

CRUDE OIL PIPELINES OVERVIEW OF THE PUBLIC/POLITICAL PROCESS

by Thomas C. Kryzer

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Four basic changes have occurred over the past 10 to 15 years which have dramatically influenced the crude oil supply and transportation situation in the United States. I will briefly describe these long term influences in order to put our present crude oil transportation problems into perspective. These are:

1) A higher dependency on imports for our total crude oil supply and a significant shift in the source of these imports.

2) A shift in the location of major domestic crude oil production from the south-central states west toward California and Alaska.

3) A change in the means by which major projects, like an interstate crude oil pipeline, are authorized, from the private-business sector to the public-political sector.

4) After a period of sustained increases in total domestic crude oil consumption, a move toward conservation, primarily in response to higher petroleum costs.

The first two changes; more dependency on imports from a changing slate of foreign sources, and a significant shift in the location of domestic crude oil production, have combined to create an imbalance in the crude oil transportation system in the United States. That transportation system, which relies primarily on pipelines to move crude oil from areas of production to refining centers, has not changed significantly during the same 10 to 15 years, except for the construction of the Trans-Alaskan pipeline. The present crude oil pipeline system in the lower 48 states does not provide an efficient means of moving a major portion of our domestic and imported crude to our refining centers. The change of the mechanism by which

major projects are authorized from the private to the public sector has thus far prevented an efficient response to our current problems in domestic crude oil transportation. The public sector seems to be unable to sort out the essential elements of the imbalance in the crude oil transportation system. It also seems unable to provide appropriate responses to private sector proposals to correct that imbalance. A major reason for the difficulty that the public-political sector is having in providing that guidance and response results from the apparently confusing pattern of total crude oil consumption, from substantial growth over several decades to recent decreases due to conservation and the generally depressed economy. This difficulty results partly from the popular viewpoint that we have moved from a period of crisis because of a severe shortage of crude oil to a period in which we read about a worldwide glut of crude oil. After discussing these issues in some more detail, I will outline a mechanism by which solutions to our crude oil transportation problems can be reasonable achieved.

Recent History of Crude Oil Utilization and Supply

For several decades the amount of crude oil utilized in the U.S. increased roughly in proportion to the increase in gross national product (in constant dollars). That is, each expansion in real economic activity resulted in a corresponding increase in energy and crude oil utilization. 1973 was the year of the Arab oil embargo, and the beginning of significant price increases for petroleum products. The average price of regular gasoline at the pump was about 36¢ in 1973. It was 63¢ in 1977 and \$1.30 in 1981. The effect of this price increase has been some shift away



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In February, 1973, he was appointed Vice President to head up the new Energy and Minerals Resource Department with offices at Billings, Montana. Kryzer was also a Director and President of Portal Pipe Line Company and Dreyer Bros, Inc. He was Senior Vice President, Treasurer and Director of Northern Tier Pipeline Company before being elected President of Northern Tier Pipeline Company in 1978.

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from petroleum products as primary energy sources and a general decrease in
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Crude (cont. from pg. 9)

the amount of energy consumed per unit of economic activity. In terms of constant 1972 dollars, a dollar of GNP was accompanied by about 59,000 BTU of energy use from all sources in 1973, while the same dollar of GNP in 1981 was associated with about 49,000 BTU of energy. This represents an increase in real energy efficiency of our economy of about 17% in 8 years, which is highly significant.

Figure 1 shows some of the patterns of crude oil consumption and the sources of supply over the past 16 years. Changes in patterns are helpful in understanding our present crude oil transportation situation. Domestic crude oil consumption increased from about 9 million barrels per day in 1965 to 12.5 million barrels per day in 1973, primarily in response to a corresponding increase in general economic activity. The amount of crude oil refined in our country increased to 14,900 barrels per day in 1979, and has since decreased to 12,800 barrels per day in 1981. As fuel prices increased rapidly after 1973, crude oil use did not increase as rapidly as the Gross National Product (in constant real dollars). The decrease since 1979 is the result of the general economic decline and further conservation efforts. As the economy recovers, we expect a general increase in domestic crude oil utilization, even with continued diligent conservation efforts.

Figure 1 also shows that domestic crude oil production has remained relatively constant, especially since 1975, but it constituted a decreasing proportion of our refinery runs, from 87% in 1965 to 55% in 1977, followed by an increase to 67% last year as our total use of crude oil has temporarily decreased. Oil price decontrol and the associated acceleration in domestic exploration and development of new oil fields is expected to provide a relatively constant domestic production over the next few years. New oil discoveries should equal old oil fields that are becoming depleted.

Foreign crude oil imported into the United States increased from 1.2 million barrels per day in 1965 to 6.6 million barrels per day in 1977. Imports have decreased since 1977, to 4.2 million

barrels per day in 1981, but we can expect imports to increase as the economy recovers and domestic production remains relatively constant. The major change in our crude oil supplies is that Canada had accounted for one-third to one-half of our crude oil imports in the early 70's, peaking at over 1.1 million barrels per day in 1973. After the 1973 Arab oil embargo, Canada announced a program of curtailment of crude oil exports to the U.S., decreasing to zero in 1983. Since 1977, Canadian crude amounted to only about four percent of total U.S. imports. This will be zero percent in 1983.

It is important to remember that the Canadian exports were essentially all by pipeline from the western Canadian provinces, primarily Alberta, to refineries in the northern tier and midwest states. I'll return to the importance of this later.

Changes in Domestic Production Patterns

The next step in understanding the present crude oil transportation problem is the changing pattern of domestic production. This changing pattern is shown in Figure 2. West coast production, primarily California and Alaska on and off shore, has increased from 1.1 to 2.7 million barrels per day between 1971 and 1981. The increase is primarily the result of Prudhoe Bay production and the opening of the Trans-Alaskan pipeline. The proportion of total domestic crude production on the west coast has increased from about 12% ten years ago to 31% last year. This trend is expected to continue since a large portion of the expected new domestic crude oil reserves are in the California-Alaska region.

(see *Production*, pg. 11)

Figure 1. Patterns of Crude Oil Supply and Use

(thousands of barrels per day)

YEAR	TOTAL CRUDE OIL CONSUMPTION	DOMESTIC PRODUCTION		TOTAL IMPORTS	IMPORTS FROM CANADA	
		AMOUNT	% TOTAL CONSUMPTION			
1965	9,000	7,800	87%	1,200	N/A	—
1971	11,100	9,500	86%	1,600	760	48%
1973	12,500	9,200	74%	3,300	1110	34%
1975	12,500	8,400	67%	4,100	600	15%
1977	14,800	8,200	55%	6,600	280	4%
1979	14,900	8,500	57%	6,400	270	4%
1980	13,900	8,600	62%	5,300	200	4%
1981	12,800	8,600	67%	4,200	160	4%

Figure 2. Domestic Crude Oil Sources and West Coast Utilization

(thousands of barrels per day)

YEAR	DOMESTIC PRODUCTION	PRODUCTION IN CALIFORNIA & ALASKA		COAST REFINERY RUNS	WEST COAST EXCESS*
		AMOUNT	% TOTAL DOMESTIC PRODUCTION		
1971	9,500	1,100	12%	1,800	-700
1973	9,200	1,100	12%	2,000	-900
1975	8,400	1,100	13%	1,900	-800
1977	8,200	1,400	17%	2,300	-900
1979	8,500	2,400	28%	2,400	0
1981	8,600	2,700	31%	2,200	+500

domestic production* less refinery runs