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Developments in the Fuels Industries

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Developments in the Fuels Industries

1. The USSR leads the world in the production of coal and ranks second to the US in output of crude oil and natural gas. The rate of growth in production of fuels in the USSR, however, has been declining for several years and without substantial increases in investment is unlikely to improve in the near future. During 1966-69 average annual growth in output of major fuels was about 5.5 percent, compared with about 7.3 percent annually during 1961-65. The unfavorable performance of the fuels industries in recent years results from the failure to solve several chronic problems related to the allocation of investment and the management of investment programs. Growing demand for fuel coupled with depletion of resources in older producing regions is forcing exploitation of reserves at greater depths or in new areas, many of them remote from centers of consumption and affected by severe extremes of climate. Some of the exploration and production technology and equipment now employed are not suited to the changing geologic and climatic conditions. As a result substantial capital investment for modernization and reequipment will be required. In the recent past, however, increases in production per unit of additional investment have been growing smaller, at least in part because more output has come from remote, high-cost areas.

2. The record of plan fulfillment in the Soviet fuels industries in 1968 was the worst in recent years. Only the goal for production of crude oil -- 309 million tons -- was achieved, while the output of gas was

underfulfilled by some 2 billion cubic meters. Production of coal not only failed to meet plan, but actually declined for the first time since 1961. There was some improvement, however, in 1969 when coal production rose sharply, about 2% above plan. Crude oil output met plan, but the percentage increase (6.1%) was the smallest in the postwar period. Natural gas production failed to reach the goal by almost 3 billion cubic meters. (See tables 1 and 2.) The achievements in oil and coal production in 1969 were significant, considering that output in the first half of the year was behind that in the same period of 1968 because of the severe winter weather in early 1969.

3. Annual goals for production of crude oil since 1950 have generally been fulfilled, and at times overfulfilled. Since 1966, however, the rate of increase in annual output has fallen steadily, and in 1969 it reached the lowest level of the postwar period, only 6.1%, despite the record production of 328 million tons. The plan for 1970 calls for production of some 350 million tons of crude oil, about 22 million tons more than in 1969 and an increase of 6.7%. This goal, although somewhat optimistic, can be achieved if production difficulties in West Siberia can be overcome.

4. Output of natural gas has failed to meet annual goals during the past decade because of inadequate investment in producing and consuming equipment and in pipeline facilities. In 1969, production of natural gas reached about 181 billion cubic meters, almost 3 billion cubic meters below plan, and an increase of 7.2% -- the lowest rate of increase since 1952

when this branch of the petroleum industry was still insignificant. The goal for production in 1970 was lowered in 1969 from 200 billion cubic meters to about 196 billion, and even the reduced level may be difficult to achieve unless further progress is made in solving the problems of providing adequate pipelines and producing and consuming equipment.

5. Construction of gas pipelines has been given priority in the Soviet Union because natural gas is a low cost, clean, and efficient source of energy that can be transported economically, only by pipeline. As a result of the lower priority given to building oil pipelines, about 40% of all oil moved in the USSR is transported by rail at a cost about 3 times that of pipeline transport. The USSR leads the world in the use of large-diameter pipelines, but construction of oil and gas pipelines has not proceeded steadily and has not kept pace with plans because of shortages of equipment, such as valves, compressors, and pumps, and because of difficult supply problems in remote areas, especially in Western Siberia. For example, in 1968, only about 3,400 kilometers of gas lines and 1,700 kilometers of oil lines were built, the lowest annual total since 1962. In 1969, however, one of the best completion records was achieved -- 7,300 kilometers of gas pipelines and 2,700 kilometers of oil pipelines. With the erratic performance of pipeline construction during 1966-69, it is doubtful that the 1970 goal for construction of oil pipelines can be achieved, whereas that for gas pipelines could be with another outstanding year of construction. At the end of 1969, the length of the gas pipeline system was more than

63,000 kilometers, and the goal for 1970 is 70,000 kilometers. The oil pipeline network amounted to almost 37,000 kilometers at the end of 1969. To reach the goal of 41,000 kilometers by the end of 1970 more than 4,000 kilometers of oil lines would have to be built in one year, an achievement not previously attained in oil pipeline construction.

6. Soviet demands for high quality petroleum products are increasing but much of the specialized refining equipment required to produce these products is not being installed as rapidly as needed, or when completed is not operated at design capacity. Expansion of existing refineries has not been completed on schedule and the proper mix of products to meet seasonal and regional demands has not been provided. Not a single new oil refinery was started during 1962-68 and two important refineries planned in 1965 have not as yet reached the blueprint stage.

7. Production of oil industry equipment, primarily refining equipment, has fluctuated within wide limits during the past 15 years -- from a low of about 49,000 tons in 1955 to a high of almost 148,000 tons in 1966. Irregular delivery of equipment probably has contributed to the failure to complete refinery construction on schedule. In 1969, output of oil equipment amounted to about 123,000 tons, approximately 2,000 tons less than in 1968 and 17,000 tons less than in 1967. Not since 1966 has output of oil equipment fulfilled the planned goals.

8. Exports of oil from the USSR in 1968 increased about 9% above those in 1967; whereas in 1969 such exports did not increase. Annual rates of

increase in exports during 1960-67, however, averaged about 15%.

← In 1969 -- for the first time since 1955 when the Soviet Union became a net exporter of oil -- exports of oil to the Free World declined, by about 3 million tons (see Table 3). Oil exports to the Free World have been the largest single source of foreign exchange for the USSR during the past several years. Hard currency earnings from such exports amounted to about \$350 million in 1969. Early in 1969, V.D. Shashin, Minister of the Petroleum Extraction Industry, stated that Soviet exports of oil will not increase significantly in the future because of rising domestic demands for oil. He said that the Soviet Union will maintain a high level of exports to Eastern Europe, but doubted that exports to the West will continue to increase indefinitely.

9. The USSR evidently is committed to supply larger amounts of oil to meet the rapidly rising needs of Eastern Europe. To provide this oil the Friendship crude oil pipeline system between the USSR and Poland, East Germany, Czechoslovakia, and Hungary is being paralleled. As a result, Soviet exports to the Free World may continue to decline, along with earnings of hard currency from such exports. To enable the USSR to provide the petroleum needed by Eastern Europe, most of the East European countries have agreed to invest in the development of Soviet petroleum and other industrial resources. Within the past year or so, Eastern European countries that are heavily dependent on Soviet oil have signed agreements with Middle East countries to import supplemental quantities of Middle East crude oil in exchange for commercial

goods.

10. In the latter part of 1969 the USSR signed agreements to export natural gas to West Germany and Italy in exchange for large-diameter pipe. The imported pipe will be delivered during 1970-72 and will facilitate construction of Soviet gas and oil pipeline systems. These gas exports eventually will earn foreign exchange and thus may compensate for a decline in oil exports to the Free World. Until the mid-1970's, however, the USSR will be a net importer of gas, as imports from Afghanistan and Iran will exceed total exports.

11. The Soviet coal industry in 1968 and 1969 showed sharply different production results. In 1968, output was 594 million tons, about 1 million tons less than in 1967, the first decline since 1961 and only the second in the postwar period. Commissioning of additional mining capacity also lagged badly in 1968, amounting to only 12 million tons, compared with an average of more than 17 million tons per year during 1961-67. In 1969, however, production of coal amounted to about 608 million tons, 2% more than plan. The 14-million ton increase was the largest since 1965 when output rose 24 million tons. The program for modernizing and re-equipping the older underground mines, which has been underway for at least 5 years and which has lagged behind schedule, may now be starting to pay off. With this indication of improved output, the 1970 goal of 618 million tons seems readily attainable.

12. Most of the capital investment in the coal industry has been allocated to the development of high cost underground mining areas, such as

the Donets Basin. In the extension of mining to greater depths, unforeseen and difficult geological conditions were encountered that led to higher unit costs. Nevertheless, greater attention is being given to the production of coking coal, as there is no adequate substitute for coke in the manufacture of iron and steel. Huge deposits of low-cost, low-quality coal in the eastern region have not been developed as expected because of the lack of consumers in the area. During 1962-68, investment in the coal industry as a whole rose at an average annual rate of 4.6% while coal production increased at an average of only 2.3% per year.

13. Soviet exports of coal and coke during 1966-69 remained rather constant at about 26 million tons per year. Of this total, almost 9 million tons per year, valued at approximately \$110-120 million, were exported to the industrialized countries of the Free World.

14. Although the USSR is the world's leading producer of coal, since 1963 oil and gas have accounted for a larger share of total fuel production at the expense of coal. In 1968, crude oil surpassed coal for the first time as the major fuel produced in the Soviet Union (see Table 4). In the future, coal will be consumed mainly in those sectors of the economy where it cannot be replaced or where it is cheaper than oil or gas. Increases in coal output will depend to a large degree on expanding production of coke for use in the metallurgical industries and on the use of coal as a fuel in thermal powerplants.



Table 1 - U.S.S.R.: Output of major fuels, 1960-69

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Coal <sup>1/</sup>	509.6	506.4	517.4	531.7	554.0	577.7	585.6	595.2	594.0	608
Crude oil <sup>1/</sup>	147.9	166.1	186.2	206.1	223.6	242.9	265.1	288.1	309.2	328
Natural gas <sup>2/</sup>	45.3	59.0	73.5	89.8	108.6	127.7	143.0	157.4	169.1	181.3

<sup>1/</sup> Million metric tons.

<sup>2/</sup> Billion cubic meters (excludes gases manufactured from coal and oil shale).

Table 2 - U.S.S.R.: Annual rates of growth in production of major fuels, 1960-68  
(in percent)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Coal	1.3	- 0.6	2.2	2.8	4.2	4.3	1.4	1.6	- 0.2	2.4
Crude oil	14.1	12.3	12.1	10.6	8.5	8.6	9.2	8.7	7.3	6.1
Natural gas	28.0	30.2	24.7	22.2	20.9	17.6	12.0	10.1	7.4	7.2

Table 3 - U.S.S.R.: Exports of petroleum, 1960-69<sup>a/</sup>  
(in millions of metric tons)

Year	Exports to Free World Countries		Exports to Other Communist Countries		Grand Total <sup>b/</sup>
	Crude oil	Products	Crude oil	Products	
1960	9.0	9.1	18.1	8.8	33.2
1962	13.6	11.1	24.7	12.7	45.4
1964	18.8	12.5	31.3	17.9	56.6
1965	21.0	14.5	35.5	22.4	64.4
1966	24.8	16.5	41.3	25.5	73.6
1967	26.8	16.9	43.7	27.3	79.0
1968	26.7	18.0	44.7	32.5	86.2
1969 <sup>c/</sup>	25.2	16.5	41.7	36.0	86.2

a/ Data derived from official Soviet trade statistics (Ministry of Foreign Trade, Vneshnaya Torgovlya Soyuz SSR).

b/ Because of rounding, components may not add to total shown.

c/ Preliminary estimate.

Table 4 - U.S.S.R.: Share of fuels in national output, 1960-69<sup>1/</sup>  
(in percent)

Fuel	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969*
Coal	45.9	50.5	48.8	45.9	44.2	42.7	40.7	39.4	38.0	37.1
Crude oil	30.5	32.4	34.2	34.8	35.1	35.8	36.7	37.8	39.2	39.7
Natural gas	7.9	9.7	10.9	12.4	13.9	15.5	16.5	17.2	17.9	18.5
Fuelwood	4.1	4.0	3.7	3.6	3.6	3.5	3.1	2.8	2.5	2.4
Peat	2.5	2.7	1.7	2.5	2.4	1.7	2.3	2.1	1.6	1.7
Shale	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\* Preliminary estimate.

<sup>1/</sup> Data derived from official Soviet statistics of output of fuel, expressed in units of standard fuel (U.S.S.R. Central Statistical Administration, Narodnoye Khozaystvo v 1968, p. 233).