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**THE ENERGY SITUATION AND POLICIES IN THE ECE REGION:  
PARTICULARLY IN THE ECONOMIES IN TRANSITION**

Summary

1. 1997 was a highly favourable year concerning the development of energy intensity in the major regions of the ECE with import dependency rising only marginally in North America and Europe and with a rise in net exports in relation to primary energy production in Russia. Nonetheless, these developments are only for a single year against a backdrop of unfavourable developments in 1996. Therefore there remains the question for the Committee on Sustainable Energy: Are the appropriate policies to encourage energy intensity improvement adequate to meet long-term objectives, particularly in view of longer-term considerations such as climate change in relation to energy/fossil fuel use and other related challenges deriving from the Third Session of the Conference of the Parties to the Framework Convention on Climate Change in Kyoto which served as the focus of the Round Table on the occasion of the Eight Session of the Committee? 1/

2. The evidence concerning energy prices in selected transition countries, mainly in central/eastern Europe, points to a continuing narrowing between transition countries and OECD Europe though with a large absolute gap remaining to be closed.

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3. This report on the energy situation and policies in the ECE begins with a review of macroeconomic and energy developments in 1997. In Part A, the macroeconomic developments are drawn from the ECE Economic Survey of Europe in 1997-1998 (hereafter referred to as the "Survey"). Part B presents available data for a few countries concerning the development of end-user energy prices in 1997. Part C presents data in physical energy units (mtoe) on the development of gross energy consumption, primary energy production along with apparent trade (the difference between these two flows), taken from the BP Statistical Review of World Energy (June 1998). Energy intensity, the ratio of gross energy consumption relative to GDP, is presented for major ECE regions and for as many individual transition countries as the data permit. As addenda, there are a number of short notes from transition countries on energy developments and policy which will serve to focus the discussion on the energy situation in these countries.

#### **MACROECONOMIC AND ENERGY DEVELOPMENTS IN 1997**

##### **A. The macroeconomic situation**

###### **North America:**

4. The Survey's preliminary estimate for North America is for a GDP growth rate of 3.8 % in 1997, compared with increases of 2.6% (1996) and 2.0% (1995). The 1997 increase in GDP was the largest annual increase since 1988. Growth is forecast to moderate to a 2.6% rate in 1998. The 1997 GDP growth out-turn was in large measure due to robust increases in real household expenditure, up 3.3%, and particularly in gross fixed investment, up 6.8%. Concerning fixed investment in 1997, the Survey notes the particularly strong role of increased spending on computers and other information technology, up by 20%.

5. The favourable development of household consumption in the United States was stated to have been supported by a robust labour market with growth of total employment by 1.9% in 1997 along with a falling ratio of savings to disposable income, the wealth effects of rising bond and share prices and by increases in dividends and interest income. In 1997 in Canada, there was also a favourable development of household consumption for the same reasons - a solid increase in total employment of 2.3% and a reduction in the savings rate out of disposable income.

###### **Western Europe:**

6. For western Europe, GDP growth was estimated to be 2.7% in 1997 compared with 2.0% in 1996; projected growth for 1998 is put at 2.7%. The pattern of growth between the four large economies (France, Germany, Italy and United Kingdom) vs. the seventeen smaller economies was somewhat differentiated with the larger economies growing somewhat less rapidly. Economic activity in

western Europe was said to be particularly supported by export growth, underpinned by depreciation of west European currencies against the dollar and the yen, with growth in domestic demand also playing an important role, buoyed by low and falling interest rates. Of the components of domestic demand, gross fixed investment was the most buoyant and "in general, business fixed investment was stimulated by low interest rates, improved profitability and rising capacity utilization rates." 2/

#### Central/Eastern Europe:

7. Economic growth in central/eastern Europe decelerated in 1997 to an estimated rate of 2.8% rate, compared with 4.1% in 1996 and 5.9% in 1995. Nonetheless, 1997 marks the fourth year of economic expansion. 3/ Forecast growth for 1998 is put at 4.5%. 1997 economic developments were mostly positive but cuts in GDP of the order of 7% were recorded in Albania, Bulgaria and Romania. Slow growth, at a 1.3% rate, was recorded in the Czech Republic which was stated to be affected by economic disturbances, particularly in financial markets and the exchange rate. 4/ Growth in the 6.5% to 6.9% range was recorded in Croatia, Poland and Slovakia. The developments in central/eastern Europe were underpinned by strong industrial output, at a rate about twice that of GDP for the region (5.7%) with robust out-turns for most of the individual countries of this region.

#### The Baltic States:

8. In the Baltic States, there was an improvement in economic performance in 1997 with estimated GDP up by 6.5% compared with 3.7% in 1996 and 2.5% in 1995, marking a third year of expansion. As in 1996, all three Baltic States showed positive economic growth in 1997 with forecasted growth in 1998 put at 6%. The Survey attributes the positive economic out-turn in 1997 to "considerable progress achieved in macroeconomic stabilization and in structural reforms...." 5/

#### CIS Countries:

9. In the CIS countries, GDP was estimated to have risen by 0.7% in 1997 with all countries, except Turkmenistan and Ukraine, exhibiting growth rates. The Survey notes that this is the first time since 1989 that a positive growth out-turn was recorded in the CIS. The largest economy, Russia, experienced 0.4% growth with strong recovery in Azerbaijan, Belarus, Georgia, Kyrgyzstan and Uzbekistan. 6/ 1998 growth is forecasted to be in the 1.2% to 2% range for Russia, 0.5% for Ukraine and ranging from 3.5% for Kazakhstan to about 12% for Georgia.

10. The Survey attributes the 1997 upturn in economic activity to "the successful progress in economic reforms and a gradual economic consolidation

...(which) shows up in a persistently strong output performance in most sectors of economic activity." 7/ Indeed, for the CIS, industrial output grew much faster, at a 2.3% rate, than did GDP.

11. It was stated that in Russia, the main dynamic force was in the manufacturing industry. The Survey states that "for the first time since the transition began there was positive growth in the engineering branch (especially in motor vehicles, but also in some high-tech industries such as medical equipment and personal computers) and in 'light industry' which were boosted by rising domestic demand." 8/

**B. The development of energy prices in 1997, selected countries**

12. The publication IEA/OECD, Energy Prices and Taxes (fourth quarter 1997) gives evidence for three OECD-member transition countries concerning the development of real national energy prices, here calculated from prices in national currencies and divided by the country specific producer price index for industry and the consumer price index for households. Oil products, coal, natural gas and electricity are included. The index of real national energy prices for industry (using a 1990 base year) rose in 1997 by 3.8% in the Czech Republic, by 6.2% in Hungary and by 3.3% in Poland, compared with a rise of 0.3% for OECD Europe. For households, the comparable data are 2.9% in the Czech Republic, 19.4% in Hungary, 1.6% in Poland and 1.1% in OECD Europe. The overall real national energy price index for households and industry rose in 1997 by 3.7% in the Czech Republic, 14.6% in Hungary, 2.0% in Poland and 0.7% for OECD Europe.

13. The Survey also takes up the question of the development of household energy prices in relation to the total consumer price index with the following out-turns reported for six transition countries in 1997, all of which showed a more rapid change in energy prices than in consumer prices, a further indication of upward adjustment of relative energy prices: 9/

**Development of Energy Prices vs. Consumer Prices: Percent Change  
Dec. 1997 vs. Dec. 1996**

Country	Energy Prices	Consumer Prices
Czech Republic	22.9	9.5
Hungary	26.5	18.5
Latvia	20.9	12.1
Poland	16.8	13.2
Romania	210.5	140.8
Slovenia	14.8	8.6

14. The three OECD transition countries and Slovakia are examined against development for the largest four OECD European countries in dollars per unit (converted using exchange rates). The average dollar price per unit of final energy products of the transition countries relative to the largest four OECD European countries is as follows in 1997: 10/

**Relative Dollar Prices of Energy Products: OECD Transition Countries and Slovakia vs. the Four Largest OECD European Countries, 1997**

	Czech Republic Hungary and Poland	Slovakia <sup>a</sup>
heavy fuel oil prices for industry	0.70	0.70
heavy fuel oil prices for electricity generation	0.69 <sup>b</sup>	0.76
light fuel oil prices for industry	0.83 <sup>c</sup>	0.40
light fuel oil prices for households	0.69 <sup>d</sup>	0.37
automotive diesel oil prices for commercial use	0.71	0.89
automotive diesel oil prices non-commercial use	0.61 <sup>d</sup>	0.76
premium leaded gasoline prices	0.55 <sup>e</sup>	-
regular unleaded gasoline prices	0.80 <sup>f</sup>	0.70
premium unleaded gasoline prices (98 RON)	0.64 <sup>g</sup>	-
premium unleaded gasoline prices (95 RON)	0.63	-
natural gas prices for industry	0.93 <sup>h</sup>	-
steam coal prices for industry	0.38 <sup>i</sup>	-
coking coal prices for industry	0.91 <sup>j</sup>	-
electricity prices for industry	0.62 <sup>k</sup>	-
electricity prices for households	0.39 <sup>k</sup>	-

<sup>a</sup> See notes b to k below for the calculation of the average applicable to the large OECD European countries.

<sup>b</sup> Average for Czech Republic and Hungary relative to Germany.

<sup>b</sup> United Kingdom is excluded from the denominator

<sup>c</sup> Hungary is excluded from the numerator.

<sup>d</sup> Hungary is excluded from the numerator.

<sup>e</sup> Hungary is excluded from the numerator; Germany, from the denominator.

<sup>f</sup> Hungary relative to Germany.

<sup>g</sup> Czech Republic is excluded from the numerator; Italy, from the denominator.

<sup>a</sup> France and Germany are excluded from the denominator. The calculation is for the second quarter of 1997.

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15. For the three OECD transition countries and Slovakia, while the gap with OECD Europe as a whole appears to have narrowed somewhat, there is still a large absolute difference between energy end use prices in the three OECD transition countries plus Slovakia vs. OECD Europe. The data for 1996 reveal this feature. Heavy fuel oil prices for industry were in the \$105 to \$127 dollars/toe range for the four transition countries vs. \$182/toe for OECD Europe. For heavy fuel oil for electricity generation, prices ranged from \$99 to \$113/toe for the four transition countries vs. \$162 for OECD Europe. The exception is for light fuel oil for industry which in Hungary was 1.7 times the OECD Europe average dollar price/toe in 1996 and automotive diesel oil prices for commercial use in Hungary in 1997 which was somewhat above the OECD Europe average. Otherwise (all in dollars per toe), for light fuel oil prices for households, automotive diesel oil prices for non-commercial use, premium leaded gasoline prices, natural gas prices for households, steam coal prices for industry, steam coal prices for electricity generation, and electricity prices for industry and for households, there appears still to be a considerable gap for the four transition countries and OECD Europe. 11/

C. Primary energy production, gross energy consumption, apparent energy trade and energy intensity developments in 1997

16. Shown at the end of the text are data for primary energy production, gross energy consumption and (the difference between these flows) apparent energy trade. The data are for 1996-1997 from the June 1998 BP Statistical Review of World Energy. These data are used in conjunction with the macroeconomic data from the Survey for the purpose of reviewing energy intensity developments. For gross energy production (and apparent trade), the data for Europe are for western Europe together with central/eastern Europe, noting that for primary energy consumption, data are presented for the two European subregions.

17. For North America, primary energy production grew by 8.1 mtoe (0.4%); gross energy consumption, by 11.8 mtoe (0.5%) with a resulting increase in apparent energy imports of 3.7 mtoe. The ratio of apparent energy imports to gross energy consumption rose marginally from 15.4% (1996) to 15.5% (1997). The fuel shares of primary energy production was about the same in 1997 as in 1996 with gas and coal gaining in share by 0.9% with a corresponding cut in the share of nuclear. For gross energy consumption, there was little change in the share of fuels, the largest shifts in share being for nuclear by -0.7% and oil by +0.5%. Energy intensity developments were highly satisfactory in 1997 with a fall of 3.2% against the background of a disconcerting rise of 0.4% in 1996, noting that energy intensity developments were at a -0.5% rate in 1995 and -2.0% in 1994.

18. For Europe, the BP Statistical Review of World Energy presents both primary energy production and gross energy consumption. Apparent energy imports fell slightly by 0.7 mtoe with a virtually unchanged ratio of apparent imports to primary energy consumption, 35.3% (1997).

19. In western Europe, gross energy consumption fell marginally by 0.9 mtoe (-0.6%) with oil gaining in share by 0.5% and coal falling by 0.8%. Energy intensity fell by 2.7% in 1997 vs. changes of +0.9% in 1996, -0.7% in 1995 and -2.4% in 1994.

20. In central/eastern Europe, gross energy consumption fell by 4.9 mtoe (-1.7%) with a 1.1% increase in the share of oil corresponding to similar cuts in gas and coal taken together. Following the favourable development of energy intensity at a -4.5% rate in 1994 and -3.3% in 1995, and noting the there was a reversal of these developments in 1996 with energy intensity rising by 1.1%, the rate of change of energy intensity change in 1997 was again highly favourable at a -4.4% rate. The rates of change were negative for all but one of the countries for which data were available: Bulgaria (-3.1%), Czech Republic (-2.8%), Hungary (-5.1%), Poland -7.9%), Romania (+0.3%) and Slovakia (-5.6%).

21. While the 1997 energy intensity out-turn is favourable, it is too soon to analyse the possible role of sectoral shifts and exceedingly difficult to access the possible role of unrecorded activity. There is also the time-series variability of energy intensity developments. All these issues are taken up in the companion study ENERGY/1998/11, Energy Intensity Developments in ECE Subregions, 1960-95(96) - Focus on Countries in Transition.

22. For the CIS countries and the Baltic States taken together, energy intensity developed very favourably at a -4.2% rate in 1997 with more countries showing decreases than rises. The following developments took place in 1997 in the CIS countries for which data were available.

23. Russian Federation: Primary energy production fell by 27.1 mtoe (by -2.8%) while at the same time gross energy consumption fell by 24.9 mtoe (by 4.1%), resulting in a 2.2 mtoe fall in apparent net energy exports. There was a 1.4% rise in the share of oil in primary energy production with a corresponding fall for gas. Similar developments took place for these fuels in gross energy consumption. Apparent net energy exports as a ratio to primary energy production rose from 37.2% (1996) to 38.0% (1997). Energy intensity fell by 4.5% in 1997 contrasted with changes of +3.2% in 1996 and -2.2% in 1995. Again, the qualifications regarding these short term developments mentioned above for central/eastern Europe are recalled here.

24. Azerbaijan: There was a 0.4 mtoe decline in primary energy production (excluding coal) with a 0.2 mtoe decline in gross energy consumption; net energy imports (excluding coal) rose by 0.2 mtoe. Primary energy production and gross energy consumption continue to be dominated by oil and gas with a small hydro component. Apparent net imports (excluding coal) as a share of primary energy consumption rose from 8.2% (1996) to 9.6% (1997). Energy intensity fell by 6.7% with a 5.9% rise in GDP.

25. Belarus: Gross energy consumption fell by 0.3 mtoe (1.2%) and, with a 10.3% rise in GDP, energy intensity fell by 10.5%.

26. Kazakhstan: Primary energy production rose by 2.8 mtoe (4.1%); gross energy consumption fell by 4.2 mtoe (8.5%) mtoe resulting in rise in net energy exports in 1997 of 7.0 mtoe with net energy exports increasing from 27.6% of primary energy production (1996) to 36.4% (1997). Energy intensity improved by 10.2% with a 2.0% rise in GDP.

27. Turkmenistan: Gross energy consumption fell by 0.5 mtoe (4.3%). With a very sharp drop in GDP of 20% in 1997, stated by the Survey to be largely due to a collapse of gas production 12/, the upward rise in of energy intensity was correspondingly large (19.6%).

28. Ukraine: Gross energy consumption rose by 1.6 mtoe (1.1% ). Primary energy production (excluding oil) rose by 2.3 mtoe (3.2%) resulting in a cut in apparent net imports (excluding oil ) of 0.7 mtoe. With a fall in GDP by 3.1%, energy intensity rose by 4.4%.

29. Uzbekistan: Gross energy consumption fell by 1.9 mtoe (by 3.9%). Primary energy production (excluding coal) rose by 0.6 mtoe ( 1.2%) resulting in a 2.5 mtoe increment to net energy exports (excluding coal). With a +5.3% rise in GDP, energy intensity fell by 8.7%.



## BASIC ENERGY DATA: 1996-1997

A. GROSS ENERGY CONSUMPTION: 1996 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	915.1	635.6	542.6	207.1	59.3	2359.7
Europe	378.6	378.6	381.3	242.1	47.0	1787.5
Western Europe	671.8	315.2	247.4	225.9	41.5	1501.8
Central/Eastern Europe	66.7	63.4	133.9	16.2	5.5	285.7
Bulgaria	5.7	4.6	8.3	4.7	0.2	23.5
Czech Republic	6.7	6.9	21.8	0.2	--	38.9
Hungary	7.1	10.2	3.7	3.7	--	24.7
Poland	--	16.9	9.5	--	--	99.9
Romania	13.0	21.8	9.5	0.4	1.4	46.1
Slovakia	3.2	4.5	6.0	2.9	0.4	17.0
CIS/Baltic	196.5	473.6	180.9	52.7	19.3	923.0
Azerbaijan	8.5	7.2	--	--	0.2	15.9
Belarus	12.3	11.6	0.2	--	--	24.1
Kazakhstan	11.3	9.5	27.9	--	0.8	49.5
Russian Federation	128.0	317.0	119.0	28.1	13.2	605.3
Turkmenistan	3.9	7.6	--	--	--	11.5
Ukraine	17.3	70.4	30.5	20.5	0.8	139.5
Uzbekistan	6.6	40.0	1.6	--	0.6	48.8
ECE	1850.1	1487.8	1104.8	501.9	125.6	5070.2
World	3324.6	1980.5	2274.5	621.2	220.1	8420.9

B. GROSS ENERGY CONSUMPTION: 1997 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	928.6	636.7	554.4	192.2	59.6	2371.5
Europe	746.9	375.4	365.7	245.1	48.6	1781.7
Western Europe	678.3	314.8	235.8	228.6	43.4	1500.9
Central/Eastern Europe	68.6	60.6	129.9	16.5	5.2	280.8
Bulgaria	5.4	3.8	7.5	4.2	0.2	21.1
Czech Republic	6.8	6.8	21.3	3.2	0.2	38.3

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
Hungary	7.3	9.7	3.8	3.6	--	24.4
Poland	16.9	10.0	71.2	--	0.3	98.4
Romania	12.7	19.6	8.0	1.4	1.5	43.2
Slovakia	3.3	4.7	5.9	2.8	0.4	17.1
CIS/Baltic	198.6	443.4	178.1	52.0	19.8	891.9
Azerbaijan	8.8	6.7	--	--	0.2	15.7
Belarus	12.7	10.8	0.3	--	--	23.8
Kazakhstan	11.6	8.8	24.0	0.1	0.8	45.3
Russian Federation	128.0	298.0	113.0	27.9	13.5	580.4
Turkmenistan	4.0	7.0	--	--	--	11.0
Ukraine	17.8	65.0	37.0	20.5	0.8	141.1
Uzbekistan	6.8	37.5	1.9	--	0.7	46.9
ECE	1874.1	1455.5	1098.2	489.3	128.0	5045.1
World	3395.5	1977.3	2293.4	617.4	225.9	8509.5

C. PRIMARY ENERGY PRODUCTION: 1996 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	497.6	624.6	608.0	207.1	59.3	1996.6
Europe	327.9	250.3	290.4	242.1	47.0	1157.7
Bulgaria	*	*	5.4	4.7	0.2	(10.3)
Czech Republic	*	*	27.6	3.3	0.2	(31.1)
Hungary	*	3.6	4.1	3.7	--	(11.4)
Poland	*	*	88.3	--	0.3	(88.6)
Romania	6.9	14.5	7.9	0.4	1.4	31.1
Slovakia	*	*	*	2.9	0.4	(3.3)
CIS/Baltic	355.0	602.1	191.4	52.7	19.3	1220.5
Azerbaijan	9.1	5.3	**	--	0.2	(14.6)
Kazakhstan	23.0	5.4	39.2	--	0.8	68.4
Russian Federation	302.1	505.0	115.0	28.1	13.2	963.4
Turkmenistan	**	29.6	**	--	--	(29.6)
Ukraine	**	15.4	36.2	20.5	0.8	72.9
Uzbekistan	9.9	41.1	**	--	0.6	(51.6)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
ECE	1180.5	1477.0	1089.8	501.9	125.6	4374.8
World	3369.8	2005.5	2278.4	220.1	--	8495.0

D. PRIMARY ENERGY PRODUCTION: 1997 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	498.3	632.0	622.6	192.2	59.6	2004.7
Europe	327.5	247.7	283.7	245.1	48.6	1152.6
Bulgaria	*	*	4.8	4.2	0.2	(9.2)
Czech Republic	*	*	25.9	3.2	0.2	(29.3)
Hungary	*	3.3	4.3	3.6	--	(11.2)
Poland	*	*	88.1	--	0.3	88.4
Romania	6.8	12.6	6.4	1.4	1.5	28.7
Slovakia	*	*	*	2.8	0.4	(3.2)
CIS/Baltic	362.9	561.1	187.6	52.0	19.8	1183.4
Azerbaijan	9.0	5.0	**	--	0.2	(14.2)
Kazakhstan	25.8	7.4	37.1	0.1	0.8	71.2
Russian Federation	306.9	477.9	110.1	27.9	13.5	936.3
Turkmenistan	**	14.5	**	--	--	(14.5)
Ukraine	**	14.7	39.2	20.5	0.8	75.2
Uzbekistan	10.2	41.3	**	--	0.7	(52.2)
ECE	1188.7	1440.8	1093.9	489.3	128.0	4340.7
World	3474.7	2000.9	2320.7	617.4	225.9	8639.6

E. APPARENT ENERGY TRADE: 1996 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	417.5	11.0	-65.4	--	--	363.1
Europe	410.6	128.3	90.9	--	--	629.8
Romania	6.1	7.3	1.6	--	--	15.0
CIS/Baltic	-158.5	-128.5	-10.5	--	--	-297.5
Kazakhstan	-11.7	4.1	-11.3	--	--	-18.9
Russian Federation	-174.1	-188.0	4.0	--	--	-358.1
ECE	669.6	10.8	15.0	--	--	695.4

F. APPARENT ENERGY TRADE: 1997 (Mtoe)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>	<u>Total</u>
North America	430.3	4.7	-68.2	--	--	366.8
Europe	419.4	127.7	82.0	--	--	629.1
Romania	5.9	7.0	1.6	--	--	14.5
CIS/Baltic	-164.3	117.7	-9.5	--	--	-291.5
Kazakhstan	-14.2	1.4	13.1	--	--	-25.9
Russian Federation	-178.9	-179.9	2.9	--	--	-355.9
ECE	685.4	14.7	4.3	--	--	704.4

AA. GROSS ENERGY CONSUMPTION: 1996 (% OF TOTAL)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>
North America	38.7	26.9	23.0	8.8	2.5
Europe	41.3	21.2	21.3	13.5	2.6
Western Europe	44.7	21.0	16.5	15.0	2.8
Central/Eastern Europe	23.3	22.2	46.9	5.7	1.9
Bulgaria	24.3	19.6	35.3	20.0	0.9
Czech Republic	17.2	17.7	56.0	8.5	0.5
Hungary	28.7	41.3	15.0	15.0	0.0
Poland	16.9	9.5	73.3	0.0	0.2
Romania	28.2	47.3	20.6	0.9	3.0
Slovakia	18.8	26.5	35.3	17.1	2.4
CIS/Baltic	21.3	51.3	19.6	5.7	2.1
Azerbaijan	53.4	45.3	0.0	0.0	1.3
Belarus	51.0	48.1	0.8	0.0	0.0
Kazakhstan	22.8	19.2	56.4	0.0	1.6
Russian Federation	21.1	52.4	19.7	4.6	2.2
Turkmenistan	33.9	66.1	0.0	0.0	0.0
Ukraine	12.4	50.5	21.9	14.7	0.6
Uzbekistan	13.5	82.0	3.3	0.0	1.3
ECE	36.4	29.3	21.8	9.9	2.5
World	39.5	23.5	27.0	7.4	2.6

BB. GROSS ENERGY CONSUMPTION: 1997 (% OF TOTAL)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>
North America	39.2	26.8	23.4	8.1	2.5
Europe	41.9	21.1	20.5	13.8	2.7
Western Europe	45.2	21.0	15.7	15.2	2.9
Central/Eastern Europe	24.4	21.6	46.3	5.9	1.9
Bulgaria	25.6	18.0	35.5	19.9	0.9
Czech Republic	17.8	17.8	55.6	8.4	0.5
Hungary	29.9	39.8	15.6	14.8	0.0
Poland	17.2	10.2	72.4	0.0	0.3
Romania	29.4	45.4	18.5	3.2	3.5
Slovakia	19.3	27.5	34.5	16.4	2.3
CIS/Baltic	22.3	49.7	20.0	5.8	2.2
Azerbaijan	56.1	42.6	0.0	0.0	1.3
Belarus	53.4	45.3	1.3	0.0	0.0
Kazakhstan	25.6	19.4	53.0	0.2	1.8
Russian Federation	22.1	51.3	19.5	4.8	2.3
Turkmenistan	36.4	63.6	0.0	0.0	0.0
Ukraine	12.6	46.1	26.2	14.5	0.6
Uzbekistan	14.5	80.0	4.1	0.0	1.5
ECE	37.1	28.8	21.8	9.7	2.5
World	39.9	23.2	27.0	7.3	2.7

CC. PRIMARY ENERGY PRODUCTION: 1996(% OF TOTAL)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>
North America	24.9	31.2	30.5	10.4	3.0
Europe	28.3	21.6	25.1	20.7	4.1
Bulgaria	n.a.	n.a.	52.4	45.6	1.9
Czech Republic	n.a.	n.a.	88.7	10.6	0.6
Hungary	n.a.	31.6	36.0	32.5	0.0
Poland	n.a.	n.a.	99.7	0.0	0.3
Romania	22.2	46.6	25.4	1.3	4.5
Slovakia	n.a.	n.a.	n.a.	87.9	12.1

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>
CIS/Baltic	29.1	49.3	15.7	4.3	1.6
Azerbaijan	62.3	36.3	n.a.	0.0	1.4
Kazakhstan	33.6	7.9	57.3	0.0	1.2
Russian Federation	31.4	52.4	11.9	2.9	1.4
Turkmenistan	n.a.	100.0	n.a.	0.0	0.0
Ukraine	n.a.	21.1	49.7	28.1	1.1
Uzbekistan	19.2	79.7	n.a.	0.0	1.2
ECE	27.0	33.8	24.9	11.5	2.9
World	39.7	23.6	26.8	7.3	2.6

DD. PRIMARY ENERGY PRODUCTION: 1997(% OF TOTAL)

	<u>Oil</u>	<u>Gas</u>	<u>Coal</u>	<u>Nuclear</u>	<u>Hydro</u>
North America	24.9	31.5	31.1	9.6	3.0
Europe	28.4	21.5	24.6	21.3	4.2
Bulgaria	n.a.	n.a.	52.2	45.7	2.2
Czech Republic	n.a.	n.a.	88.4	10.9	0.7
Hungary	n.a.	29.5	38.4	32.1	0.0
Poland	n.a.	n.a.	99.7	0.0	0.3
Romania	23.7	43.9	22.3	4.9	5.3
Slovakia	n.a.	n.a.	n.a.	87.5	12.5
CIS/Baltic	30.7	47.4	15.9	4.4	1.7
Azerbaijan	63.3	35.2	n.a.	0.0	1.4
Kazakhstan	36.2	10.4	52.1	0.1	1.1
Russian Federation	32.8	51.0	11.8	3.0	1.4
Turkmenistan	n.a.	100.0	n.a.	0.0	0.0
Ukraine	n.a.	19.5	52.1	27.3	1.1
Uzbekistan	19.5	79.1	n.a.	0.0	1.3
ECE	27.4	33.2	25.2	11.3	2.9
World	40.2	23.2	26.9	7.1	2.6

- negligible.
- \* included in Europe, but not reported separately for the country concerned.
- \*\* included in CIS and Baltic States, but not reported separately for the country concerned.
- n.a. not available
- (..) the total shown is that for available fuel components in the case of production.

Source: BP Statistical Review of World Energy, June 1998. The totals for consumption and production shown in this presentation are the sum for fuels, which differs in the case of consumption by very small amounts from the total shown in the BP source. This procedure was followed in order to have consistent distributions of consumption and production. For total production, the figure is shown in parenthesis (...) when one or more of the fuel components are unavailable, i.e. the total shown is for available components.

In this presentation, nuclear and hydro production and consumption are equated. For consumption, Europe is divided into western Europe and Central/Eastern Europe. Here, the total shown for Central/Eastern Europe is the sum for Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia plus "other Europe" which is then subtracted from the European total to arrive at an estimate for western Europe. Western Europe is comprised of Austria, Belgium & Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Separate data are not reported in the BP source for Cyprus, Gibraltar and Malta which consume about 3.3 mtoe of oil and 0.1 mtoe of coal. Accordingly, the "other Europe" category is slightly overstated to the extent of fuel consumption in Cyprus, Gibraltar and Malta.

Apparent energy trade is derived as gross energy consumption less primary energy production. In the total column for gross energy consumption and primary energy production is the sum of available fuel components, treating as zero unavailable components. Tables AA, BB, CC, and DD correspond to Tables A, B, C and D respectively where the shares of the former set of tables are percentages of total fuels for each country/region.

#### NOTES:

1. Also see Energy/1998/14 and Add.1 concerning policy challenges directed at ECE and other developed countries and the contribution of the ECE Gas Centre in this respect.
2. The Survey, part 2.2 (ii), The components of demand, p.26.

3. For East European economies, the measure of economic activity is real GDP except for The former Yugoslav Republic of Macedonia and Yugoslavia where the concept used is Gross Material Product. Albania together with Bosnia and Herzegovina are excluded from the calculation (for lack of data).
4. The Survey, part 3.1 (I) Expectations and outcomes, p. 45.
5. The Survey, part 3.3(I) Output, p. 88.
6. The Survey, part 3.1 The general context, p.45.
7. The Survey, part 3.1 The general context, p. 45.
8. The Survey, part 3.3 (d) The Commonwealth of Independent States, p.90.
9. The Survey, Table 3.4.3 , Change in household energy prices and their contribution to the total consumer price inflation in selected transition countries, 1995-1997 (p.114).
10. OECD/IEA, op. cit., Part II-D, Tables 2-19 for the OECD transition countries. For Slovakia, the table used is Part III-B.
11. Energy Prices and Taxes, op. cit., Part II-E, Tables 1-18 and Part III-B, Tables 2-19. The Survey, Section 3.4 (iii), p. 109, also notes that "in Poland, major household energy prices ... in 1997 were still some 30-65% below the weighted average of selected western European countries. Furthermore, in contrast to western Europe, where usually energy prices for households are higher than those for industry..., in the transition countries energy prices for households are usually higher than those for industry...in the transition countries. In Slovenia also, electricity prices net of tax for households were 27% below EU prices at the beginning of 1997, compared with 16% for industry..." (noting that the gap had narrowed to 23% and 11% respectively at the end of September 1997).
12. The Survey, Sec. 3.3 Output and demand, p. 97.