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EASTERN EUROPE AND OIL: THE SOVIET DILEMMA,(U)
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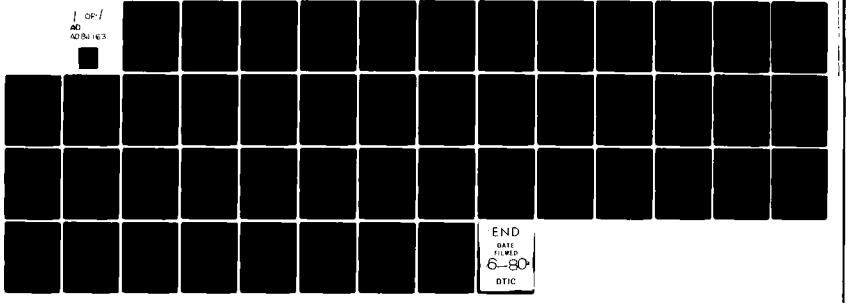

LEVEL II

EASTERN EUROPE AND OIL: THE SOVIET DILEMMA

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SUMMARY

The nations of Eastern Europe depend on Soviet oil because it is less expensive than that bought at world prices, it can be obtained without draining scarce hard-currency reserves, and it is reliably supplied. Since 1970, however, the Soviet Union has been urging its CMEA/Warsaw Pact allies to seek additional suppliers. The Central Intelligence Agency predicts that Soviet oil production will level off in the near future and then decline. Lower production and increased domestic consumption, the CIA suggests, will cause the Soviets to cut their oil exports to the West and hold at a constant level their oil exports to Eastern Europe.

This paper postulates that as long as industrial growth in Eastern Europe continues, the demand for oil will increase. The non-Soviet CMEA nations cannot now afford to buy large amounts of oil from OPEC. For this reason, the Soviet Union will probably continue to increase its oil sales to the CMEA nations, rather than risk their economic deterioration, which might lead to political unrest and instability.

ACKNOWLEDGMENTS

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CONTENTS

I. THE POLITICAL NATURE OF SOVIET ECONOMIC POLICY TOWARDS EASTERN EUROPE

Despite wide-ranging analysis of the Soviet Union's oil supply in recent years, few studies have focused on the political and economic ramifications for the East bloc countries of the USSR's freezing of the level of oil exports (as the CIA projects) in the face of a rising domestic demand.

This paper proposes (1) to review the nature of economic relations between the nations of Eastern Europe and the Soviet Union; (2) to examine the oil trade as a reflection of this relationship; and (3) to analyze the Soviet Union's options in its oil export policy to the Council of Mutual Economic Assistance (CMEA) countries.

Section I discusses the motivations and tools that the Soviet leadership employs in dealing with the Council of Mutual Economic Assistance (CMEA)/Warsaw Pact states.*

A. SOVIET POLICY IN EASTERN EUROPE: CONTROL AND TUTORAGE

Two dominant, yet often contradictory, goals govern Soviet policy in Eastern Europe. The first is the Soviet desire to control the foreign and domestic affairs of the other East bloc countries. The second is to help their CMEA/Warsaw Pact partners develop into more efficient and economically stronger states. The relationship between the Soviet Union and the countries of Eastern Europe in some respects is like that of tutor and student. The tutor is of use to the student only as long as the student is deficient in his studies. If the tutor is successful, his services will no longer be required. The tutor must prolong the student's dependence and, at the same time, demonstrate the student's academic progress; unless he has another student, and for the Soviet Union, there are no other pupils quite like the states of Eastern Europe.

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*The Section I discussion of the CMEA/Warsaw Pact states includes Romania. Because of its unorthodox relationship with the Soviet bloc, however, it is excluded from consideration in Sections II and III.

B. CONFLICTING AIMS OF SOVIET POLICY

The potentially conflicting aims of Soviet policy are a recurrent theme in the literature on Soviet-Eastern Europe relations [1]. Soviet policy must be flexible enough to allow the political elites of Eastern Europe to respond in their own way to local conditions; at the same time, it must be firm enough to maintain alliance cohesion. Five interrelated factors motivate Soviet policy:

1. The military security factor. Eastern Europe serves as a buffer zone against possible attack from the West.
2. The springboard factor. Eastern Europe serves as a base for possible military expansion against or assertion of political influence over Western Europe.
3. The Communist International factor. Eastern Europe serves as a potential vanguard of communist world revolution.
4. The ideological security factor. Eastern Europe provides an ideological buffer zone in which a defensive Soviet leadership can secure its own closed system of government against the dangers of ideological and political penetration [2].
5. The economic complementarity factor. Eastern Europe serves as a supplier of certain goods and services to the Soviet Union (e.g., computers, manpower, foods, consumer goods), and as a safe laboratory for socialist policy and management innovations [3].

The Soviets might rely on military,* political, and/or economic links to achieve the policy objectives in Eastern Europe represented by these factors. This paper takes the position that the USSR's leverage over its CMEA allies by virtue of the first two links is decreasing and that the likelihood of its using the third--the economic links--is increasing.

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*The military link here refers to the mutually beneficial relationships among Warsaw Pact member states. Obviously, the Soviet troops in Eastern Europe are also used as a means of coercion.

The establishment of the Warsaw Pact in 1955 served not only to legitimate the presence of Soviet troops in Eastern Europe, but also to alleviate some member states' fears of German revanche. Yet, ten years after Brandt's Ostpolitik and four years after the Helsinki accord, which formalized the post-World War II borders, it is doubtful the Eastern European leaders view the Soviet troops stationed on their soil as adding to their national security, though these forces probably contribute to their own political viability. What reportedly occurred at the November 1978 Warsaw Pact summit meeting may illustrate their attitudes. At the meeting, Romania rejected the Soviet Union's call for an increase in military expenditures. Although Poland apparently supported Romania, Warsaw nevertheless increased its planned 1979 military expenditures by 4 percent. Czechoslovakia's real defense spending has fallen over the last three years, and Hungary's and Bulgaria's have increased only marginally. We cannot determine how the non-Soviet Warsaw Pact political and military elite really feel about the Soviet troops. It is possible that the Soviet military presence allows these nations to avoid military expenditures that otherwise would be viewed as necessary. On the other hand, the countries of Eastern Europe may feel, to varying degrees, that the Soviet troops are simply a fact of life that must be tolerated and feared [4].

Some Eastern European leaders are increasingly demonstrating their independence from the Soviets in some foreign policy areas [5]. This may have been made possible by their partial success in legitimizing their governments in the eyes of their citizens. If Western-style free elections were held today in Eastern Europe, it would not be surprising to see Kadar in Hungary or Ceausescu in Romania receive the support of an extensive portion of their electorates. The present governments of East Germany, Bulgaria, Czechoslovakia, and Poland are probably less popular, and as a result their leaders are more dependent on Soviet support.

C. THE GROWING IMPORTANCE OF ECONOMIC TIES

The apparent decreasing importance of military and political support the USSR gives the other Bloc nations seemingly would force the Soviets to increase economic ties within the socialist camp, for economic ties usually increase political leverage.* Brzezinski has pointed out that "in the planned economies of the Communist countries, as their ideology states, economics and politics are inseparable; the economic interaction of the Bloc countries may be also seen as an indicator of their political relations" [6].

The Soviet Union appears to be well versed in the uses of economic relations as a political instrument.

> Nikita Khrushchev's comment that "we value trade least for economic reasons and most for political purposes" has become a classic. Anastas Mikoyan made a similar observation when he said "Just as economics are inseparable from politics, so the USSR's foreign political relations are inseparable from its foreign trade relations." Academician Abram Frumkin has written, "In the first place, a definite link between foreign trade and foreign policy exists not only in the USSR but in the capitalist countries as well. What matters is the nature of the policy which the trade of a given country is called upon to promote." Soviet commentators rarely provide details of the political uses of Soviet foreign trade, particularly in regard to oil, but when viewing international relations they point out that oil is the commodity most linked to politics [7].

Although the above discussion seems to imply the subordination of Soviet economic to political interests, viewed in a long-term perspective, the two appear to complement each other. Imagine, for example, a situation in which the Soviet Union charged the world prices for its products and did not give preferential treatment to the East bloc countries. These countries would suffer economically; but they would also doubtless increase their trade with the non-communist world. Though the Soviet Union's foreign trade situation

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*In fact, one of the aims of Kissinger's detente policy was to gain leverage for the United States in its relations with the USSR through trade.

might improve as a result of being able to sell more commodities at the world market price for hard currency, such a policy might result in consumer discontent and possibly political instability in Eastern Europe. The Soviets might then be forced either to give subsidies to their allies or intervene actively to reassert control.

Arthur Klinghoffer argues that foreign trade is a useful political instrument for the control of Eastern Europe:

> . . . the Soviet Union can easily harmonize foreign policy with state economic interests as a result of state ownership of the means of production and a nationalized system of foreign trade. Not only can the full might of the Soviet Union be deployed in support of foreign policy goals, but imports and exports can be closely integrated into a comprehensive economic plan, so that foreign trade can be coordinated with economic development. The Soviets, therefore, have a fundamental advantage over capitalist states, which often have difficulty in linking foreign trade practices with domestic economic requirements or national security interests [8].

While foreign trade may be a useful political control tool, its application may have high economic costs. The Soviet Union's ability and willingness to take economic losses in pursuit of political gains is limited. It is in the area of oil trade that the dichotomy between economic and political interests are most blatant. The following sections of this paper are concerned with the economic and political tradeoffs influencing Soviet oil export policy to Eastern Europe.

II. SOVIET OIL PROBLEMS AND PROSPECTS

In 1976, CIA energy analysts wrote, "The USSR is the only major industrial nation in the world that is self-sufficient in energy and is likely to maintain this position for the foreseeable future [9]. The "foreseeable" future turned out to be about one year [10]. The CIA now predicts that in the late 1980s the USSR will become a net importer of crude oil. The following points are made to support this contention:

- Soviet oil production increased at an average annual rate of 9.1 percent during the 1960s. Between 1971 and 1978, the annual rate of increase declined to 6.2 percent [11].
- Absolute annual production increases declined from 640,000 b/d in 1975 to 510,000 b/d in 1978. The 1979 plan calls for a further decline in growth to about 430,000 b/d [12].
- Requirements for new oil production capacity are increasing rapidly as older fields are being depleted [13].
- Many of the techniques to save energy now being discussed in the West are already in effect on a wide scale in the USSR [14].
- It is unlikely that the Soviets will be able to substantially reduce growth or energy consumption without a severe impact on industry. In 1977, industry consumed 47 percent of all primary energy; the transportation and household/social sectors, only 15 percent [15].

In formulating their conclusions, the CIA made the following assumptions:

- The Soviets will achieve energy savings of 2.5 percent in consumption per year through 1985, all in the form of oil.
- The GNP will grow 3 to 3.5 percent a year between 1981 and 1985.

- o Energy consumption will rise at an average annual rate of 3.2 percent between 1981 and 1985.
- o The Soviets will continue to export oil to communist countries at a constant level of 1.9 million b/d between 1981 and 1985.
- o Domestic oil production will drop from 11.8 million b/d in 1980 to 10 million b/d in 1985 [16].

The CIA concludes that:

- o Oil output will likely peak in 1979 or 1980 and decline rather sharply in the early 1980s [17].
- o The outlook for Soviet oil is bearish because new large fields have not been discovered to offset declines in the Ural-Volga area and the impending leveling off of production in Western Siberia [18].
- o Among the primary energy sources, gas production is being pushed as fast as possible, but increments to energy production will decline after 1980, as the expected decreases in oil production and slow growth in coal production will offset growth in gas output [19].
- o The USSR will cease to be a net exporter after 1981 [20].
- o In 1985, the Soviet Union will be able to supply all domestic oil needs from indigenous production [21].
- o The 1.9 million barrels per day of oil exported to other communist countries in 1985 will have to be procured from OPEC countries for barter and/or hard currency [22].

It is not the purpose of this paper to examine the CIA's analysis, although it should be noted that some researchers believe that Soviet production, rather than falling, will level off in the near future. The analysis that follows is concerned with the implications of the Soviet oil situation for Eastern Europe.

Table 1 shows CIA data on the USSR's oil balance. For the purposes of this analysis, the most important figures here are the estimates of Soviet oil exports. For 1980 and 1985, the CIA projects oil exports

Table 1

USSR OIL BALANCES

(million b/d of crude oil, condensates)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1980 (Plan)	1980 (Est.)	1985 (Est.)
Production	7.1	7.6	8.0	8.6	9.2	9.8	10.4	10.9	11.4	12.8	11.8	10.0
%Δ		7.0	5.3	7.5	7.0	6.5	6.1	4.8	4.6			
Imports	0.1	0.1	0.2	0.3	0.1	0.2	0.1	0.2	0.2	0.3	0.3	1.9
%Δ		0	100	50	-66.6	100	-50	100	0			
Exports	1.9	2.1	2.2	2.4	2.3	2.6	3.0	3.2	3.3	3.8	2.8	1.9
%Δ		10.5	4.8	9.1	-4.2	13.0	15.4	6.7	3.0			
Consumption	5.2	5.5	6.0	6.4	7.0	7.4	7.7	7.9	8.3	9.3	9.3	10.0
%Δ		5.8	9.1	6.7	9.4	5.7	6.8	2.6	5.1			
Net Exports	1.8	2.0	2.0	2.1	2.2	2.4	2.8	3.0	3.1	3.5	2.5	0.0
%Δ		11.1	0	5.0	4.7	9.1	16.7	7.1	3.2			

SOURCE: CIA, *Soviet Energy Problems and Prospects*, February 9, 1979, p. 42.

of 2.8 and 1.9 million barrels a day. This represents a decline of 0.5 and 1.4 million barrels a day from the 1978 level. The key question is: If the CIA predictions are correct, to which countries will the USSR reduce oil exports? On purely economic grounds, the Soviet leadership would prefer to have payment for their oil in hard currency. This suggests that it would be economically sound for them to continue to export oil to the Western industrialized nations. But from a political vantage point, oil exports to their CMEA partners would probably be preferable.

Table 2 shows the distribution of Soviet crude oil exports for 1970-1977. The percentage of oil shipped to communist countries of the total amount of oil exported fluctuates only 8.9 percent and has declined (as far as can be determined) since its 1974 peak. Figure 1 shows the CIA prediction of the distribution of Soviet oil exports. If one assumes rising demand for oil in Eastern Europe while Soviet exports to that region remain constant, then the non-Soviet countries will face an increasing oil deficit and will be forced to import increasingly large amounts of oil at world market prices. Table 3 shows Soviet oil exports to Eastern Europe in 1979 and 1980, as projected by John Haberstroh of the CIA. These figures show a slight increase in the level of oil exports over 1978.

Table 2

SOVIET CRUDE OIL EXPORTS, 1970-1977

(thousand b/d)

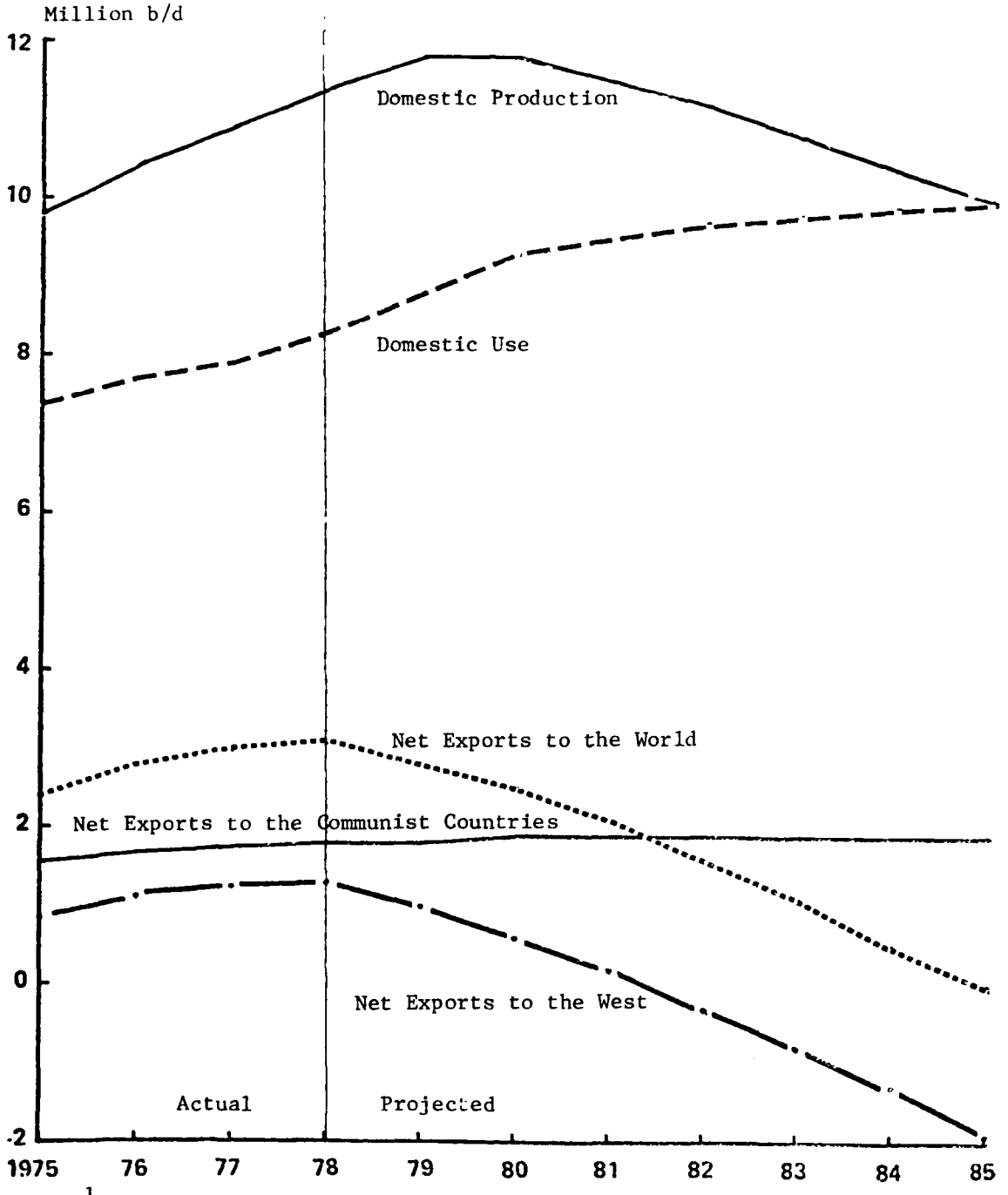
	PRODUCED	IMPORTED	TOTAL EXPORTED	To COMMUNIST COUNTRIES AMT./ % of export	To EASTERN EUROPE AMT./ % of export	To NON-COMMUNIST WORLD AMT./ % of export	Total % Exported of Production
1970	7060	90	1920	1010/52.6%	805/41.9%	910/47.2%	27.1%
1971	7540	130	2110	1110/52.6%	895/42.4%	1000/47.4%	29.0%
1972	8010	180	2140	1200/56.0%	975/45.6%	940/44.0%	26.7%
1973	8580	290	2380	1350/56.7%	1100/46.2%	1030/43.4%	27.7%
1974	9180	110	2340	1440/61.5%	1180/50.4%	900/38.5%	25.5%
1975	9820	150	2600	1550/59.6%	1260/48.5%	1050/40.4%	26.4%
1976	10,390	128	2970	1680/56.6%	1370/46.1%	1290/43.4%	28.6%
1977*	10,920	150	3200	1800/56.3%		1400/43.7%	29.3%

SOURCE: CIA, *International Energy Statistical Review*, March 7, 1979, p. 25.

*Preliminary figures.

Figure 1

USSR: TRENDS IN OIL PRODUCTION AND END USE[1] 1975-85



[1]High domestic oil production and no import capacity constraint.

SOURCE: CIA, *Soviet Energy Problems and Prospects*, February 1979, p. 30.

Table 3

PLANNED SOVIET OIL DELIVERIES TO EASTERN EUROPE

(thousands of barrels per day)

	1979	1980
BULGARIA	240	242
CZECHOSLOVAKIA	374	398
EAST GERMANY	370	390
HUNGARY	192	204
POLAND	300	326
Total	1480	1560

NOTE: Estimates are based on announcements of 1976-80 projected deliveries as of 1977.

SOURCE: John Haberstroh, "Eastern Europe's Growing Energy Problem," in the Joint Economic Committee Publication, *Eastern European Economies Post Helsinki*, p. 386.

III. EASTERN EUROPE'S ENERGY SITUATION

Eastern Europe is rich in only one energy resource--coal--and only Poland has it in abundance. However, it is in the areas of oil and natural gas where Eastern Europe's consumption levels are growing fa ·:st. Increases in consumption of energy have far outpaced energy production growth. Over the past ten years, particularly before 1973, the CMEA nations tried to increase the use of oil and natural gas in industry. Because of a lack of indigenous oil resources, the Eastern European countries have been forced to import vast quantities of oil. Since 1973, Soviet oil has been less expensive than Middle Eastern oil and because it did not require hard currency to purchase, it was a great bargain. In 1975, the Soviet Union announced an increase in the price of their exported oil and set quotas for their CMEA partners. In this section, the energy situations in each of the Bloc countries before and after the price increase is examined.

A. CMEA'S RESPONSE TO THE OIL PRICE RISE OF 1975

The Council of Mutual Economic Assistance was originally organized as a Soviet counterpart to the Marshall Plan. Its purpose was and still remains to contribute to the economic integration of the socialist community. Until 1975, CMEA prices tended to be frozen for extended periods of time. Then the Executive Committee of CMEA "decided to increase intra-CMEA foreign trade prices, despite that the next scheduled intra-CMEA price revision was not due until 1976. The actual and widely publicized reason (in the West) was the Soviet realization that the violent increases in world energy and raw material prices triggered by the energy crisis of 1973/4 were causing the Soviet Union to lose too much in exporting oil, natural gas and raw materials to the Eastern European CMEA nations at bargain basement prices" [23]. Although CMEA prices are supposed to be based on a five year moving index based on world market prices, there is considerable bargaining over terms. As a result the price the Czechs pay for Soviet crude may not be the same as the Bulgarians pay. Not only were the prices of

primary products adjusted, but prices for manufactured and agricultural items were also changed. The result of the price change, according to Arthur Smith, was a 10 percent deterioration in the terms of trade for the Eastern European countries in their economic relations with the Soviet Union [24].

Although the Soviet Union had been urging the CMEA countries since the early seventies to depend less on Soviet oil, the Soviets were quick to reassure their bloc partners after the price increase that "there is every reason to believe that the export of oil from the USSR to the socialist countries will continue to grow" [25]. However, the Soviet Union simultaneously announced that it was fixing quotas for each of the CMEA states and would sell crude in excess of the quota at world market prices payable in hard currency or gold rather than "foreign-trade rubles."* The Soviet condition that oil sold above the fixed quota be paid in hard currency suggests that even when selling oil at world prices to their CMEA partners in trade rubles, the Soviet Union receives less trade value for their oil than is the case when they receive hard currency that can be used to buy goods from the West [26].

Even with the price increase, Soviet oil (below quota ceilings) was still less expensive than OPEC oil. Soviet crude has the additional advantage of not straining the CMEA nations' limited holdings of hard currency. Perhaps because the terms of trade between the Soviet Union and their CMEA partners continue to favor the Eastern Europeans, the Soviet Union stipulated that if non-Soviet CMEA states were to receive guaranteed shipments of raw materials, they would have to increase joint investments with the USSR. The Orenberg pipeline is probably the best known joint project. The additional benefit of this project to the Eastern Europeans is that it not only pays for their rising energy bill, but it also reduces the cost of transporting fuel from the Soviet Union.

Had the OPEC nations not raised the price of oil in 1979, the amount that the USSR charged its CMEA partners (according to the five

*Actually, the Soviets have always had set quotas for Eastern Europe, but previously the amounts appear to have been altered frequently to meet new conditions as they developed.

year moving index mechanism) would have reached the world price level by 1982. As a result of the most recent OPEC price rise, Soviet oil prices for CMEA nations will continue to remain below the world level for at least five years, unless the world price drops or the Soviets raise their price. In the first quarter of 1979, the Soviets increased the price of their petroleum products to their CMEA by an amount larger than that called for by the five year moving average. Whether this is an indication that the Soviets plan on bringing the price of their exports more in line with the world price than has previously been the case is uncertain [27].

B. CMEA'S ENERGY STATUS, 1970-1978

In the following pages, the energy positions of each of the countries of Eastern Europe will be examined. It is particularly important to note how energy consumption patterns differed in the periods before and after 1975. The reader is warned that data concerning energy production and consumption in Eastern Europe should be read with skepticism. There are many irregularities in the data, for example, rapid increases in oil consumed in a given year. This may occur due to the lack of properly reporting consumption in the previous year.

Before each individual nation will be examined, a brief comparison of importing patterns will be presented. Table 4 shows the Eastern European countries' level of dependence on Soviet oil. The measure was used by Herbert Sawyer in a 1974 edition of the *ACES Bulletin*. The table shows crude oil and petroleum product imports from the Soviet Union as a percentage of total energy consumption in five Eastern European countries [28]. Some of the figures show imports as being greater than 100 percent because some of the CMEA nations export petroleum products. Data were available only through 1976, because this was the last year that the Soviets published the physical amounts of their oil exports. Before 1975, Bulgaria and Hungary were the least dependent on Soviet oil. The two largest importers of Soviet oil in physical amounts, East Germany and Czechoslovakia were also the most heavily dependent on Soviet oil. It appears that no uniform response by the nations of Eastern Europe occurred after the price increase.

Table 4

SAWYER'S METHODOLOGY TO MEASURE EASTERN EUROPEAN DEPENDENCE ON SOVIET OIL

(million tons)

	1970	1971	1972	1973	1974	1975	1976	1970-74	1975-76
BULGARIA									
Consumption	9.2	10.6	11.1	12.4	13.4	12.4	12.8		
Import from USSR	7.0	8.0	7.9	9.3	10.8	11.5	11.9		
% import/consump	76.0	75.4	71.2	75.0	80.6	92.7	92.9	75.6	92.8
CZECHOSLOVAKIA									
Consumption	10.4	11.8	12.8	15.0	15.7	16.4	17.7		
Import from USSR	10.5	11.8	12.9	14.3	14.8	16.0	17.2		
% import/consump	101.0	100.0	100.8	95.3	94.3	97.6	97.1	98.3	97.4
EAST GERMANY									
Consumption	9.1	10.1	13.0	13.9	13.4	14.1	15.6		
Import from USSR	9.3	10.4	11.5	13.0	14.4	15.0	16.8		
% import/consump	102.1	102.9	88.5	93.5	107.4	106.0	107.0	98.9	106.5
HUNGARY									
Consumption	6.4	7.2	8.1	9.0	9.4	10.9	11.4		
Import from USSR	4.8	5.1	5.5	6.3	6.7	7.5	8.4		
% import/consump	75.0	70.8	62.5	70.0	71.2	68.8	73.6	69.9	71.2
POLAND									
Consumption	8.6	9.6	10.7	13.4	13.1	15.6	16.1		
Import from USSR	8.6	9.5	11.1	12.3	11.9	13.3	14.1		
% import/consump	100.0	98.9	103.7	91.7	90.8	85.2	87.5	97.0	86.4

SOURCE: *International Energy Statistical Review*, March 7, 1979, p. 27 and CMEA Handbooks.

Bulgaria became significantly more dependent on Soviet oil after the price change. The other Bloc countries' importing patterns did not change as much.

1. Bulgaria

Bulgaria has the dual distinction of being the least industrialized and probably the most politically reliable (from the Soviet perspective) in the Warsaw Pact. It has the additional disadvantage of being somewhat poorly endowed with energy resources [29]. From 1970 to 1977, its consumption of primary sources of energy has increased 49 percent. Of all the CMEA nations, Bulgaria has the highest percentage of energy consumption in the form of oil. This means that, although the percentage of Soviet oil consumed is low compared with the Bloc as a whole, Soviet oil represents a high percentage of total energy consumption. It is also important to note that since 1970, Bulgaria has become more dependent on Soviet oil.

Bulgaria has been successful in reducing the percentage of energy consumption that oil represents following the price increase in 1975. In 1974, oil consumption represented 60.6 percent of total energy consumption. The figures for after the price increase were in the mid-forty range.

The Bulgarian government has reacted to their energy crisis by reducing vehicle speed limits, raising the price of gasoline to almost $5.00 per gallon [30], and organizing a national campaign to lower home energy consumption. Attempts have also been made to reduce energy consumption in industry.

It is highly unlikely that the Bulgarians will be able to alter their dependence on foreign energy sources in the near future; they are unable to finance large scale imports of oil and natural gas at world prices. Therefore, the Bulgarian leadership probably will continue to receive favorable treatment on energy issues from the Soviets because of its past consistency in supporting Soviet foreign policy. Table 5 displays Bulgaria's energy position.

Table 5

BULGARIA'S ENERGY SITUATION 1970-78

(thousands of barrels/day)*

	1970	1971	1972	1973	1974	1975	1976	1977	1978[2]
Domestic Crude Oil Product (thou. b/d)	7	6	5	4	3	2	2	2	2
Primary Energy Production (thou. b/d)[1]	151	129	126	125	116	129	139	150	NA
Crude Oil and Petroleum Products Exported	NA	NA	NA	NA	NA	NA	NA	NA	NA
Crude Oil Imported	114	151	161	193	212	209	217	235	NA
Petroleum Products Imported	58	51	47	47	48	34	37	46	NA
Soviet Crude Oil and Petroleum Products Imported	140	159	159	186	217	231	237	NA	NA
Foreign Trade Ruble Value of Soviet Export (million)	102	116	119	136	164	396	445	587	NA
Price per ton of export[3]	14.6	14.6	14.9	14.6	15.1	34.2	37.5	NA	NA
Soviet % or Crude and Petroleum Products Imported	81.4	78.7	74.6	77.5	83.5	95.1	93.3	NA	NA
Oil Consumption	184	212	222	248	268	248	256	265	290
Primary Energy Consumption	396	372	385	426	442	529	550	591	NA
Oil as a % of Primary	46.5	57.0	57.0	58.2	60.6	46.9	46.5	44.8	NA

[1]Data are for coal, crude oil, natural gas and nuclear power expressed in terms of oil equivalents. Minor fuels such as peat, shale and fuel wood are excluded.

[2]Estimates.

*1 barrel per day is equal to 50 metric tons a year.

SOURCES: CIA, *International Energy Statistical Review*, p. 21.
CIA, *Handbook on Economic Statistics*, p. 84.
CMEA Handbooks.

NOTE: Theoretically, production plus imports minus exports equals consumption, however, due to the use of a variety of information sources and methodological differences, the above data may not all check.

NA = not available.

2. Czechoslovakia

Czechoslovakia is poor in oil and natural gas reserves. It is one of the two most industrialized countries of Eastern Europe and, due to its caution in borrowing previously, probably is the most capable of the CMEA nations to enter the world market for its energy needs [31]. Czechoslovakia, as a result of the occupation in 1968, has been very circumspect in asserting independence from the Soviet foreign policy line. Despite the apparent political reliability of Czechoslovakia, Soviet perceptions of her dependability as an ally is likely to be colored by experiences eleven years ago.

Between 1970 and 1978, oil consumption in Czechoslovakia increased by 93 percent. Total primary energy consumption grew at only 28 percent. Oil as a percent of primary energy consumption continued to grow until 1977. The Soviet percentage of Czech oil imports has remained above the 90 percent mark throughout the period examined. Czechoslovakia is expected to import 366 thousand barrels a day from the Soviets in 1979. No figures on non-Soviet oil appear to be available [32].

Like all the Eastern European countries, Czechoslovakia has attempted various measures to conserve energy. Their Sixth Five-Year Plan emphasizes the need for energy conservation in industry, calling for "decisive savings . . . through state racionalization [sic] programs." Their goal is to obtain a savings in fuel and power of 2.0-2.5 percent a year [33]. Some of the actions taken to save energy are shifting working hours to reduce energy use and raising motor vehicle fuel prices to discourage non-essential driving [34].

Party Head Husak touched on the implications of the oil price hike for Czechoslovakia in his address announcing the 1976-80 Five-Year Plan:

> . . . this development has so far been reflected in our relations with socialist states only partially because according to the agreements concluded within the framework of the Council of Mutual Economic Assistance, the price level of the world market will reflect gradually in the course of several years, in the prices valid among member countries; thus a purification from the short-term crisis and boom influences will also be achieved. These

> agreements contribute in a considerable way to the stability of the economic development of the Czechoslovak Socialist Republic, because our economy gained time to conform itself to new, more complicated conditions. On the other hand, taken from the standpoint of the subject discussed today, it is necessary to see that the tasks of the Sixth Five Year Plan are in comparison with the Fifth Five Year Plan more complicated due to [outside conditions] [35].

If current trends continue, oil in Czechoslovakia is likely to increase. This may force them onto the world market unless the Soviets are willing to raise oil exports.

Czechoslovakia is looking for alternative sources of energy. Prague has significant uranium reserves. By 1990, she will be operating 20 nuclear power reactors; but this is not likely to alter dramatically their energy situation in the near-term.

Table 6 shows the Czechoslovak energy situation for 1970-1978.

3. East Germany

The energy situation is very similar to that of Czechslovakia in the German Democratic Republic. Despite being one of the two most industrialized non-Soviet nations in CMEA, oil makes up a relatively low percentage of East Germany's total energy consumed. Politically, the East Germans are similar to the Czechs: Despite being strident supporters of Soviet foreign policy, they are viewed with suspicion by the Russians. In Hedrick Smith's *The Russians*, one Soviet complains about the East Germans:

> You know, we supply the GDR with gas for their industry. We supply it for let's say 43 kopeks, and then we buy back other goods from them for a ruble. Economically we lose, But this is not economics, it is politics. We hold onto them with gas. They told us, "For the development of our industry, we need to double the amount of gas deliveries every year." And we told them, "We can increase the amount of deliveries a bit, but not as much as you want." And they told us that they could get their gas from your (the West) Germans, even though your Germans were getting gas from us. In other words, our Germans threaten us with your Germans [36].

Table 6

CZECHOSLOVAKIA'S ENERGY SITUATION 1970-78

(thousands of barrels/day)*

	1970	1971	1972	1973	1974	1975	1976	1977	1978[2]
Domestic Crude Oil Product	4	4	4	3	3	3	3	2	2
Primary Energy Production[1]	905	953	948	916	932	960	943	950	NA
Crude Oil and Petroleum Products Exported	15	18	20	13	10	15	18	26	NA
Crude Oil Imported	196	230	251	284	293	317	342	366	NA
Petroleum Products Imported	22	20	21	25	27	21	22	24	NA
Soviet Crude Oil and Petroleum Products Imported	210	236	258	286	297	319	345	NA	NA
Foreign Trade Ruble Value of Soviet Export (million)	168	192	210	235	242	493	587	683	NA
Price per ton of Soviet Export	15.9	16.2	16.3	16.4	16.3	30.8	34.1	NA	NA
Soviet % of Crude and Petroleum Products Imported	96.3	94.4	94.9	92.6	92.8	94.3	94.7	NA	NA
Oil Consumption**	208	236	256	300	314	327	354	374	400
Primary Energy Consumption	1134	1229	1233	1267	1306	1298	1361	1452	NA
Oil as a % of Primary	18.3	19.2	20.7	23.6	24.0	25.2	26.0	25.7	NA

SOURCES: CIA, *International Energy Statistical Review*, p. 27.
CIA, *Handbook of Economic Statistics*, 1978, p. 84.
CMEA Handbooks.

[1]Data are for coal, crude oil, natural gas, and nuclear power expressed in terms of oil equivalents and excludes minor fuels such as peat, shale, and fuel wood.

[2]Estimated.

*1 barrel per day is equivalent to 50 metric tons over a year.

**Theoretically, production plus imports minus exports equals consumption, however, due to the use of a variety of information sources and methodological differences, the above data may not check.

NA - not available.

The importance of this statement is not its economical value, rather it reflects some Russians' perceptions of their German "ally."

The current five-year plan stresses the need for continued reduction in energy use, though it does not refer to oil in particular. Deputy Premier Weiss said shortly after the oil price hike of 1975 that:

> I would like to reaffirm that the increases in the price of our imports that are connected with the additional charges will not affect retail prices, rents, or transportation rates paid by the population [37].

The East German leadership's unwillingness to pass higher energy costs directly on to the consumer suggests that energy conservation measures will be primarily in the industrial sector.

The East German economy, though comparatively strong, has experienced some recent problems. For 1979, the Soviet Union has set a limit of 370 thousand barrels/day to be exported to the GDR. This represents about 80 percent of the GDR's expected consumption. The remaining 20 percent will probably have to be purchased from the OPEC nations. Though the GDR can handle such a burden, it does represent an economic hardship. The Soviets may feel that the German economy is capable of buying oil in the world market, or at least more so than some other CMEA nations [38].

Table 7 shows the East German energy situation 1970-1978.

4. Hungary

Hungary is the only CMEA nation operating under a system of market socialism. Like the other CMEA countries discussed so far, Hungary is a poor state in terms of natural energy. Since 1970, oil's importance in overall energy consumption has been increasing, though recently, the rate seems to be slowing down.

Kadar and his economic advisors have attached great importance to energy conservation. They have:

Table 7

EAST GERMANY'S ENERGY SITUATION 1970-78

(thousands of barrels/day)*

	1970	1971	1972	1973	1974	1975	1976	1977	1978[2]
Domestic Crude Oil Product	1	1	1	1	1	1	1	1	1
Primary Energy Production[1]	905	953	948	916	132	960	943	950	NA
Crude Oil and Petroleum Products Exported	26	20	47	47	58	57	48	44	NA
Crude Oil Imported	207	218	297	320	329	340	361	381	NA
Petroleum Products Imported	2	4	11	2	2	3	2	4	NA
Soviet Crude Oil and Petroleum Products Imported	186	207	229	269	288	299	355	NA	NA
Foreign Trade Ruble Value of Soviet Export (million)	125	141	162	185	271	421	538	699	NA
Price per ton of Soviet Export	13.4	13.6	14.1	14.2	18.7	28.2	32.1	NA	NA
Soviet % of Crude Oil and Petroleum Products Imported	89.0	93.2	74.3	83.5	87.0	87.2	97.8	NA	NA
Oil Consumption**	182	202	259	277	269	282	311	330	360
Primary Energy Consumption	1481	1567	1575	1658	1712	1580	1617	1676	NA
Oil as a % of Primary	12.7	15.9	16.4	16.7	15.7	18.4	19.2	19.7	NA

SOURCES: CIA, *International Energy Statistical Review*, March 9, 1979, p. 27.
CIA, *Handbook of Economic Statistics*, 1978, p. 84.
CMEA Handbooks.

[1]Data are for coal, crude oil, natural gas, and nuclear power expressed in terms of oil equivalents and excludes minor fuels such as peat, shale, and fuel wood.

[2]Estimate.

*1 barrel per day is equal to 50 metric tons over a year.

**Theoretically, production plus imports minus exports equals consumption, however, due to the use of a variety of information sources and methodological differences, the above data may not check.

NA = not available.

1. Established industrial purchase quotas for oil products.
2. Reduced fuel consumption norms for public transportation.
3. Passed on higher prices to enterprises and consumers [39].

Initially, there was an attempt to insulate the domestic economy from the effects of the higher fuel import costs through the use of price controls and subsidies. However, this policy did not last long. Eventually, prices for gasoline, diesel, gas heating, and coal all increased [40]. According to John Haberstroh, the energy crisis has contributed to the expanding economic role of central organs in Hungary, thus weakening the market socialism experiment [41].

Hungary's current five year plan calls for a 4.2 growth rate in total energy use for 1976-80 and a 3.3 rate for 1980-90. These figures do not radically differ from the current trend line of 3.5-4.0 percent increases a year [42]. Oil since 1970 has increased as a percentage of total primary energy consumption. The Soviet percentage of oil consumption had remained relatively constant, averaging 84.4 for 1970-74 declining after the 1975 price increase. Hungary has at least twice contracted to buy Soviet oil at world prices rather than buy from the OPEC nations, when their needs surpassed their ration. Hungary reportedly received 188 thousand barrels of oil per day from the Soviets in 1978. Hungarian imports from the Soviet Union were predicted by Hungary to reach 200 thousand b/d. If total Hungarian oil consumption grows by 15 thousand b/d, then the Soviet percentage of oil consumed in Hungary is 71 percent [43].

Table 8 shows Hungary's energy situation from 1970-1978.

5. Poland

Poland is unique among Eastern European countries. It is not only the largest in terms of population, the most heavily Catholic, and the deepest in debt of the CMEA nations, it is the only country in Eastern Europe which traditionally experiences an energy surplus in trade. However, last year's surplus was the smallest of the decade and Polish officials are concerned.

Table 8

HUNGARY'S ENERGY SITUATION 1970-78

(thousands of barrels/day)*

	1970	1971	1972	1973	1974	1975	1976	1977	1978[2]
Domestic Crude Oil Produced	39	39	40	40	40	40	43	44	43
Primary Energy Production[1]	277	274	269	283	280	274	289	293	NA
Crude Oil and Petroleum Products Exported	24	14	28	23	14	27	32	34	NA
Crude Oil Imported	93	98	121	131	136	169	176	171	NA
Petroleum Products Imported	20	16	14	20	21	19	19	30	NA
Soviet Crude Oil and Petroleum Products Imported	95	101	111	126	135	150	169	NA	192[3]
Foreign Trade Ruble Value of Soviet Export (millions)	77	84	94	113	141	309	377	503	NA
Price per ton of Soviet Export	16.3	16.6	16.9	17.9	20.9	40.9	44.7	NA	NA
Soviet % of Crude and Petroleum Imports	84.1	88.6	82.2	83.4	86.0	79.8	86.7	NA	72.4[3]
Oil Consumption**	127	144	162	179	188	218	227	233	265
Primary Energy Consumption	435	442	437	476	496	525	534	550	NA
Oil as a % of Primary	29.2	32.6	37.0	37.7	40.0	41.5	42.5	40.5	NA

SOURCES: CIA, *International Energy Statistical Review*, March 9, 1979, p. 21.
CIA, *Handbook of Economic Statistics*, 1978, p. 84.
CMEA Handbooks.

[1]Data are for coal, crude oil, natural gas, and nuclear power expressed in terms of oil equivalents and excludes minor fuels such as peat, shale, and fuel wood.

[2]Estimated.

[3]Based on report in FBIS, January 26, 1979.

*1 barrel per day is equivalent to 50 metric tons over a year.

**Theoretically, production plus imports minus exports equals consumption, however, due to the use of a variety of information sources and methodological differences, the above data may not check.

NA = not available.

> The cost of oil and gas imports is rising faster than earnings from coal exports, especially evident these past three years despite cutbacks in the refineries' program, energy conservation efforts and slower economic growth generally [44].

Higher oil costs were given as a major reason for the weakening of Poland's trade position. In the early 1970s, the Soviet share of Polish oil imports was over 90 percent, today it has dropped below 80 percent.

The Polish economy is not very dependent on oil overall. Oil makes up the lowest percentage of total energy consumption in all of Eastern Europe, though this rate is growing. Warsaw depends on coal as its primary form of energy consumption and has exported coal as a major earner of hard currency.

The percentage Soviet oil makes of total oil imports has been reduced since the early part of the decade. In 1979, Poland announced that the Soviet Union had increased Poland's oil quota by 16 thousand b/d per year and cited their own increased role in joint Polish-Soviet investment projects as the reason [45]. This may have been done because the Soviets may have decided that the Poles cannot afford to import additional oil from the OPEC nations. Table 9 describes the Polish energy position 1970-1978.

C. THE ROLE OF MIDDLE EAST OIL

Although the Soviet Union urged its CMEA partners to expand their number of oil suppliers since 1970, because of the East Bloc's lack of hard currency and the lower price of Soviet crude, Moscow advice was either ignored or simply could not be acted upon in tangible ways until 1975. There were efforts to diversify their suppliers following the Soviet oil price hike, but this was due more to the limits placed by the Soviets on their exports than an increased ability to go onto the market. From 1970 to 1976, Eastern European countries experienced mixed results in lessening their dependence on Soviet energy products.

Table 10 shows one projection of the amount of oil that Eastern Europe planned to import from the Middle East. One should expect the 1980 revised figures to be further reduced due to uncertainty regarding Iran's ability and willingness to supply CMEA countries.

Table 9

POLAND'S ENERGY SITUATION 1970-78

(thousands of barrels/day)*

	1970	1971	1972	1973	1974	1975	1976	1977	1978[2]
Domestic Crude Oil Produced	8	8	7	8	11	11	9	7	7
Primary Energy Production[1]	1758	1988	2072	2150	2219	2342	2437	2496	NA
Crude Oil and Petroleum Product Exported	26	21	34	27	24	32	53	42	NA
Petroleum Products Imported	48	45	47	61	60	63	64	66	NA
Crude Oil Imported	140	158	194	223	212	266	302	328	NA
Soviet Crude Oil and Petroleum Products Imported	173	191	221	247	237	265	281	NA	NA
Foreign Trade Ruble Value of Soviet Export	143	158	182	214	244	524	592	802	NA
Price per ton of Soviet Export	16.5	16.6	16.5	17.3	20.6	39.5	42.0	NA	NA
Soviet % of Crude and Petroleum Imports	92.0	94.0	91.7	87.0	87.1	80.5	76.8	NA	NA
Oil Consumption**	172	192	215	268	262	311	323	343	340
Primary Energy Consumption	1635	1781	1858	1936	1938	2030	2105	2310	NA
Oil as a % of Primary	10.5	11.1	11.6	13.8	13.5	15.3	14.7	14.8	NA

SOURCES: CIA, *International Energy Statistical Review*, March 9, 1979, p. 21.
CIA, *Handbook of Economic Statistics*, 1978, p. 84.
CMEA Handbooks.

[1]Data are for coal, crude oil, natural gas, and nuclear power expressed in terms of oil equivalents and excludes minor fuels such as peat, shale, and fire wood.

[2]Estimated.

*1 barrel of crude oil per day is equivalent to 50 metric tons over a year.

**Theoretically, production plus imports minus exports equals consumption, however, due to the use of a variety of information sources and methodological differences, the above data may not check.

NA = not available.

In the area of financing, OPEC nations prefer to be paid in hard currency. Eastern Europe's debt situation is shown in Table 11. As a result of problems in their balance of payments, the East Bloc tries to

> . . . cushion the adverse economic impact of imports by paying for them through barter rather than hard currency. In 1974, barter agreements covered an estimated one-half of Eastern Europe's imports of crude oil from the Middle East. Although all Eastern European nations, except for Romania, firmly support the Arab cause against Israel, they have been unable to use this support as an inducement for continuation of these agreements.
>
> A Western analyst reports that the share of Arab oil received by the Eastern Europeans on barter has "declined dramatically since 1974," although by precisely how much is not known [46].

The primary reason that the OPEC countries have reduced barter trade is that the petrodollar-rich Arab countries prefer higher quality Western goods to those available from Eastern Europe. Thus it appears that unless Eastern Europe can improve the desirability of its goods either to the West or the OPEC nations, they are unlikely to be able to find alternatives to Soviet energy without worsening their hard currency situation. It may be necessary for the Bloc nations to accept unfavorable terms of trade in order to obtain oil if the Soviets are unwilling to fill their oil needs.

D. OIL CONSUMPTION AND INDUSTRIAL GROWTH

Energy plays an essential role in economic growth. However, the relationships between energy consumption and growth is complex. Oil in Eastern Europe is consumed primarily in the industrial and transportation sectors, with the industrial sector being the dominant user. In 1975, the price charged the Eastern Europeans by the Soviets significantly increased. The Eastern European nations responded with some immediate conservation measures such as reducing speed limits, lowering thermostats in public facilities, and increasing the usage of insulation.

Table 10

EASTERN EUROPE'S CRUDE OIL IMPORTS FROM THE MID-EAST

(thousands of barrels/day)

	1975	1980 (early plan)	1980 (revised)
BULGARIA	8	120	40
CZECHOSLOVAKIA	6	100	20
EAST GERMANY	38	120	60
HUNGARY	30	120	60
POLAND	48	160	80

SOURCE: Haberstroh, John, "Eastern Europe's Growing Energy Problems," *Eastern European Economies Post Helsinki*, p. 387.

[1]Data are estimated.

[2]Revised plans are based mainly on announced changes in refinery capacity.

Table 11

EASTERN EUROPE'S DEBT SITUATION, 1977

(billions of US dollars)

Country	GNP	External Debt[1]	Trade Balance[2]
BULGARIA	22.1	2.7	-0.36
CZECHOSLOVAKIA	63.2	2.7	-0.57
EAST GERMANY	73.1	6.0	-1.00
HUNGARY	29.4	3.4	-0.82
POLAND	100.5	12.8	-2.46

SOURCE: *New York Times*, "Eastern Europe's Dilemma: It's in the Red," New York Times International Economics Survey, February 4, 1979, p. 52.

[1]Hard currency debt includes official Western credited export commitments and claims of Western commercial banks.

[2]Hard currency merchandise trade.

Analysis of the reaction of Eastern European countries to the price hike is greatly complicated by the weakness of our data. For example, it is impossible to determine if the production enterprise in Eastern Europe actually consumes the oil allocated to it. Nor do we know whether the enterprise suffered a decrease in the amount of oil available for use, or if it was forced to reduce costs in other areas.

Table 12 examines the relationship between growth in gross industrial output (GIO) and oil consumption. In all cases the average of the values for ΔOil Consumption/ΔGIO for 1971-1974 was greater than the period 1975-1978. This suggests some success in conserving energy in response to higher energy prices. With the exception of Bulgaria in 1975, and Poland in 1978, for the four years following the Soviet oil price hike, industrial growth occurred in conjunction with an increase in oil consumption. If one assumes that most of the short-term conservation measures available to the leadership in Eastern Europe were put into effect shortly after 1975 when higher energy costs became a major concern of CMEA industrial planners, it seems likely that in the near future, as long as there is industrial growth in Eastern Europe, the region's demand for oil is likely to increase.

Table 12

RATIO OF GROWTH IN OIL CONSUMPTION TO GROWTH IN INDUSTRIAL OUTPUT FOR EASTERN EUROPEAN COUNTRIES, 1971-1978

Year	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland
1971	2.3	5.2	4.2	8.9	1.8
1972	1.5	1.8	14.8	9.6	1.5
1973	2.25	4.5	2.5	2.6	3.2
1974	1.0	1.3	- .6	2.2	- .3
1975	- .9	.83	1.0	4.2	2.1
1976	.6	2.0	2.6	1.1	1.25
1977	.74	1.6	2.3	1.0	.98
1978	1.19	1.9	2.3	4.3	-2.6

SOURCE: CIA, *International Energy Statistics Review*, March 9, 1979; and Thad Altar, Occasional Paper of the Research Project on National Interest in East Central Europe, LWIFR, OP-54 (forthcoming).

$$\text{Ratio} = \frac{\text{Consumption of oil in year t - Consumption of oil in year t-1}}{\text{Index of gross industrial output in year t - GIO}_{t-1}}$$

IV. POLITICAL IMPLICATIONS OF THE ENERGY SITUATION IN EASTERN EUROPE

How is the Soviet Union likely to respond to the energy needs of their Eastern European allies? Will the Soviets increase, hold constant, or decrease the volume of their oil exports to their CMEA trading partners? What factors will weigh in their decision? This section examines the Soviet leadership's priorities in establishing their oil export policy to Eastern Europe.

Trade dependency is often assumed to lead to leverage. To exercise leverage it is necessary to pay a cost. With regard to energy, the Soviet Union has been unwilling to pay the cost required to force the Eastern European countries to find alternative suppliers.

Since 1970, the Soviet Union encouraged the CMEA nations to find additional energy suppliers to meet Eastern Europe's growing demand. In 1975, the Soviets raised the price of their energy exports to Eastern Europe and set ceilings for each of the CMEA nations. However, these ceilings have not been as firm as first indicated. The Soviets have been flexible in responding to the energy needs of their allies. Although it seems that most of the Eastern European countries have made attempts to conserve energy, total demand for oil continues to increase.

How did the increase in the price of oil and petroleum products affect the countries of Eastern Europe's dependency on the Soviet Union? One way of examining this question is to look at trade patterns. Although data are incomplete, the results for four of the five countries are similar. In 1974, exports to the West as a proportion of total exports peaked for Czechoslovakia, East Germany, Hungary, and Poland. In 1975, the price of Soviet energy exports to CMEA increased, possibly causing a reorientation of Eastern European trade towards CMEA nations. In the years 1974-1977, the Western share of these four countries' exports declined 3-5 percent. Bulgaria was the one exception to the rule. Their exports to the West peaked in 1976, the last year that complete data were available. Bulgaria's lower level

of industrialization and its special relationship with the Soviet Union may explain its unusual response. During the period examined, none of the Bloc countries significantly increased the percentage of their exports to the Third World.* The lack of trade reorientation towards the West and the Third World suggests that the Eastern Europeans will be unable to finance a major expansion of their energy imports from OPEC without going more heavily into debt or decreasing their imports from the West. Thus they will be forced to sustain their dependency on the Soviet Union.

Although rising energy prices have led to increased Eastern European dependence on the Soviet Union in foreign trade, a corresponding increase in usable leverage probably has not occurred. The Soviet Union by virtue of its great military and economic power does exercise considerable influence over the affairs of the Eastern European states. But the Soviet's fear of violence within Eastern Europe may make them unwilling to force the CMEA states to lessen their energy dependence. It seems that as long as the Pact nations buy their oil for less than world market prices, the Soviets lose economically. The Soviets probably accept this economic hardship in exchange for certain political and military concessions.**

The Soviets are aware that the Communist regimes in Eastern Europe have earned a degree of legitimacy, in part, by improving their standard of living. Since the Soviets probably view Honecker in East Germany, Gierek in Poland, and Husak in Czechoslovakia as friendly leaders trying to keep the lid on anti-Soviet sentiment, they will probably continue to support these governments with energy priced below its world market value. The Soviets rightfully fear that more nationalistic governments might be encouraged if there is a lack of concern shown for the economic plight of their CMEA partners.

The Eastern European states may be able to exploit the Soviet's fear of instability. For example, the Polish government usually announces

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*The distribution of Eastern Europe's exports is in the appendix.

**A forthcoming Rand study (R-2422) by Jeffrey Simon indicates that during the last ten years, the Soviets have been decreasingly successful in exercising leverage over the foreign policies of their Warsaw Pact allies.

its price increases on the Polish populace without warning. In 1970 and 1976, this resulted in major domestic disturbances. The Soviets responded by lending the Polish government economic assistance. The Polish leadership (and possibly others) may use this "strategy" to take advantage of Soviet anxieties in gaining trade concessions and subsidies.

The Soviets may also fear that if Eastern Europe is forced to reorient its trade to pay for world market oil, the Eastern European states will learn to adapt to their new trade conditions and find fewer benefits of closer ties with the USSR. Increased trade will lead to more personal contacts between the Bloc countries and the West. The Soviets are probably apprehensive about the impact of this potential development.

The CIA prediction that Soviet oil production will level off and decline has yet to be fulfilled [47]. As a result, the Soviet Union may not have been forced yet by supply considerations to make hard decisions in their export policy.* When the shortfall comes, the Soviets will have to determine their allocation priorities. In the face of a rising demand for oil in Eastern Europe, the Soviets are likely to continue increasing their exports of oil to that region. The Soviets will then probably decrease their exports to the West and attempt to conserve additional energy domestically in non-industrial areas. The Soviet Union, mindful of the potential for social upheaval in Eastern Europe, and confident that they can control whatever domestic discontent might arise from energy cut-backs at home, are unlikely to shift the full force of their energy crisis onto their CMEA partners.

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*It is possible that the Soviet Union by devoting extensive resources towards energy development might be able to forestall the inevitable decline in oil production. This would entail either tremendous investment costs borne by the Soviets or would call for the importation of Western capital and technology. The Soviet's unwillingness to show flexibility on the Sakhalin Islands in their negotiations with the Japanese may be indicative of the priority which they attach to foreign investment in oil development.

APPENDIX

This appendix consists of four tables. Table A-1 shows the distribution of primary energy consumption in Eastern Europe. Coal consumption is significantly greater than oil and natural gas. Hydroelectric and nuclear power are slowly growing in importance. Table A-2 shows Eastern Europe's natural gas situation. The Eastern Europeans are dependent on the Soviets in the area of natural gas. Table A-3 shows Eastern Europe's nuclear plans. The Eastern Europeans, like the Soviets, have tended to ignore in their public discussions the hazards of nuclear energy. Nuclear power can be only a long-term solution to part of the region's energy problems. Table A-4 shows the distribution of Eastern European trade exports, 1970-1977.

Table A-1

EASTERN EUROPE'S PRIMARY SOURCES OF ENERGY 1965, 1970, 1975, 1980 [1]

(million tons of standard coal equivalents) [2]

	Coal	Oil	Natural Gas	Electricity from Hydroelectric and Nuclear	Total
1965					
Production	275.0	21.8	27.1	4.2	328.1
Net Imports	-2.5	21.0	0.6	0.6	19.7
Consumption	272.5	42.8	27.7	4.8	347.8
1970					
Production	305.7	23.4	46.8	4.5	380.4
Net Imports	-7.2	51.7	3.1	1.7	49.3
Consumption	298.5	75.1	49.9	6.2	429.3
1975					
Production	332.7	25.0	66.9	9.1	433.7
Net Imports	-19.8	94.5	13.4	3.4	91.5
Consumption	312.9	119.5	80.3	12.5	525.2
1980 [Estimated]					
Production	385.3	29.1	70.3	14.0	497.3
Net Imports	-18.6	139.5	36.0	5.4	163.7
Consumption	366.7	168.6	106.3	19.4	661.0

[1] Romania is included.

[2] Standard coal equivalent has a heat value of 7000 kilocalories per kilogram.

SOURCE: Haberstroh, John, "Eastern Europe's Growing Energy Problem" in *Eastern European Economies Post-Helsinki*, p. 381.

Table A-2

EASTERN EUROPE'S NATURAL GAS SITUATION

(billion ft^3/d)

	1970	1971	1972	1973	1974	1975	1976	1977
BULGARIA								
Production	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.
Consumption	Negl.	Negl.	Negl.	Negl.	Negl.	0.1	0.2	0.3
Import from USSR	Negl.	Negl.	Negl.	Negl.	Negl.	0.1	0.2	0.3
CZECHOSLOVAKIA								
Production	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Consumption	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.5
Import from USSR	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4
EAST GERMANY								
Production	0.1	0.3	0.5	0.7	0.7	0.7	0.8	0.8
Consumption	0.1	0.3	0.5	0.8	1.0	1.0	1.2	1.2
Import from USSR	---	---	---	0.1	0.3	0.3	0.3	0.4
HUNGARY								
Production	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6
Consumption	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.8
Import from USSR	---	---	---	---	---	0.1	0.1	0.1
POLAND								
Production	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.7
Consumption	0.6	0.7	0.7	0.7	0.8	0.8	0.9	1.0
Import from USSR	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3

SOURCE: CIA, *International Energy Statistical Review*, March 9, 1979, pp. 26, 28, and 29.

Table A-3

POWER REACTORS IMPORTED, UNDER CONSTRUCTION, OR ON ORDER FROM THE USSR

	Reactor Name	Type	Status	Date Operable
BULGARIA	Kozlodui 1	PWR*		10/74
	Kozlodui 2	PWR		9/75
	Kozlodui 3	PWR	Under Construction (C)	'78
	Kozlodui 4	PWR	On order (O)	'79
	unnamed	PWR	Planned (P)	'90
	unnamed	PWR	(P)	'90
	unnamed	PWR	(P)	'90
	unnamed	PWR	(p)	'90
CZECHOSLOVAKIA	Bohunice A-1	GCHWR**		'72
	Bohunice 2A	PWR	(C)	'77
	Bohunice 2B	PWR	(C)	'79
	Czechoslovakian 3	PWR	(C)	'79
	Czechoslovakian 4	PWR	(C)	'80
	(16 more planned)			
GDR	Rheinsberg 1	PWR		5/66
	Nord 1-1	PWR		12/73
	Bruno Leuschner	PWR		'75
	Nord 2-1	PWR	(O)	'77
	Nord 2-2	PWR	(O)	'78
POLAND	Danzica	PWR	(P)	'83
	unnamed	PWR	(P)	unknown
HUNGARY	unnamed	?	(P)	unknown

SOURCE: *Duffy: Soviet Nuclear Exports*, P-6044, The Rand Corporation, Santa Monica, CA, December 1977, p. 7, and conversation with Hungarian Embassy.

*Pressurized water reactor.

**Gas-cooled, heavy-water reactor.

Table A-4

TOTAL EASTERN EUROPEAN TRADE ABLE TO BE DISTRIBUTED[1]

	1970	1971	1972	1973	1974	1975	1976	1977[2]
Bulgaria								
Total	1923	2092	2537	3211	3613	4451	5096	--
USSR	56.0	57.1	58.8	56.8	52.6	59.4	56.4	--
Eastern Europe	22.4	21.4	21.1	22.1	21.9	21.8	22.8	--
Developed Countries	15.0	14.7	13.7	12.6	12.9	10.6	12.3	--
Less Developed Countries	6.5	6.7	6.4	7.1	12.6	10.4	8.4	--
Czechoslovakia								
Total	3549	3907	4661	5643	6433	7664	8249	9941
USSR	34.4	33.9	36.0	33.5	31.4	34.8	35.6	34.3
Eastern Europe	34.2	34.1	34.3	35.0	32.8	34.2	36.1	34.0
Developed Countries	22.1	21.9	20.9	23.5	26.5	21.8	20.2	21.0
Less Developed Countries	9.3	10.0	8.8	7.9	9.3	9.2	8.0	10.7
East Germany[3]								
Total	4389	4871	6058	7465	8518	10130	10991	--
USSR	39.7	39.8	41.3	38.3	33.0	36.5	33.3	--
Eastern Europe	31.6	32.1	31.6	31.8	31.6	33.2	33.6	--
Developed Countries	24.6	23.7	23.5	26.1	31.2	26.0	28.8	--
Less Developed Countries	4.1	4.4	3.6	3.7	4.2	4.3	4.3	--
Hungary								
Total	2205	2372	3163	4196	4670	5436	6241	7395
USSR	35.8	36.8	37.8	34.7	32.5	39.6	37.6	38.1
Eastern Europe	29.4	31.3	30.8	31.7	31.4	29.3	31.2	32.0
Developed Countries	28.6	26.0	26.0	28.5	29.2	24.4	24.9	23.5
Less Developed Countries	6.2	5.9	5.4	5.0	6.9	6.7	6.3	6.4
Poland								
Total	3415	3717	4785	6281	8009	10156	10639	11994
USSR	36.6	37.3	38.2	33.5	29.2	33.1	31.1	33.0
Eastern Europe	25.8	24.2	24.3	26.3	24.8	26.3	27.1	26.3
Developed Countries	30.0	31.2	31.5	35.2	40.0	32.3	33.5	32.3
Less Developed Countries	7.5	7.2	6.0	5.0	8.0	8.3	8.3	8.4

SOURCE: CIA, *Handbook of Economic Statistics*, 1978, p. 67.

[1]Domestic currency converted into US dollars at the exchange rate prevailing at time of transaction. Exports are on an f.o.b. basis. Trade with the Communist countries was derived by converting the value of the trade expressed in the currency of each East European country to rubles and then to dollars at the prevailing foreign exchange rate.

Table A-4 cont.

[2]Preliminary

[3]The official West German Deutschemark/US dollar rate was used to convert intra-German trade in East German marks to US dollars because using the East German mark/US dollar rate understates the value of trade. East Germany converts West German marks into East German marks at parity, but actually the East German mark is worth less than the West German mark.

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