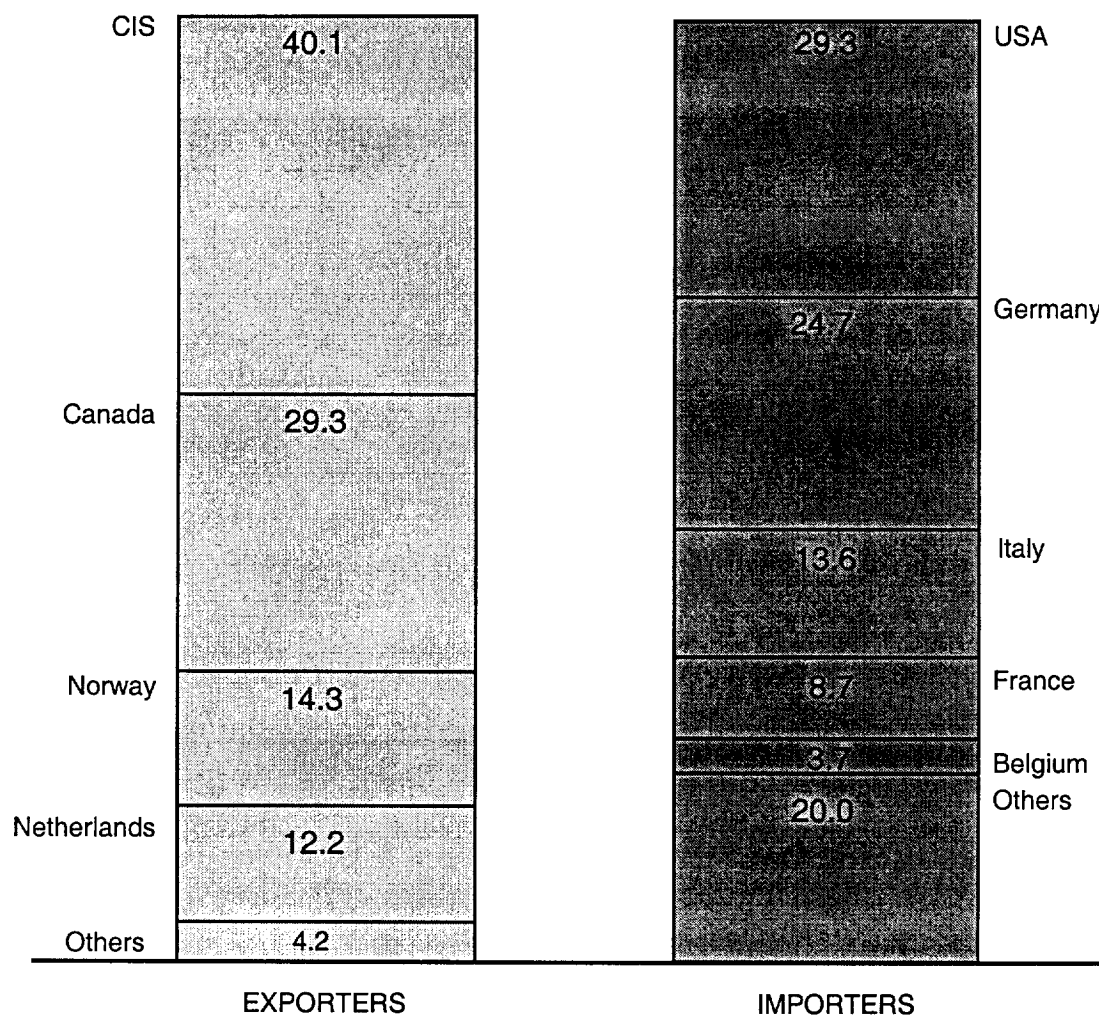
Exporters :	WESTERN EUROPE		EASTERN EUROPE		NORTH AMERICA		ECE REGION		LATIN AMERICA		MIDDLE EAST		ASIA / OCEANIA		AFRICA		TOTAL	
	Importers :	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
WESTERN EUROPE	89.10	85.60	69.30	78.20	0.00	0.00	158.40	163.80	0.00	0.00	1.40	1.90	0.00	0.00	46.00	50.10	205.80	215.80
EASTERN EUROPE	1.10	1.80	47.50	42.10	0.00	0.00	48.60	43.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	48.60	44.30
NORTH AMERICA	0.00	0.00	0.00	0.00	84.60	90.00	84.60	90.00	0.40	0.50	0.10	0.10	0.20	0.30	1.60	2.00	87.00	92.80
ECE REGION	90.20	87.40	116.80	120.30	84.60	90.00	291.60	297.70	0.40	0.50	1.50	2.00	0.20	0.30	47.60	52.50	341.40	352.90
LATIN AMERICA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	3.60	0.00	0.00	0.00	0.00	0.00	0.00	2.30	3.60
ASIA / OCEANIA	0.00	0.00	0.00	1.80	1.70	1.80	1.70	3.60	0.00	0.00	8.90	10.00	75.00	74.80	0.00	0.00	85.60	88.40
MIDDLE EAST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.00	0.50	0.50
AFRICA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.80	0.90	0.80
TOTAL	90.20	87.40	116.80	122.10	86.30	91.80	293.30	301.30	2.70	4.10	10.90	12.50	75.30	75.00	48.50	53.30	430.70	446.20

Source : BP Amoco- 1998 and 1999 Surveys

NATURAL GAS TRADE: Estimated international gas trade by pipeline and LNG tanker.

Figure 4a  
**Gas Trade in 1998**  
**ECE Region**  
*(Percentages)*

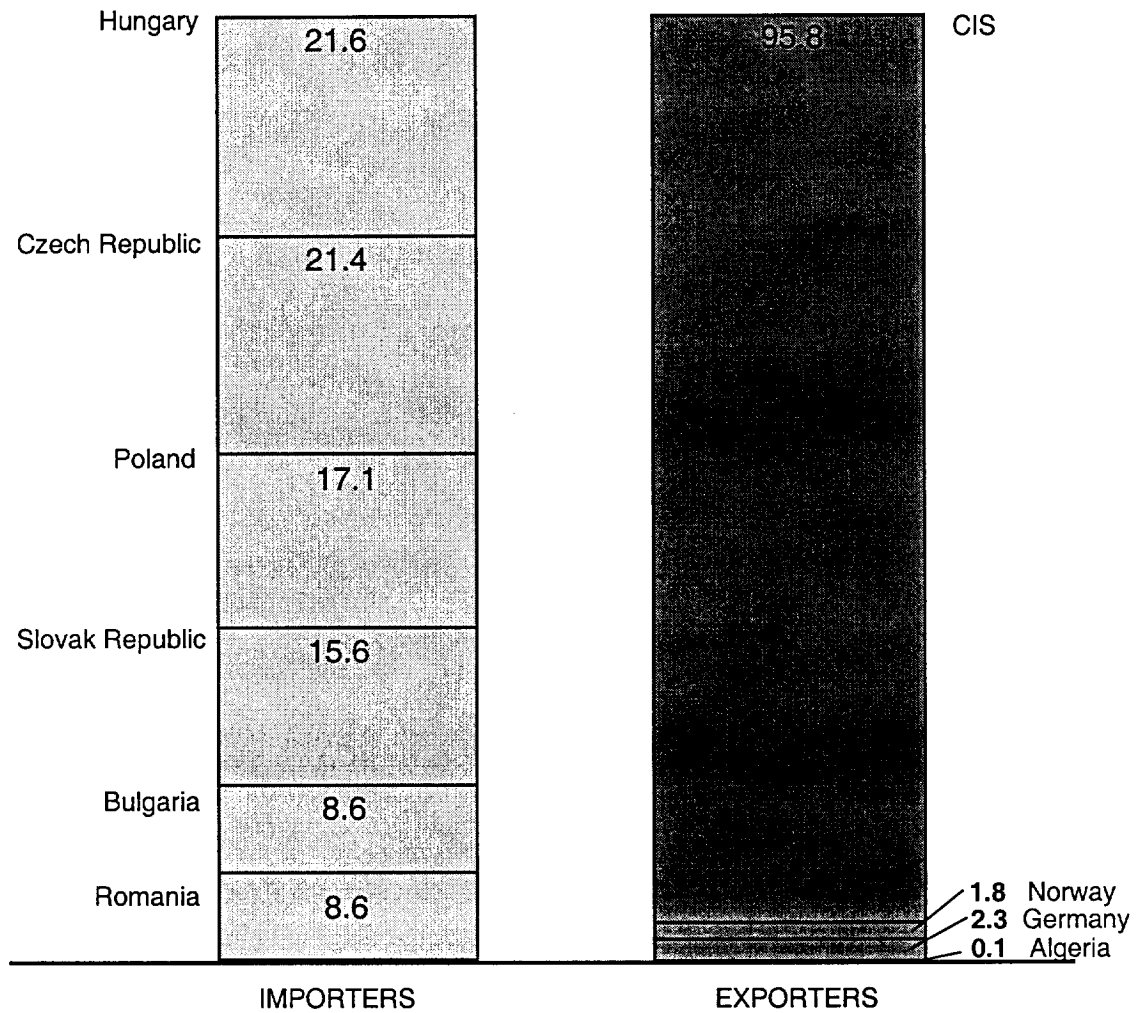
**297.70 10<sup>9</sup> m<sup>3</sup>**



Source: See Table 1.

Figure 4b  
**Gas Trade in 1998**  
**Economies in transition**  
*(Percentages)*

$44.30 \cdot 10^9 \text{ m}^3$



Source: See Table 1.