

Energy Statistics

A SUPPLEMENT TO THE
SUMMARY OF NATIONAL
TRANSPORTATION
STATISTICS



SEPTEMBER 1973

FINAL REPORT

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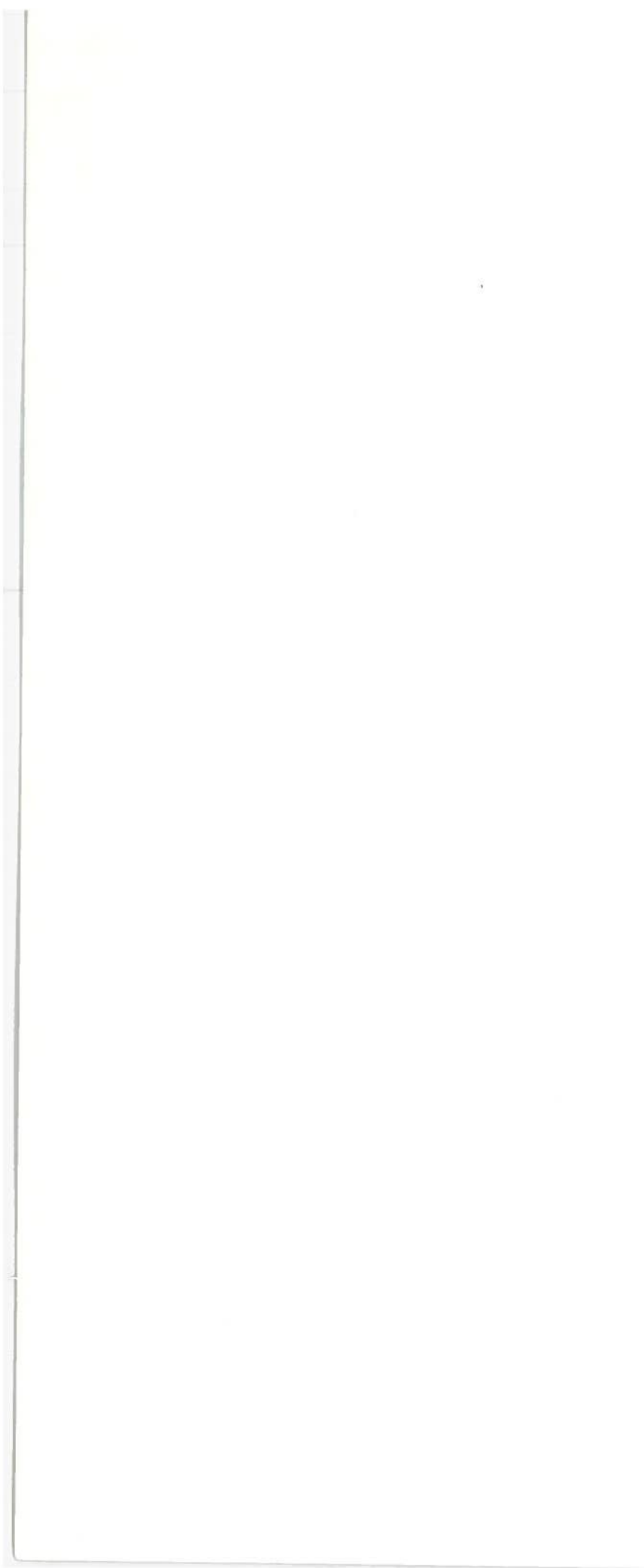
DEPARTMENT OF TRANSPORTATION
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16. Abstract <p>This report is a compendium of selected time-series data describing the transportation, production, processing, and consumption of energy. The statistics have been assembled from a wide variety of sources, such as the U.S. Department of the Interior, the Interstate Commerce Commission, and the American Petroleum Institute.</p> <p>The report is divided into three main sections. The first, entitled "Energy Transport", contains such items as the revenues and expenses of oil pipeline companies, number and capacities of U.S. tank ships, and the total crude oil transported in the U.S. by method of transportation.</p> <p>The second section, entitled "Reserves, Production, and Refining", reveals the growth over time of the U.S. oil and natural gas reserves, refinery capacity, and yields.</p> <p>Trends in the demand for fuel and power are displayed in the third section, entitled "Energy Consumption". Throughout this part, the transportation sector is emphasized. Included are the gasoline and oil costs of automobiles of different sizes, the consumption of petroleum by type of product, the energy intensiveness of the air carriers, the electrical energy consumed by the local transit industry, and other important statistics describing the supply and demand for energy.</p>					
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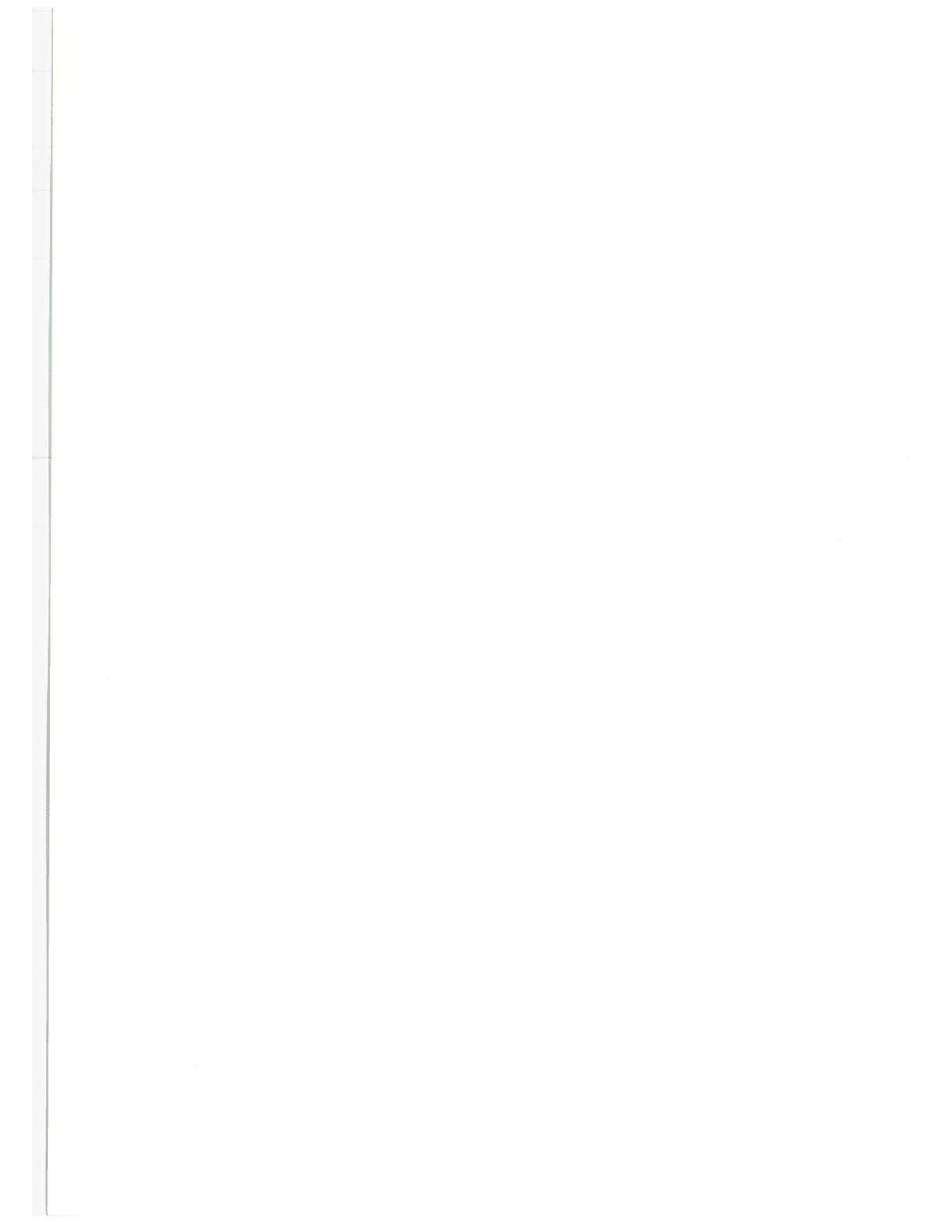
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INTRODUCTION



INTRODUCTION

The recent focus of national attention on energy problems has created a surge in the demand for quantitative data on many facets of the energy situation. This report is an attempt to partially meet that demand. Emphasis has been placed on statistics relating to (1) the role of transportation in the energy supply infrastructure, and (2) transportation as a consumer of energy, although additional data relating to energy are included as well.

The statistics recorded here have been gathered from the Department of Transportation, as well as a wide variety of other government and private sources, including the Interstate Commerce Commission, the U.S. Department of the Interior, and the American Petroleum Institute. Divided into three sections, the report displays selected time-series data on (1) energy transport, (2) reserves, production, and refining, and (3) energy consumption. A few of the tables include time-series through the year 1969 only. The most recent data which are readily available have been included in all cases.

The first section includes financial, inventory, and activity statistics related to the transportation of energy commodities via pipeline, water, truck, and rail. A few examples: Table I-1 presents data on revenues, expenses, and income of the U.S. oil pipeline companies, 1955-1971; Table I-9 shows the annual growth of the world tank ship fleet, 1962-1972; Table I-19 shows the amount of petroleum and coal transported in domestic and foreign waterborne commerce, 1971.

Section II begins with estimates of U.S. proved crude oil reserves. Proved reserves are *not* the same as "oil-in-place," or the amount of oil actually in the ground. As stated in Appendix A, "Proved reserves of crude oil as of December 31 of any given year are the estimated quantities of all liquids statistically reported as crude oil which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known reservoirs under existing economic and operating conditions."¹ This means, for example, that all else being equal an increase in the per barrel price of crude oil will lead to an increase in the estimate of proved crude oil reserves.

Section II also includes time-series on natural gas reserves and production, U.S. refinery capacity and yields. Table II-8, for example, shows that the average gasoline yield in 1972 was 46.25% of all crude oil inputs to U.S. refineries.

Section III contains U.S. energy consumption statistics. Included in Tables III-1 through III-6 are estimates of the fuel and oil costs for the various modes of transportation. The data in Tables III-7 through III-16 have been compiled by the U.S. Department of the Interior, which periodically reports statistics for the following consuming sectors: (1) household and commercial, (2) industrial, (3) transportation, (4) electric utilities, (5) miscellaneous. Interior's transportation figures cannot be completely disaggregated by mode, but it is possible to break them down by fuel type. (See Table III-12.) The Interior Department's statistics are based on fuel production and sales data, rather than actual consumption by the various modes of transportation. This means that Interior's estimates include the losses from spillage and evaporation which occur between the refinery and the consumer.

Transportation fuel consumption data disaggregated by mode, assembled from a number of sources, are also presented in Section III. Tables III-17 through III-22 are comprised of data from the Federal Highway Administration, the Civil Aeronautics Board, the Association of American Railroads, the American Petroleum Institute, and the American Transit Association. Because these statistics do not include the losses which occur between the refinery and the consumer, they are *not* consistent with Interior's estimates. It is also important to point out that Interior includes military transportation in the transportation sector, while Tables III-17 through III-22 deal with commercial and private transportation only.

¹ American Petroleum Institute, *Standard Definitions for Petroleum Statistics*, July 1, 1969, p.2.

Table III-22 displays the shifts in the “energy intensiveness” of the certificated route air carriers. One should notice the wide range in the values. All-cargo air carriers are most “efficient” with an average energy intensiveness of about 27,000 BTU² per overall revenue ton-mile. Helicopter carriers are least “efficient” with an average energy intensiveness of 187,000 BTU per ton-mile. The overall average for all certificated route air carriers is 67,532 BTU per ton-mile. This illustrates that overall industry averages can be terribly misleading. There are many reasons for the wide variance in the disaggregated energy intensiveness calculations. Differences in technology, of course, account for much of the variation. In addition, however, the load factor, the length of haul, the weight of the cargo, and the average speed play a role in the final determination of energy intensiveness.

Energy intensiveness estimates for the other modes are as follows:

Truck ³	2,400 BTU per ton-mile
Rail ⁴	670 BTU per ton-mile
Water ⁴	680 BTU per ton-mile
Oil pipeline ⁴	450 BTU per ton-mile

Again, these are overall industry, *averages*, and one should not conclude that for each marginal or additional ton-mile of rail transportation, for example, an additional 670 British thermal units of energy will be consumed. More or less than 670 BTU could be consumed depending on the type of locomotive used, the time spent in idling, the load factor, the terrain, and many other factors.

² One British Thermal Unit (BTU) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at or near 39.2 degrees Fahrenheit. The BTU is commonly used for comparing consumption of fuels containing different amounts of energy per unit volume. For example, gasoline contains 124,952 BTU/gallon, while diesel fuel contains 138,690 BTU/gallon.

³ William Mooz, *The Effect of Fuel Price Increases Upon the Energy Intensiveness of Freight Transport*, Rand Corporation.

⁴ Eric Hirst, *Energy Intensiveness of Passenger and Freight Transport Modes*, Oak Ridge National Laboratories, 197

PART I. ENERGY TRANSPORT

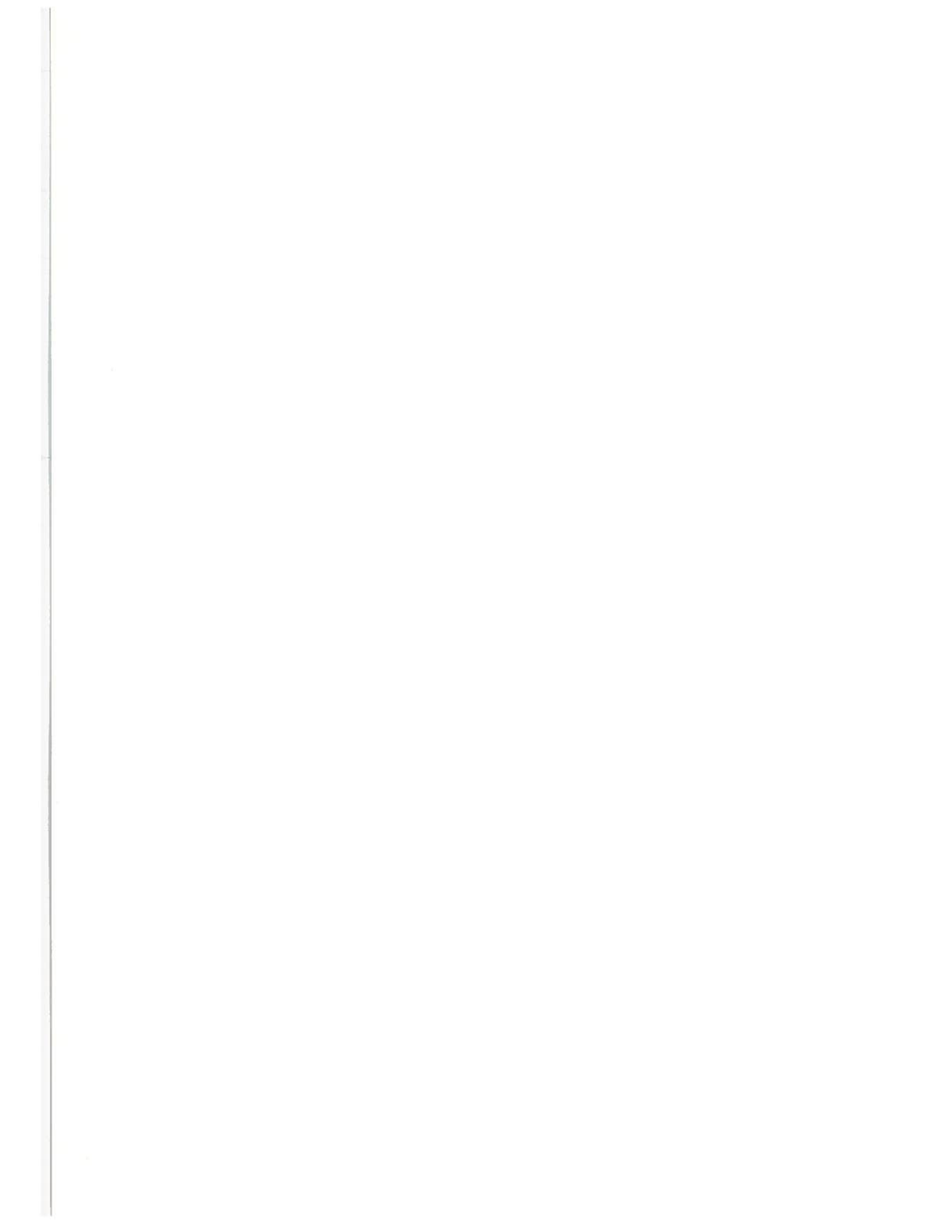


Table I-1. Revenues, expenses, and income of U.S. oil pipeline companies,¹ 1955 - 1971

As of Dec. 31	Number of Companies	Operating Revenues (\$000)	Operating Expenses (\$000)	Operating Ratio (%)	Operating ² Income (\$000)	Net ³ Income (\$000)
1971	99	1,249,299	712,178	57.01	537,121	320,690
1970	101	1,188,254	672,336	56.58	515,918	311,852
1969	99	1,103,258	642,703	58.25	460,555	272,717
1968	97	1,022,962	597,023	58.36	425,939	260,760
1967	90	994,520	564,420	56.75	430,099	252,656
1966	87	941,138	533,043	56.64	408,096	236,001
1965	89	903,817	515,113	56.99	388,705	217,761
1964	90	865,079	502,456	58.08	362,623	209,527
1963	94	840,260	439,701	52.09	232,220	200,770
1962	92	810,605	426,363	52.60	227,030	203,799
1961	89	786,718	419,854	53.37	214,616	180,698
1960	87	770,417	417,640	54.21	198,911	169,398
1959	86	765,232	406,140	53.07	211,276	182,815
1958	84	720,670	389,678	54.07	190,748	161,838
1957	82	729,952	386,661	52.97	182,392	159,197
1956	83	737,386	370,787	50.28	188,272	178,457
1955	84	677,605	346,985	51.21	176,256	153,334

¹ Includes only those companies reporting to the Interstate Commerce Commission

² After taxes

³ Total Income less fixed and contingent charges

Source: Interstate Commerce Commission, Transport Statistics, Part 6, "Oil Pipelines"

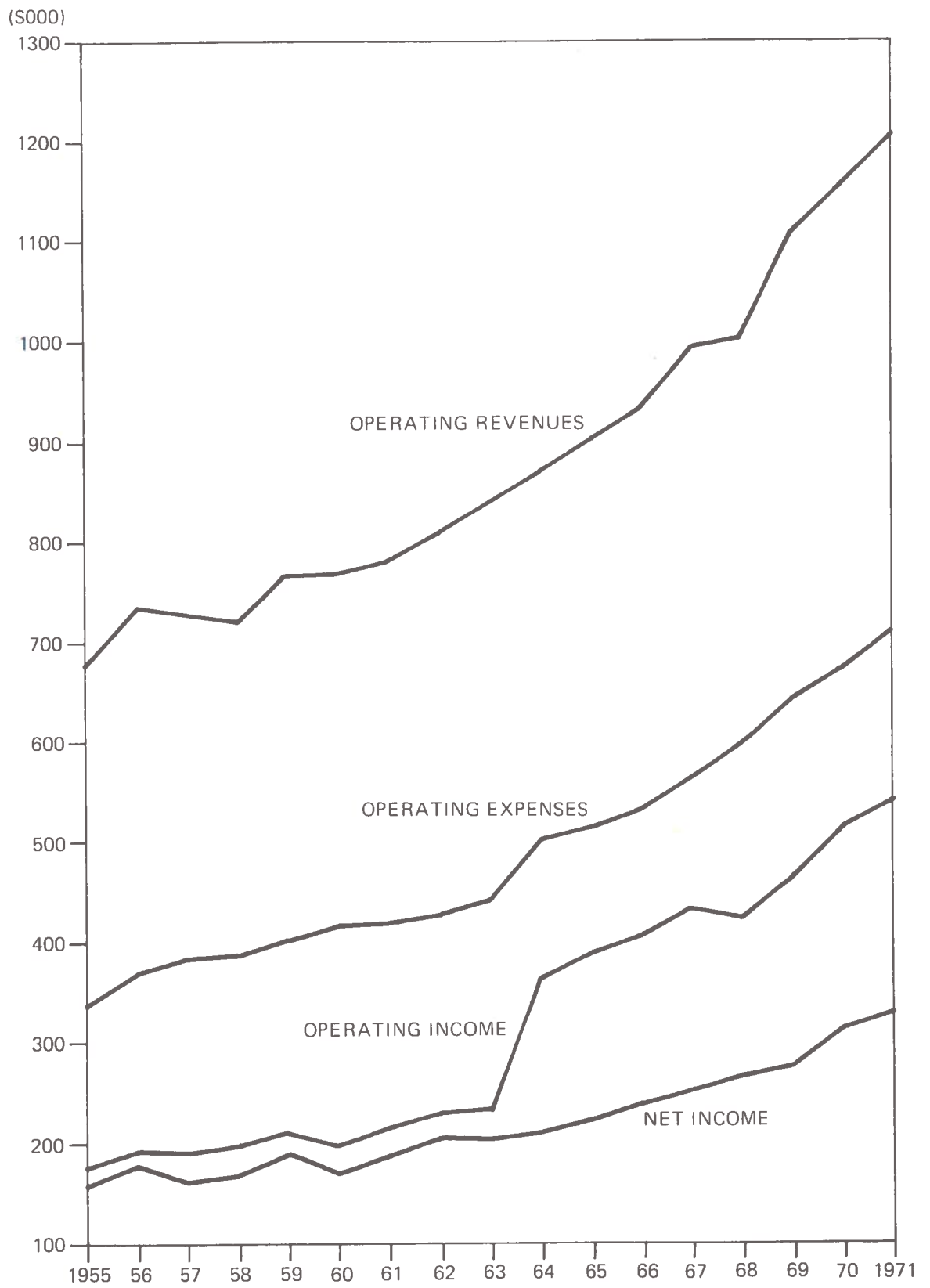


Figure 1. Revenue, Expenses, and Income of U.S. Oil Pipeline Companies, 1955-1971

(Dollars)

Year	Crude Oil and Natural Gas ¹	Natural Gasoline ²	Total Crude Petroleum	Gasoline	Lubricating Oils and Greases	Asphalt ³	Liquefied Petroleum Gas ⁴	Kerosene ⁵	Residual and Distillate Fuel Oils	Other Refined Products	Total Petroleum Revenue	Total All Car Freight Revenue	Petroleum as Percent of All Car Freight Revenue
1969	2,513,904	2,890,546	5,404,450	9,263,788	43,974,169	23,221,745	75,785,033	1,402,942	41,168,744	28,919,561	234,544,882	10,801,140,820	2.17
1968	2,328,534	3,247,547	5,576,081	10,133,840	41,411,044	23,427,187	64,891,623	1,767,923	40,210,087	26,789,093	219,782,959	10,174,805,428	2.16
1967	2,172,837	2,877,254	5,050,091	11,143,676	39,051,762	22,935,995	56,864,348	2,213,875	37,528,512	25,410,724	200,198,983	9,492,109,695	2.11
1966	2,230,578	2,900,879	5,131,457	12,193,055	38,863,213	25,755,025	52,749,314	2,326,420	36,394,311	28,001,544	201,414,339	9,679,324,440	2.08
1965	2,411,362	2,725,142	5,136,504	13,843,412	36,337,093	27,607,415	49,023,362	1,674,771	35,701,242	29,400,433	199,224,232	9,225,137,234	2.16
1964	2,710,546	3,150,803	5,861,349	20,221,681	35,239,353	28,863,083	51,820,150	3,423,431	34,165,369	24,117,267	203,711,683	8,846,315,669	2.30
1963	3,271,938	19,683,062	34,116,473	24,921,815	.....	.....	26,086,628	99,074,625	207,154,541	8,484,598,073	2.44
1962	6,793,918	22,725,293	35,396,093	24,489,305	.....	.....	27,325,169	105,773,192	222,502,970	8,285,280,269	2.69
1961	7,993,725	25,946,609	35,134,293	25,522,187	.....	.....	28,805,876	115,062,010	238,464,700	7,988,867,744	2.98
1960	9,283,233	28,573,797	37,042,468	25,777,709	.....	.....	35,384,271	126,003,845	262,065,323	8,248,794,710	3.18
1959	8,031,497	32,951,690	39,397,252	28,446,696	.....	.....	42,001,187	130,036,781	280,865,103	8,520,061,481	3.30
1958	6,434,698	33,952,493	37,783,782	32,058,706	.....	.....	43,939,810	134,097,516	288,267,005	8,257,194,611	3.49
1957	9,081,403	37,782,287	41,121,450	32,303,419	.....	.....	52,207,133	139,092,895	311,588,587	9,119,666,885	3.42
1956	9,448,489	43,110,472	41,995,011	35,022,023	.....	.....	54,713,821	138,921,814	323,211,630	9,104,909,587	3.55
1955	11,496,624	49,260,244	42,646,316	34,411,621	.....	.....	56,175,591	128,961,328	322,951,724	8,657,476,023	3.78
1954	15,413,343	53,772,426	41,613,825	34,883,756	.....	.....	58,780,858	120,674,063	325,138,271	7,890,287,959	4.12
1953	19,541,293	59,133,940	45,179,660	39,724,745	.....	.....	68,723,813	119,881,540	352,184,991	9,031,342,777	3.90
1952	17,540,985	66,873,375	48,845,623	44,453,969	.....	.....	69,316,932	110,230,738	357,261,622	8,834,695,654	4.04
1951	17,934,308	67,303,933	51,172,812	41,540,490	.....	.....	73,518,096	99,505,747	350,975,386	8,673,404,344	4.05
1950	16,999,196	65,721,697	47,744,161	39,786,059	.....	.....	78,640,611	85,384,536	334,276,260	7,792,716,884	4.29
1949	19,138,643	74,720,088	45,033,109	38,038,931	.....	.....	75,359,928	72,254,021	324,544,720	6,985,709,676	4.64
1948	64,328,877	91,609,984	54,587,169	43,579,895	.....	.....	88,887,646	75,736,061	418,729,632	7,827,795,556	5.35
1947	39,946,626	89,959,774 ⁶	50,921,960	35,647,747	.....	.....	76,857,416	59,016,431	352,349,954	6,886,790,061	5.12
1946	19,825,442	130,048,773	42,715,165	27,835,316	.....	.....	55,210,341	4,400,807 ⁶	280,035,844	5,631,981,906	4.97
1945	59,090,840	210,452,636	54,499,016	24,161,108	.....	.....	126,359,677	5,052,786	480,435,063	6,563,299,959	7.32
1944	109,883,724	270,008,625	56,138,138	24,819,397	.....	.....	168,935,080	5,619,608	635,404,572	6,956,939,440	9.13
1943	152,407,684	231,248,599	58,003,215	27,299,213	.....	.....	186,079,718	5,851,136	660,889,565	6,748,420,895	9.79
1942	119,900,560	208,128,006	44,089,523	30,501,539	.....	.....	129,077,981	4,092,404	535,790,013	5,857,060,708	9.15
1941	17,178,984	137,531,980	28,988,333	26,010,655	.....	.....	47,155,370	2,691,325	259,556,647	4,317,978,117	6.01
1940	8,859,239	137,169,180	21,220,884	20,317,104	.....	.....	42,499,250	1,994,182	232,059,839	3,430,486,460	6.76
1939	12,172,521	150,763,517	22,014,464	18,929,108	.....	.....	40,904,735	2,029,397	246,813,742	3,123,589,475	7.90
1938	9,095,159	162,993,074	19,223,888	17,803,094	.....	.....	37,468,268	1,535,207	248,118,690	2,737,635,419	9.08
1937	9,698,893	169,278,364	21,124,220	16,624,625	.....	.....	43,202,708	1,664,349	261,593,159	3,251,215,140	8.05
1936	8,606,962	171,922,566	20,504,148	15,202,609	.....	.....	43,492,944	1,563,875	261,293,104	3,171,233,547	8.24
1935	8,831,368	168,451,151	18,174,467	10,706,564	.....	.....	32,897,585	1,325,914	240,387,049	2,662,142,958	9.03
1934	9,406,266	172,517,432	17,003,160	9,681,216	.....	.....	33,393,764	1,154,367	243,156,205	2,506,068,320	9.70
1933	11,711,448	171,432,250	15,188,469	8,239,678	.....	.....	29,497,353	1,186,563	237,255,761	2,350,138,203	10.10
1932	8,589,599	192,065,349	15,647,882	9,616,285	.....	.....	27,600,442	978,871	254,498,428	2,280,897,221	11.16
1931	22,032,121	241,743,778	19,094,717	10,630,892	.....	.....	34,503,686	1,078,600	329,083,794	3,019,039,343	10.90

¹ Carload freight only.
² Not reported separately prior to 1964.
³ Natural and petroleum asphalt.
⁴ Includes liquefied coal gas.
⁵ In 1947, certain refined products previously included in the gasoline category were reclassified as other refined products.
⁶ Source: Interstate Commerce Commission, *Freight Commodity Statistics*.

Table I-3. Energy Transport by Class I Common and Contract Motor Carriers of Property, 1971

	Revenue Freight Originated		Revenue Freight Terminated		Total Freight Traffic (Including Duplications)		Gross Freight Revenue (\$)
	Truckloads	Tons	Truckloads	Tons	Truckloads	Tons	
Coal							
Anthracite	16,093	454,672	15,981	453,178	16,418	459,154	1,855,424
Raw anthracite	3,966	202,060	3,914	201,198	4,144	204,395	1,004,541
Cleaned or prepared anthra, (crshd, scrnd, sized)	114	1,867	60	1,030	133	2,155	31,601
Bituminous coal and lignite	1,583	155,448	1,577	155,409	1,667	156,616	250,657
Bituminous coal	12,127	252,612	12,067	251,980	12,274	254,759	850,883
	11,507	243,755	11,473	243,431	11,614	245,320	572,053
Crude petroleum, natural gas, and natural gasoline	112,774	3,038,034	112,793	3,038,484	112,954	3,040,995	9,808,183
Crude petroleum and natural gas	110,804	2,975,865	110,839	2,976,494	110,974	2,978,723	9,592,367
Natural gasoline	1,970	62,169	1,954	61,990	1,980	62,272	215,816
Petroleum and coal products	4,520,780	109,456,095	4,524,357	109,509,428	4,539,589	109,740,458	404,674,926
Products of petroleum refining	4,343,070	105,061,637	4,347,223	105,121,411	4,358,909	105,299,979	372,275,130
Gsln, jet oth high vola pet fuels exc nat gsln	2,056,493	52,924,760	2,057,274	52,942,642	2,057,640	52,947,756	142,691,797
Kerosene	278,824	6,541,519	278,795	6,541,076	278,877	6,542,175	17,014,198
Distillate fuel oil	671,242	17,069,934	671,313	17,071,129	671,549	17,074,574	48,710,192
Lubricating and similar oils and derivatives	127,196	2,412,680	128,316	2,407,470	134,903	2,507,663	32,000,916
Lubricating greases	55,882	1,239,107	55,690	1,235,243	56,847	1,254,386	8,387,809
Asph, tar & pitches (petro, coke oven, coal tar)	364,340	8,302,593	365,367	8,325,038	366,266	8,337,227	46,648,213
Residual fuel oil & oth low vola petro fuels	291,711	6,939,081	291,701	6,987,737	292,020	6,993,663	21,703,091
Products of petroleum refining, nec	195,719	4,320,571	197,086	4,349,258	198,994	4,379,058	27,628,718
Liquefied petroleum gases and coal gases	301,663	5,261,392	301,681	5,261,818	301,813	5,263,477	27,490,196
Paving and roofing materials	106,497	2,212,942	106,528	2,214,456	108,222	2,241,451	20,168,373
Paving mixtures and blocks	21,635	577,021	21,654	577,373	21,936	581,267	3,644,541
Asphalt felt and coating	84,862	1,635,921	84,874	1,637,083	86,286	1,660,184	16,523,832
Miscellaneous petroleum and coal products	71,213	2,181,516	70,606	2,173,561	72,458	2,199,028	12,231,423
Coke and coal briquettes	31,889	709,198	31,906	709,260	32,022	711,042	1,848,217
Energy commodities	4,649,647	112,948,801	4,653,131	113,001,090	4,668,961	113,240,697	416,338,533
All commodities	17,870,962	395,775,545	18,042,942	399,228,284	19,104,558	428,358,769	9,499,669,940
Energy commodities as a percent of all commodities	26%	29%	26%	28%	24%	26%	4%

Source: ICC, Freight Commodity Statistics

(As of December 31)

Year	Crude-Oil Trunk Lines		Refined-Oil Trunk Lines		Total Trunk Lines		Crude-Oil Gathering Lines		Total Petroleum Pipelines		Year
	All Lines		All Lines		All Lines		All Lines		All Lines		
	ICC Lines	(¹)	ICC Lines	(¹)	ICC Lines	(¹)	ICC Lines	(¹)	ICC Lines	(¹)	
1969	(¹)	73,830	(¹)	73,570	(¹)	147,400	(¹)	75,221	(¹)	222,621	1969
1968	(¹)	72,407	(¹)	69,487	(¹)	141,894	(¹)	74,700	(¹)	216,596	1968
1967	60,893	70,825	51,475	64,529	112,368	135,354	46,855	74,124	165,478 ²	209,478	1967
1966	63,210	74,257	52,493	65,195	115,803	139,452	47,352	78,587	163,155	218,039	1966
1965	63,981	73,405	50,791	63,665	114,772	137,070	46,640	77,843	161,412	214,913	1965
1964	63,220	72,383	49,477	61,443	112,697	133,826	46,886	77,041	159,583	210,867	1964
1963	58,648	(¹)	45,358	(¹)	104,006	(¹)	46,563	(¹)	156,812 ²	(¹)	1963
1962	61,702	70,368	45,288	56,106	106,990	126,474	48,063	77,590	155,053	204,064	1962
1961	62,251	70,355	41,830	53,200	104,081	123,555	49,656	76,988	153,737	200,543	1961
1960	62,059	64,799	40,508	49,859	102,567	114,658	49,401	76,286	151,968	190,944	1960
1959	61,860	67,558	37,732	47,171	99,592	114,729	49,567	75,734	149,159	190,463	1959
1958	61,702	70,317	32,865	44,483	94,567	114,800	49,787	75,182	144,354	189,982	1958
1957	61,379	82,000	31,780	42,900	93,159	124,900	52,077	76,900	145,236	201,800	1957
1956	61,885	80,000	29,465	40,000	91,350	120,000	51,336	75,000	142,686	195,000	1956
1955	63,347	78,594	26,382	36,420	89,729	115,014	50,645	73,526	140,374	188,540	1955
1954	64,145	80,012	24,128	34,255	88,273	114,267	50,689	72,456	138,962	186,723	1954
1953	63,408	77,932	20,462	30,555	83,870	108,487	50,030	70,536	133,900	179,023	1953
1952	64,888	75,228	19,305	27,236	84,193	102,464	48,522	68,040	132,715	170,504	1952
1951	64,992	73,573	18,836	26,106	83,828	99,679	47,629	62,472	131,457	162,151	1951
1950	64,622	73,093	16,374	23,325	80,996	96,418	47,593	62,054	128,589	158,472	1950

¹ Not Available.² Total mileage includes the following, classified as "other" by the ICC: 1967 -6,255 miles; 1963-6,243 miles.Source: Interstate Commerce Commission, *Transport Statistics in the United States*, Part 6, "Oil Pipe Lines"; Bureau of Mines, "Crude Oil and Product Pipelines, Triennial; *The Oil and Gas Journal: Pipe Line Industry*, "Market Data," Annual; American Petroleum Institute.

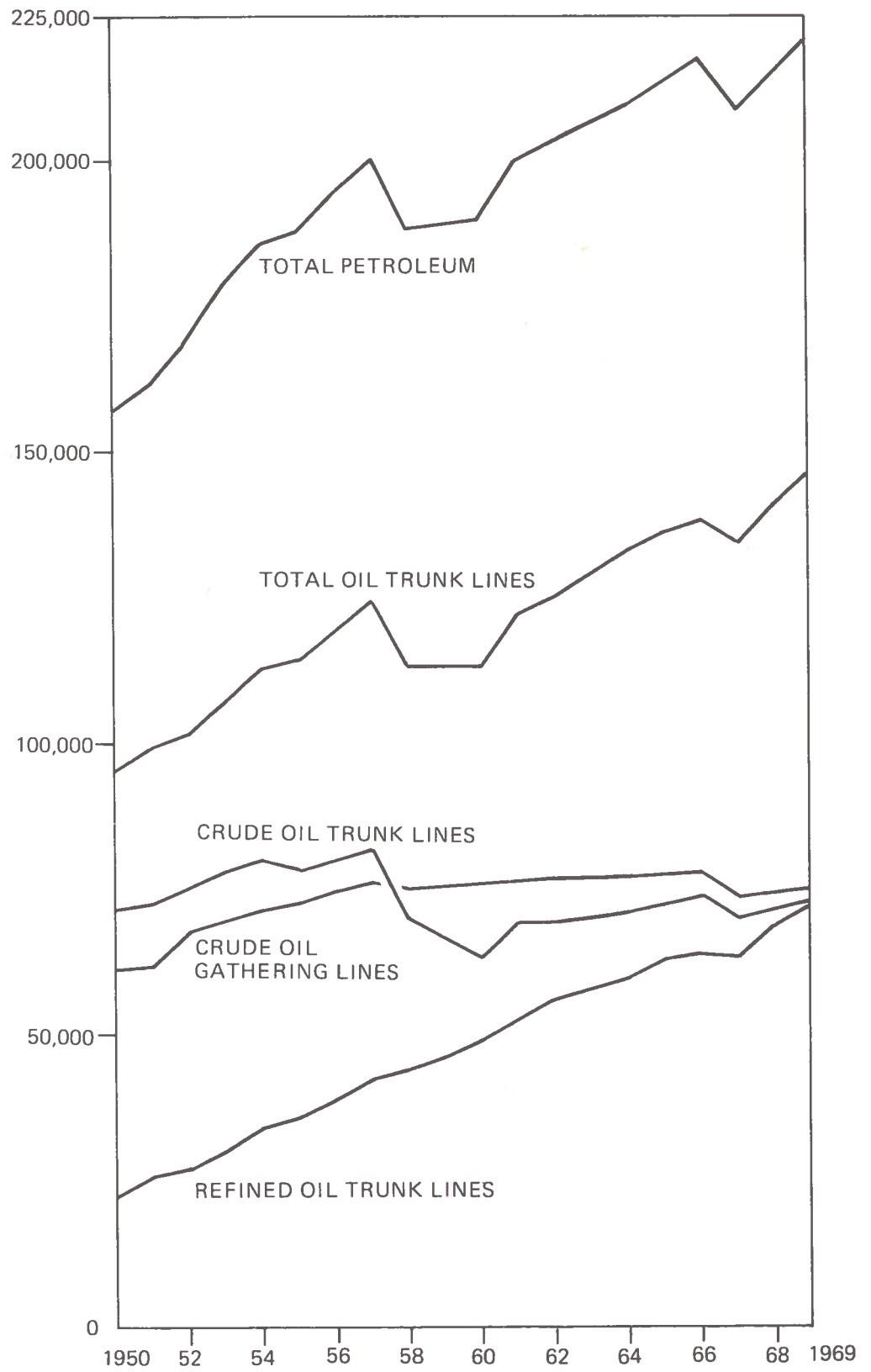
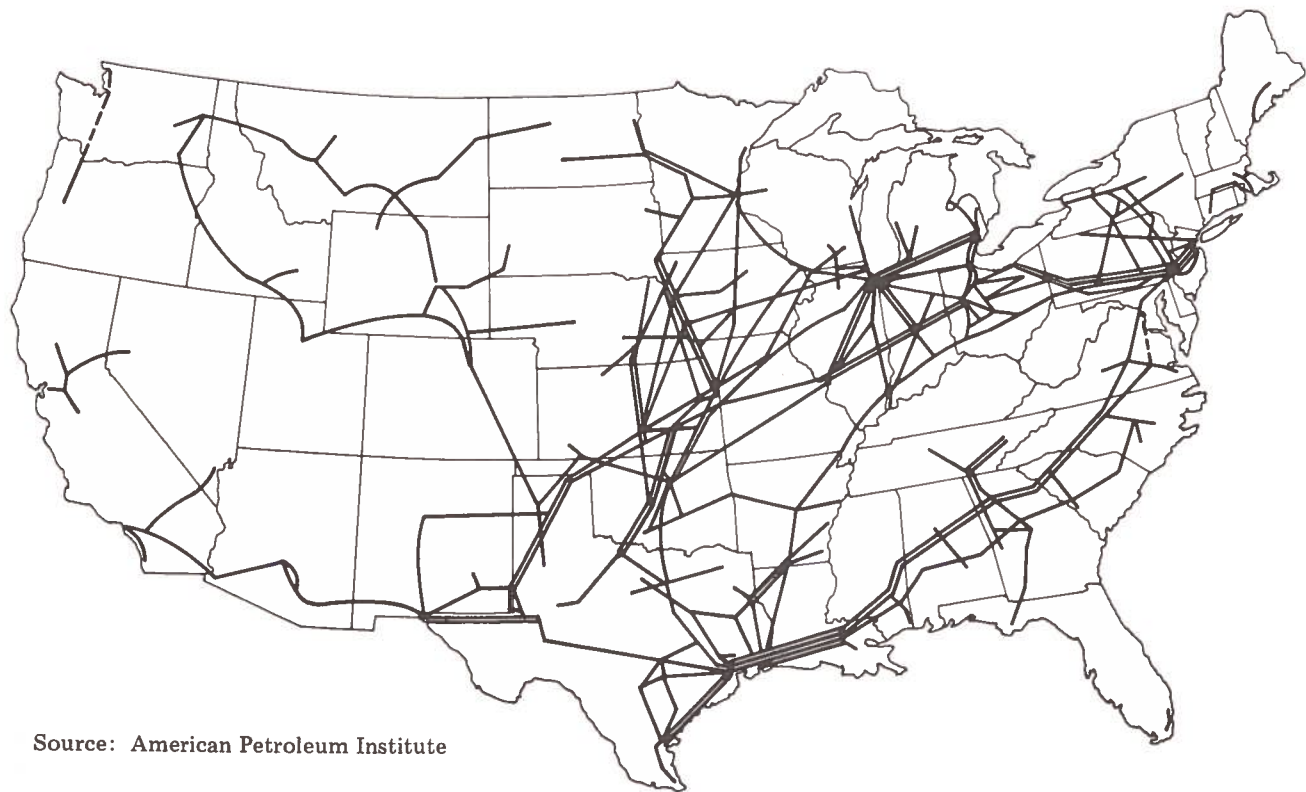
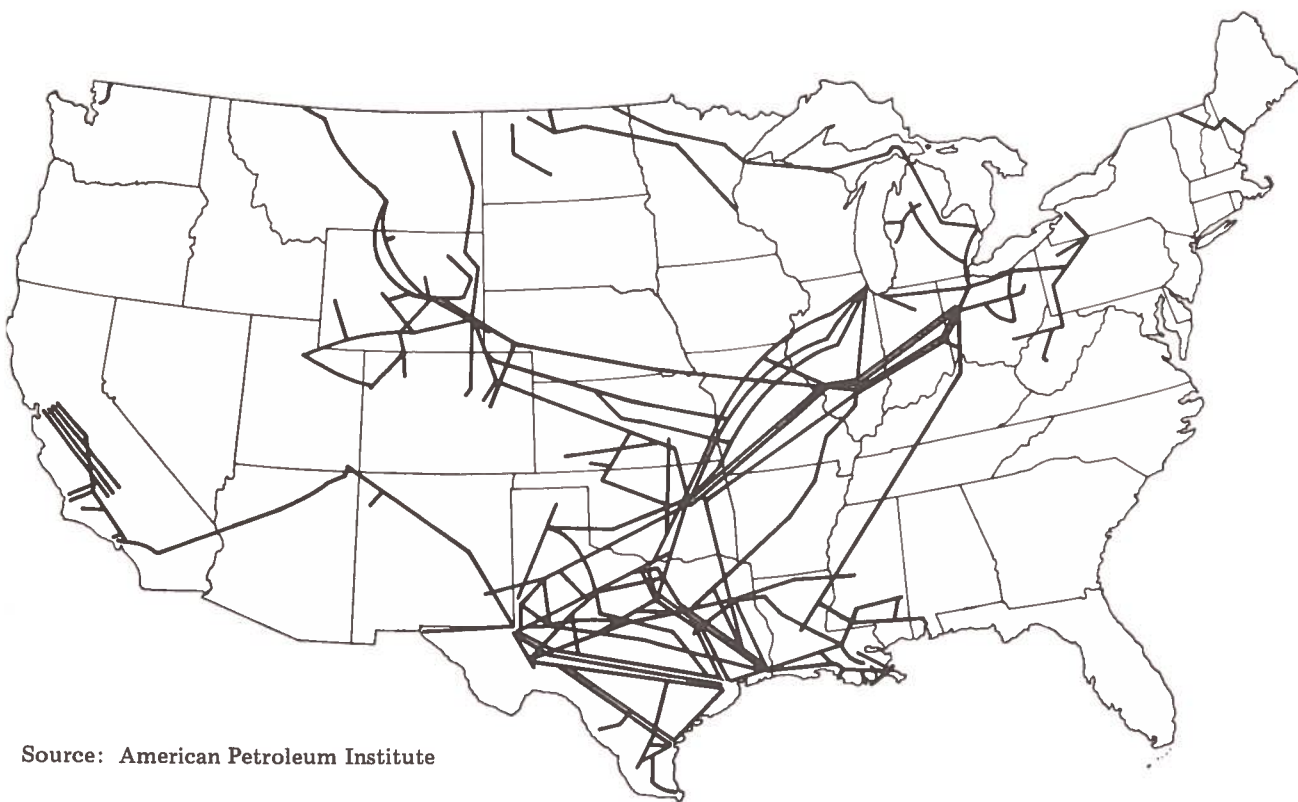


Figure 2. U.S. Petroleum Pipeline Mileage, 1950-1969



Source: American Petroleum Institute

Figure 3. The Product Oil Pipeline System of the United States



Source: American Petroleum Institute

Figure 4. The Crude Oil Pipeline System of the United States

Table I-5. Total Mileage¹ of Natural-Gas Pipelines and Utility Main, by States, 1955-1968

State	1968	1967	1966	1965	1964	1963	1962
Alabama	15,510	15,080	14,550	13,860	13,310	12,690	12,270
Alaska	390	300	270	250	230	210	200
Arizona	12,160	11,930	11,640	11,120	11,080	10,760	10,380
Arkansas	15,090	14,390	13,890	13,060	12,390	11,930	11,440
California	64,060	62,950	61,920	60,540	59,040	57,380	55,950
Colorado	14,300	13,240	12,730	12,240	11,550	10,620	9,670
Connecticut	5,480	4,180	4,060	3,790	3,640	3,510	3,090
Delaware	1,190	1,150	1,120	1,160	1,050	1,020	950
District of Columbia	1,160	1,160	1,160	1,150	1,150	1,150	1,150
Florida	10,260	9,120	8,920	8,200	8,140	7,430	7,180
Georgia	18,270	17,530	15,970	14,600	13,240	12,210	11,630
Idaho	3,090	3,030	2,870	2,770	2,400	2,290	1,920
Illinois	45,080	42,940	40,640	38,730	35,660	33,650	31,890
Indiana	21,230	20,240	19,090	17,550	16,380	15,350	14,520
Iowa	15,680	15,020	14,470	13,620	13,250	12,720	12,380
Kansas	31,490	30,720	29,720	28,780	28,120	27,670	27,150
Kentucky	17,120	16,530	16,270	15,470	14,870	14,490	14,040
Louisiana	34,150	32,940	31,800	30,310	29,370	28,410	27,420
Maine	300	260	250	0	0	0	0
Maryland	7,510	7,190	7,010	6,620	6,360	6,080	5,860
Massachusetts	14,930	14,520	14,110	13,670	13,290	12,880	12,560
Michigan	35,570	33,710	32,180	30,210	27,870	25,800	24,380
Minnesota	13,030	12,350	11,440	10,670	10,000	9,630	9,250
Mississippi	15,650	14,690	14,140	13,460	12,990	12,670	12,280
Missouri	17,570	16,830	15,930	15,140	14,520	13,880	13,200
Montana	6,130	6,030	5,980	5,970	5,870	5,690	5,610
Nebraska	11,880	11,300	10,700	10,300	9,980	9,810	9,580
Nevada	2,250	2,140	2,100	1,940	1,520	1,210	590
New Hampshire	940	860	830	750	660	610	590
New Jersey	20,870	19,490	18,940	18,290	16,900	15,390	13,870
New Mexico	17,700	16,830	16,450	15,380	14,630	14,260	13,910
New York	33,950	33,200	32,610	31,570	30,730	30,020	29,460
North Carolina	9,190	8,390	7,810	7,080	6,680	5,880	5,560
North Dakota	1,690	1,590	1,560	1,540	1,510	1,500	1,450
Ohio	47,750	46,510	45,900	44,690	43,580	42,840	41,740
Oklahoma	27,160	25,910	25,120	23,850	22,760	22,110	21,070
Oregon	7,540	7,210	6,890	6,350	5,780	5,240	4,540
Pennsylvania	50,200	49,610	48,730	47,640	46,600	43,840	39,270
Rhode Island	2,200	2,130	2,060	1,990	1,920	1,860	1,820
South Carolina	7,840	7,440	6,540	6,090	4,990	4,570	4,170
South Dakota	2,230	2,200	2,170	2,150	2,150	2,090	2,010
Tennessee	13,270	12,720	12,170	11,600	10,950	10,580	9,930
Texas	92,060	87,880	83,900	83,010	80,640	78,780	76,490
Utah	5,380	5,300	5,210	4,940	4,550	4,350	4,110
Vermont	140	130	130	0	0	0	0
Virginia	9,170	8,780	8,480	8,180	7,850	7,360	7,070
Washington	8,850	8,300	7,890	7,340	6,880	6,480	5,950
West Virginia	21,410	21,290	21,150	20,870	20,630	20,430	20,370
Wisconsin	17,180	15,800	15,050	13,580	12,570	10,960	10,060
Wyoming	5,160	4,800	4,710	4,610	4,280	4,070	3,580
U.S. total	852,410	817,840	789,230	756,680	724,510	694,360	663,560

Table I-5. Total Mileage¹ of Natural-Gas Pipelines and Utility Main, by States, 1955-1968 Continued

1961	1960	1959	1958	1957	1956	1955	State
11,860	11,380	10,940	10,170	9,310	9,270	8,220	Alabama
160	0	—	—	—	—	—	Alaska
10,010	9,630	8,730	8,340	7,870	7,410	6,770	Arizona
10,890	10,380	9,890	9,410	8,780	8,720	8,700	Arkansas
53,800	52,160	50,260	48,640	46,960	44,990	42,930	California
8,960	8,070	7,790	7,370	6,980	6,540	5,520	Colorado
3,010	2,830	2,740	2,150	1,990	1,780	1,720	Connecticut
890	830	700	570	540	500	480	Delaware
1,160	1,160	1,160	1,150	1,150	1,150	1,140	District of Columbia
6,700	6,230	5,390	960	900	720	570	Florida
11,160	10,500	9,960	9,170	8,490	7,750	6,310	Georgia
1,710	1,490	1,100	1,040	990	650	0	Idaho
29,720	27,670	25,500	24,120	23,440	22,360	17,320	Illinois
13,630	12,640	11,510	11,390	10,870	10,850	7,430	Indiana
11,670	9,850	9,040	8,680	8,270	8,100	7,700	Iowa
26,340	25,860	25,260	24,460	24,150	23,600	22,910	Kansas
13,570	13,130	12,590	11,870	11,320	10,510	9,790	Kentucky
26,400	24,970	24,290	22,150	20,650	19,350	17,820	Louisiana
0	0	0	0	0	0	0	Maine
5,560	5,320	5,180	4,880	4,670	4,480	4,280	Maryland
12,190	11,840	9,050	8,750	8,500	8,240	7,890	Massachusetts
23,420	21,690	19,810	19,030	18,190	17,480	16,410	Michigan
8,900	8,020	6,270	5,350	5,100	4,950	4,770	Minnesota
11,990	11,420	11,230	10,510	10,060	9,450	9,020	Mississippi
12,570	11,950	11,530	11,140	10,490	10,090	9,710	Missouri
5,220	5,120	5,020	4,960	4,880	4,700	4,080	Montana
9,210	8,910	8,620	8,400	8,230	7,660	7,310	Nebraska
560	500	420	400	380	380	180	Nevada
560	530	500	480	460	370	350	New Hampshire
12,410	10,650	10,120	8,070	7,000	5,990	4,980	New Jersey
13,340	13,110	11,800	11,330	10,160	9,220	8,280	New Mexico
28,430	27,950	27,390	26,490	23,710	22,920	21,080	New York
5,190	4,820	4,410	2,880	2,430	2,230	1,880	North Carolina
1,220	1,080	930	910	880	820	790	North Dakota
40,950	40,150	39,200	37,820	36,930	35,690	34,180	Ohio
20,170	19,590	18,550	17,860	17,460	16,560	16,080	Oklahoma
4,220	3,690	3,260	3,200	2,980	2,820	0	Oregon
38,070	37,560	36,680	35,870	34,260	33,260	31,610	Pennsylvania
1,780	1,720	1,690	1,640	1,580	1,550	1,520	Rhode Island
3,800	3,320	2,620	2,130	1,780	1,480	1,230	South Carolina
1,930	1,760	1,720	1,650	1,610	1,250	940	South Dakota
9,560	9,000	8,280	7,710	7,310	6,810	6,360	Tennessee
74,930	72,160	68,090	64,560	62,000	58,670	56,720	Texas
3,750	3,400	3,240	3,080	2,830	2,450	2,160	Utah
0	0	0	0	0	0	0	Vermont
6,720	6,460	6,080	5,740	5,430	5,140	4,680	Virginia
5,610	5,330	4,980	4,620	4,040	3,630	0	Washington
20,150	20,090	20,030	19,790	19,600	19,320	19,090	West Virginia
9,540	8,660	7,130	6,670	6,370	5,940	5,450	Wisconsin
3,530	3,400	3,270	3,230	2,980	2,750	2,410	Wyoming
337,120	607,980	573,950	540,790	514,960	490,550	448,770	U.S. total

Table I-6. U.S. Tank Ship Fleet (Actual and T2-SE-A1 Equivalents), 1941-1969

(Ocean-going Vessels of 2,000 Gross Tons and Over)						
Actual Fleet				T2-SE-A1 Equivalents		Year ¹
Number	Gross Tons	Deadweight Tons	Average Speed (Knots)	Number	Per Cent of World Total	
365	5,319,400	8,797,900	16.1	584.9	6.2	1969
380	5,337,300	8,655,700	16.1	574.6	7.0	1968
382	5,322,800	8,550,700	16.1	566.4	7.8	1967
337	5,343,700	8,549,900	16.1	566.3	8.5	1966
410	5,479,800	8,733,500	16.0	575.8	9.6	1965
422	5,553,400	8,816,300	16.0	579.3	10.6	1964
440	5,631,000	8,912,600	15.9	583.5	12.1	1963
456	5,726,900	9,045,300	15.9	589.8	13.0	1962
469	5,751,400	9,085,300	15.8	590.1	13.7	1961
478	5,664,000	8,894,600	15.7	575.0	14.1	1960
485	5,593,600	8,766,300	15.6	563.0	14.7	1959
474	5,316,100	8,309,200	15.5	529.5	15.6	1958
470	5,097,400	7,959,900	15.4	503.1	16.8	1957
477	5,040,700	7,892,700	15.2	493.4	18.9	1956
490	5,094,900	7,989,500	15.1	497.4	20.8	1955
525	5,376,500	8,446,200	15.0	521.7	23.3	1954
550	5,475,800	8,639,800	14.8	525.3	26.2	1953
550	5,284,400	8,446,400	14.6	508.3	29.4	October 1, 1952
560	5,363,699	8,520,800	14.6	510.0	33.0	April 1, 1951
559	5,322,698	8,460,700	14.5	505.1	34.4	September 1, 1950
578	5,439,009	8,639,800	14.4	513.2	38.0	September 1, 1949
593	5,656,497	9,016,200	14.1	524.2	41.1	January 1, 1949
621	5,878,786	9,395,500	14.0	541.9	42.9	April 1, 1948
744	6,995,223	11,171,400	14.07	646.4	50.8	October 1, 1947
951	8,784,894	14,035,000	13.86	800.5	62.3	January 1, 1947
907	8,379,542	13,379,143	13.74	756.2	59.8	September 1, 1946
780	7,084,022	11,283,652	13.59	630.9	55.9	1945
556	4,784,954	7,608,833	13.12	410.6	45.2	1944
366	2,901,748	4,640,027	12.23	233.5	31.2	1943
389	2,931,193	4,680,863	11.31	217.8	27.4	1942
379	2,824,128	4,498,684	11.13	205.9	25.8	1941

¹ As of December 31, unless otherwise indicated.

Source: Sun Oil Company, "Analysis of World Tank Ship Fleet."

Table I-7. World Tank Ship Fleet (Actual and T2-SE-A1 Equivalents), 1941-1969

(Ocean-going Vessels of 2,000 Gross Tons and Over)

Actual Fleet

Year ¹	Number	Gross Tons	Deadweight Tons	Average Speed (Knots)	T2-SE-A1 Equivalents	Year ¹
1969	3,893	86,821,100	146,029,100	15.8	9,461.5	1969
1968	3,748	77,148,500	126,454,200	15.8	8,202.3	1968
1967	3,613	69,965,500	112,366,200	15.7	7,274.6	1967
1966	3,524	64,787,600	102,908,800	15.7	6,641.4	1966
1965	3,436	59,158,200	93,171,900	15.7	5,984.4	1965
1964	3,359	54,468,900	85,125,700	15.6	5,455.3	1964
1963	3,279	49,168,600	76,179,500	15.4	4,841.3	1963
1962	3,259	46,630,100	71,995,700	15.3	4,542.9	1962
1961	3,250	44,701,000	68,859,400	15.2	4,304.8	1961
1960	3,264	42,801,300	65,780,400	15.1	4,076.0	1960
1959	3,276	40,831,500	62,657,800	14.8	3,826.1	1959
1958	3,146	37,020,100	56,640,700	14.6	3,403.3	1958
1957	2,954	33,046,800	50,424,800	14.4	2,988.2	1957
1956	2,778	29,455,500	44,887,600	14.2	2,614.2	1956
1955	2,681	27,338,600	41,623,100	14.0	2,398.1	1955
1954	2,602	25,733,900	39,137,300	13.9	2,244.0	1954
1953	2,502	23,473,900	35,732,300	13.6	2,003.5	1953
October 1, 1952	2,292	20,417,100	31,318,300	13.4	1,726.8	October 1, 1952
April 1, 1951	2,131	18,453,538	28,255,100	13.3	1,544.1	April 1, 1951
September 1, 1950	2,056	17,567,202	26,957,200	13.3	1,469.7	September 1, 1950
September 1, 1949	1,955	16,249,603	24,932,400	13.2	1,352.3	September 1, 1949
January 1, 1949	1,872	15,459,372	23,815,800	12.1	1,274.4	January 1, 1949
April 1, 1948	1,863	15,364,543	23,692,400	12.9	1,264.3	April 1, 1948
October 1, 1947	1,868	15,286,141	23,585,800	13.0	1,271.4	October 1, 1947
January 1, 1947	1,925	15,692,962	24,278,900	12.87	1,285.1	January 1, 1947
September 1, 1945	1,911	15,506,005	23,916,319	12.85	1,264.5	September 1, 1945
1945	1,768	14,102,405	21,667,642	12.67	1,129.2	1945
1944	1,556	11,889,560	18,101,816	12.20	908.8	1944
1943	1,388	10,252,380	15,498,123	11.75	749.1	1943
1942	1,550	11,242,773	16,963,861	11.40	795.8	1942
1941	1,589	11,410,748	17,194,000	11.28	798.1	1941

¹As of December 31, unless otherwise indicated.

Source: Sun Oil Company, "Analysis of World Tank Ship Fleet."

Table I-8. World Tanker Fleet at End 1972
(excluding 28.5 million D.W.T. combined carriers)
(2,000 D.W. Tons and over)
By Flag and Ownership

Flag	Ownership						Change 1972 over 1971	Share of Total 1972
	Oil Company	Pri- vate	Govern- ment	Other	Total 1972	Total 1971		
	Million Tons Deadweight							
Liberia	10.1	39.8	—	0.3	50.2	43.1	+ 7.1	26%
Norway	0.5	19.4	—	—	19.9	19.1	+ 0.8	10%
U.K.	17.3	7.8	0.2	—	25.3	25.2	+ 0.1	13%
Japan	3.4	19.2	—	—	22.6	18.8	+ 3.8	12%
U.S.A.	3.8	4.2	1.7	—	9.7	9.7	—	5%
Panama	3.7	3.9	—	—	7.6	5.7	+ 1.9	4%
France	5.3	2.9	0.1	—	8.3	7.6	+ 0.7	4%
Greece	—	10.5	—	—	10.5	8.5	+ 2.0	5%
Other Western Europe	9.3	14.8	0.1	—	24.2	23.8	+ 0.4	13%
Other Western Hemisphere	4.3	0.3	0.3	—	4.9	3.3	+ 1.6	3%
U.S.S.R., E. Europe & China	—	—	6.4	—	6.4	6.2	+ 0.2	3%
Other Eastern Hemisphere	1.6	2.6	0.1	—	4.3	4.3	—	2%
Total	59.3	125.4	8.9	0.3	193.9	175.3	+18.6	100%
Fleet as at end 1971	55.3	111.0	8.7	0.3	175.3			
Net increase 1972	4.0	14.4	0.2	—	18.6			

By Age, Size and Propulsion
Million Tons Deadweight

Size in '000 D.W.T.	Year of Construction								Propulsion		New Building in Progress and on Order at end 1972*
	Up to end 1945	1946- 1950	1951- 1955	1956- 1960	1961- 1965	1966- 1970	1971- 1972	Total	Motor	Other	
Under 25	4.3	1.1	7.3	7.4	2.5	3.8	1.5	27.9	19.8	8.1	1.1
25— 45	1.0	1.0	4.5	14.7	4.1	1.4	1.4	28.1	8.7	19.4	4.2
45— 65	—	—	0.9	5.1	14.6	1.8	0.1	22.5	7.3	15.2	0.4
65—125	—	—	—	2.2	14.0	22.0	2.0	40.2	24.7	15.5	11.4
125—205	—	—	—	—	0.1	10.2	2.8	13.1	6.2	6.9	10.5
205—285	—	—	—	—	—	26.4	32.2	58.6	3.0	55.6	71.7
285 and over	—	—	—	—	—	1.9	1.6	3.5	—	3.5	20.9
Total	5.3	2.1	12.7	29.4	35.3	67.5	41.6	193.9	69.7	124.2	120.2
Motor	0.8	0.9	6.3	8.9	17.6	25.9	9.3	69.7	*Excludes 16.8 million D.W.T. combined carriers		
Other	4.5	1.2	6.4	20.5	17.7	41.6	32.3	124.2			

Employment of Tankers 1972
Estimated Proportions of World's Active Ocean-Going Fleet on Main Voyages

Voyages To	Voyages From					Total
	U.S.A.	Carib- bean	Middle East	N. Africa	Others	
U.S.A.	4.0%	3.0%	2.5%	0.5%	1.5%	11.5%
Canada	—	1.0%	1.0%	—	0.5%	2.5%
Other Western Hemisphere	—	—	5.5%	0.5%	1.5%	7.5%
Western Europe, N. & W. Africa	—	1.5%	44.5%	4.0%	4.5%	54.5%
E. & S. Africa, S. Asia	—	—	2.0%	—	—	2.0%
Japan	—	—	14.0%	—	2.5%	16.5%
Other Eastern Hemisphere	—	—	4.5%	—	—	4.5%
U.S.S.R., E. Europe & China	—	—	1.0%	—	—	1.0%
Total	4.0%	5.5%	75.0%	5.0%	10.5%	100.0%

Source: British Petroleum Company, *BP Statistical Review of the World Oil Industry, 1972, P.4.*

Table I-9. World tanker fleet by flag, 1962 - 1972

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Flag	Million tons d.w.										
U.S.A.	9.0	9.0	8.7	8.8	8.7	8.7	8.8	9.1	9.5	9.7	9.7
U.K.	11.1	11.8	11.7	11.8	12.5	13.2	15.4	18.8	21.9	25.2	25.3
Norway	10.1	10.8	12.2	13.3	14.9	16.6	16.4	15.7	17.2	19.1	19.9
Other Western Europe	17.6	18.1	18.6	19.0	21.5	22.8	26.3	30.5	35.0	39.9	43.0
Panama and Liberia	14.1	15.7	18.9	23.3	25.2	27.8	31.5	36.0	43.4	48.8	57.8
Japan	3.5	4.1	5.0	6.5	8.4	9.8	11.4	13.7	15.6	18.8	22.6
Rest of World	4.9	5.5	6.5	7.4	8.2	9.0	9.7	11.4	13.1	13.8	15.6
Total	70.3	75.0	81.6	90.1	99.4	107.9	119.5	135.2	155.7	175.3	193.9

Source: British Petroleum Company, *BP Statistical Review of the World Oil Industry*, 1972, p. 22.

TONS D.W.
(MILLIONS)

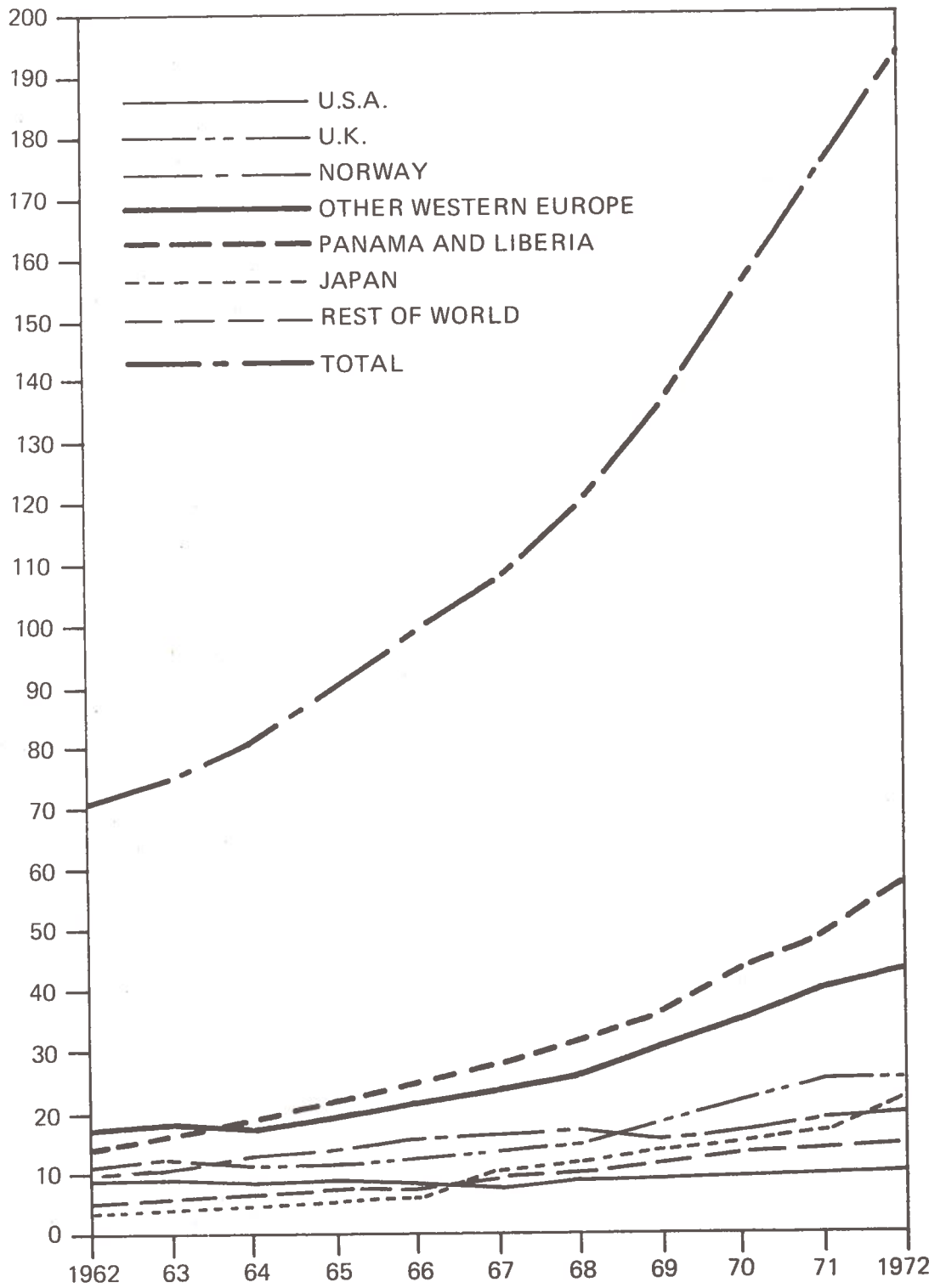


Figure 5. World Tanker Fleet by Flag, 1962-1972

(As of December 31)

Year	Number			Mileage		
	Petroleum Tank Cars	Other Tank Cars	Total	Petroleum Tank Cars	Other Tank Cars	Total
1968	75,581	70,310	145,891	894,093,477	572,310,905	1,466,404,382
1967	74,973	69,749	144,722	890,942,715	566,944,276	1,457,886,991
1966 ¹	80,592	76,844	157,436	960,989,876	765,728,108	1,726,717,984
1965	123,738	31,488	155,226	1,324,976,232	310,989,383	1,635,965,615
1964	125,876	30,562	156,438	1,465,229,954	330,228,451	1,795,458,405
1963	127,526	29,156	156,682	1,568,073,451	315,187,688	1,883,261,139
1962	128,368	27,783	156,151	1,613,996,311	327,352,838	1,941,349,149
1961	129,541	27,058	156,599	1,670,063,610	326,641,345	1,996,704,955
1960	126,070	29,541	155,611	1,784,388,610	390,823,252	2,175,211,862
1959	126,525	30,159	156,684	1,675,097,423	373,223,343	2,048,320,766
1958	126,446	28,757	155,203	1,835,139,276	390,246,856	2,225,386,132
1957	124,198	26,531	150,729	1,927,738,479	390,783,858	2,318,522,337
1956	122,010	25,360	147,370	1,907,094,342	366,313,249	2,273,407,591
1955	121,405	24,372	145,777	1,818,573,349	343,450,999	2,162,024,348
1954	121,507	22,088	143,595	1,934,674,921	331,033,786	2,265,708,707
1953	118,141	21,826	139,967	1,928,914,341	331,987,870	2,260,902,211
1952	115,605	19,996	135,601	1,961,975,285	318,559,854	2,280,535,139
1951	111,451	19,086	130,537	1,860,146,475	301,703,841	2,161,850,316
1950	115,202	19,364	134,566	1,796,767,001	292,030,588	2,088,797,589
1949	112,990	18,635	131,625	2,291,271,389	311,142,083	2,602,413,472
1948	117,540	8,762	126,302	2,264,104,262	134,316,262	2,398,420,524
1947	117,293	8,321	125,614	1,911,815,204	114,608,723	2,026,423,927

¹ One fleet previously included in the "petroleum" category has been reclassified as "other."

Source: Interstate Commerce Commission, *Transport Statistics in the United States*, Part 9, "Private Car Lines."

Table I-11. Total Crude Petroleum and Petroleum Products Transported in the U.S.,
by Method of Transportation, 1938-1968

Year	Pipelines		Water Carriers		Trucks ¹		Railroads		Total Tons Carried
	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	
1968	726,443,900	46.47	361,002,600	23.09	449,700,000	28.76	26,251,200	1.68	1,563,397,700
1967	679,321,600	45.64	349,815,800	23.50	433,600,000	29.13	25,742,200	1.73	1,488,479,600
1966	629,753,680	44.81	332,877,049	23.68	417,001,000	29.67	25,809,500	1.84	1,405,441,229
1965	587,795,480	44.43	323,671,414	24.47	385,480,600	29.14	25,856,600	1.96	1,322,804,094
1964	559,392,037	44.54	321,805,229	25.63	347,279,800	27.65	27,381,079	2.18	1,255,358,145
1963	521,149,137	43.57	335,611,860	28.06	312,583,106	26.14	26,658,686	2.23	1,196,002,789
1962	502,464,600	43.36	329,734,358	28.46	297,698,196	25.69	28,855,082	2.49	1,158,752,236
1961	484,170,055	43.60	322,695,527	29.06	273,619,665	24.64	29,964,233	2.70	1,110,450,480
1960	468,409,682	43.01	318,295,654	29.22	270,375,253	24.83	32,057,140	2.94	1,089,137,729
1959	464,290,959	43.22	310,098,034	28.86	266,642,261	24.82	33,343,787	3.10	1,074,375,041
1958	433,027,566	42.57	298,656,025	29.36	252,024,743	24.78	33,470,881	3.29	1,017,179,215
1957	441,078,169	43.25	299,800,463	29.40	242,331,559	23.76	36,643,971	3.59	1,019,854,162
1956	441,386,180	43.49	297,826,330	29.34	235,960,622	23.25	39,757,144	3.92	1,014,930,276
1955	412,533,395	42.94	284,007,134	29.56	222,604,360	23.17	41,663,502	4.33	960,808,391
1954	373,327,262	42.57	268,524,812	30.62	192,564,326	21.96	42,533,486	4.85	876,949,886
1953	359,142,335	41.63	273,476,440	31.70	184,625,431	21.40	45,451,188	5.27	862,695,394
1952	337,594,240	40.60	274,913,642	33.06	171,744,588	20.66	47,204,525	5.68	831,456,995
1951	324,667,831	40.31	267,417,940	33.20	163,566,274	20.30	49,842,061	6.19	805,494,106
1950	283,853,383	38.82	252,765,749	34.57	145,780,986	19.93	48,882,196	6.68	731,282,314
1949	261,023,757	39.23	229,928,665	34.56	126,217,294	18.97	48,199,099	7.24	665,368,815
1948	262,452,531	38.24	237,516,329	34.61	120,897,800	17.62	65,407,170	9.53	686,273,830
1947	237,879,554	38.42	209,087,669	33.77	105,603,500	17.05	66,638,669	10.76	619,209,392
1946	222,266,138	40.76	172,513,605	31.64	88,852,600	16.29	61,696,782	11.31	545,329,125
1945	240,749,492	44.06	142,498,332	26.08	96,135,600	17.60	67,003,259	12.26	546,386,683
1944	244,001,439	45.21	117,688,301	21.81	99,048,800	18.35	78,975,455	14.63	539,713,995
1943	196,391,443	41.46	115,995,425	24.49	76,471,500	16.14	84,875,255	17.91	473,733,623
1942	175,486,660	41.11	120,076,511	28.13	49,524,400	11.60	81,818,135	19.16	426,905,706
1941	170,684,472	40.53	152,430,794	36.20	28,695,020	6.81	69,323,685	16.46	421,133,971
1940	153,502,082	39.79	149,594,453	38.78	21,849,000	5.67	60,797,161	15.76	385,742,696
1939	147,534,686	39.11	148,054,469	39.25	21,557,680	5.72	60,057,437	15.92	377,204,272
1938	139,220,962	39.28	137,728,491	38.86	20,538,060	5.80	56,933,147	16.06	354,420,660

¹ Estimated

Source: Association of Oil Pipe Lines, "Shifts in Petroleum Transportation."

MODAL SHARE
%

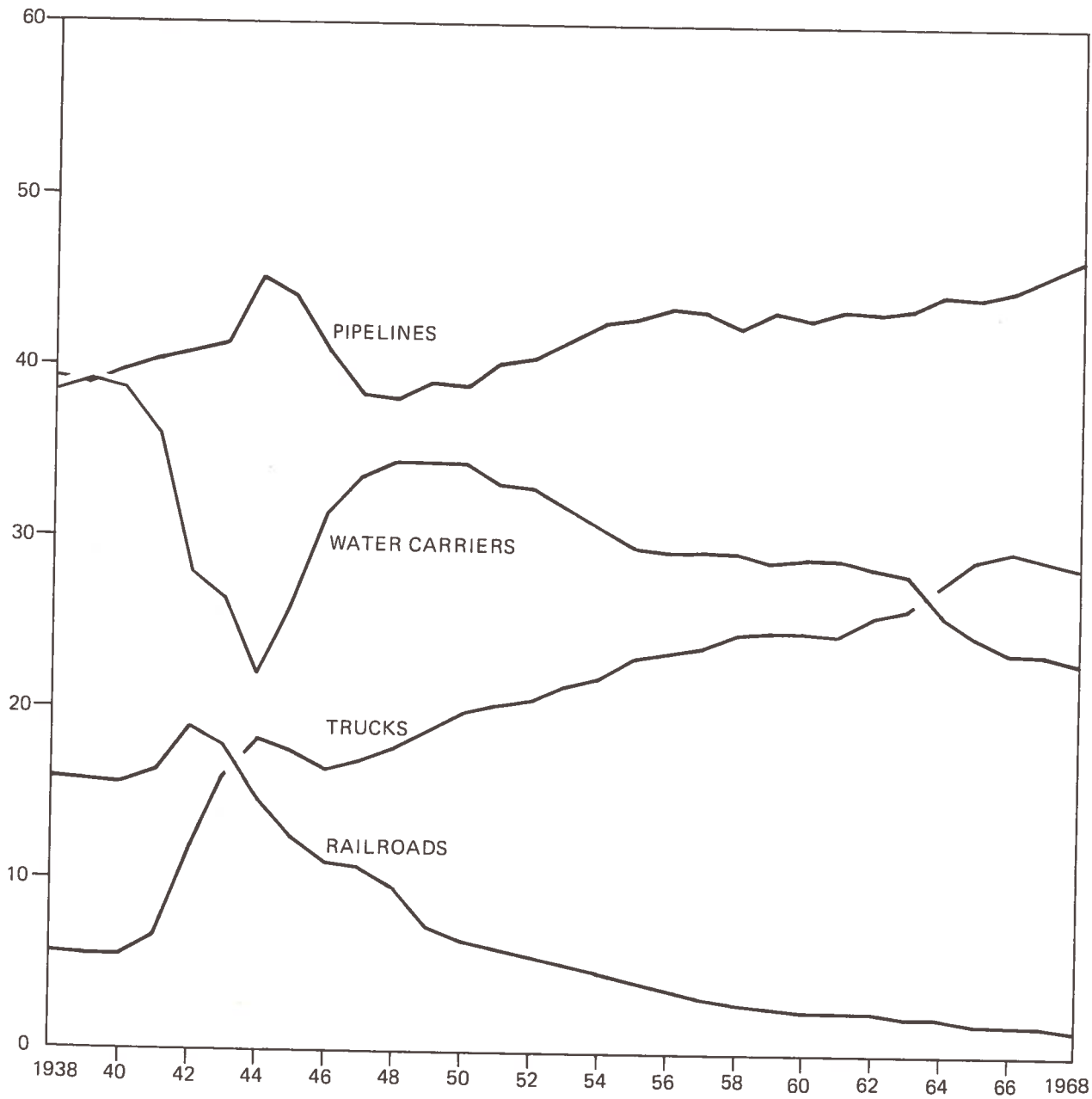


Figure 6. Modal Shares for Total Crude Petroleum and Petroleum Products Transported in the U.S., 1938-1968

Table I-12. Total Crude Oil Transported in the U.S., by Method of Transportation, 1938-1968

Year	Pipelines		Water Carriers		Trucks ¹		Railroads		Total Tons Carried
	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	
1968	425,887,300	74.08	107,010,300	18.62	40,900,000	7.11	1,066,800	0.19	574,814,400
1967	404,698,400	73.63	103,300,600	18.79	40,500,000	7.37	1,125,900	0.21	549,624,900
1966	384,542,645	74.15	92,851,238	17.90	40,097,000	7.73	1,120,500	0.22	518,611,383
1965	367,049,480	74.92	82,082,862	16.76	39,696,600	8.10	1,060,600	0.22	489,889,542
1964	362,375,186	75.59	79,998,233	16.69	35,762,700	7.46	1,252,786	0.26	479,388,905
1963	351,876,969	75.17	83,235,525	17.78	32,189,676	6.88	781,296	0.17	468,083,466
1962	338,642,644	74.92	80,969,520	17.91	30,656,834	6.78	1,755,547	0.39	452,024,545
1961	333,318,300	75.44	78,297,176	17.72	28,177,237	6.38	2,027,483	0.46	441,820,196
1960	328,449,000	75.97	74,137,775	17.15	27,843,120	6.44	1,888,387	0.44	432,318,282
1959	327,697,000	76.25	73,067,560	17.00	27,458,698	6.39	1,531,242	0.36	429,754,500
1958	307,059,000	76.35	67,965,254	16.90	25,953,401	6.45	1,195,560	0.30	402,173,215
1957	320,277,900	76.01	74,090,233	17.58	24,955,193	5.92	2,046,347	0.49	421,369,673
1956	327,846,900	77.75	67,335,912	15.97	24,299,117	5.76	2,191,748	0.52	421,673,677
1955	310,042,950	77.73	63,081,850	15.81	22,923,695	5.75	2,828,541	0.71	398,877,036
1954	284,438,700	76.37	64,572,121	17.34	19,830,186	5.32	3,606,041	0.97	372,447,048
1953	283,379,400	75.19	70,585,701	18.73	19,012,642	5.05	3,882,852	1.03	376,860,595
1952	269,272,500	73.73	74,812,548	20.48	17,686,179	4.84	3,477,423	0.95	365,208,650
1951	263,431,350	73.68	72,497,833	20.28	16,843,980	4.71	4,756,252	1.33	357,529,415
1950	231,198,150	72.64	67,551,132	21.22	15,012,459	4.72	4,518,534	1.42	318,280,275
1949	215,051,700	72.32	64,219,078	21.60	12,997,800	4.37	5,083,362	1.71	297,351,940
1948	221,198,250	68.48	75,126,140	23.26	12,450,000	3.86	14,216,922	4.40	322,991,312
1947	204,375,000	69.87	67,333,281	23.02	10,875,000	3.72	9,918,201	3.39	292,501,482
1946	193,545,000	72.87	56,287,368	21.19	9,150,000	3.45	6,619,360	2.49	265,601,728
1945	205,185,000	74.86	48,477,658	17.69	9,900,000	3.61	10,515,776	3.84	274,078,434
1944	208,560,000	77.98	32,371,496	12.10	10,200,000	3.81	16,337,338	6.11	267,468,834
1943	176,835,000	73.46	31,129,833	12.93	7,875,000	3.27	24,890,590	10.34	240,730,423
1942	159,255,000	72.12	35,299,423	15.98	5,100,000	2.31	21,179,792	9.59	220,834,215
1941	156,300,000	73.45	46,224,034	21.72	2,955,000	1.39	7,317,674	3.44	212,796,708
1940	140,985,000	71.86	47,927,090	24.43	2,250,000	1.14	5,035,027	2.57	196,197,117
1939	135,270,000	71.02	47,045,281	24.70	2,220,000	1.17	5,928,983	3.11	190,464,264
1938	128,175,000	71.01	46,173,283	25.58	2,115,000	1.17	4,045,664	2.24	180,508,947

¹ Estimated

Source: Association of Oil Pipe Lines, "Shifts in Petroleum Transportation."

by Method of Transportation, 1938-1968

Year	Pipelines ¹		Water Carriers		Trucks ²		Railroads		Total Tons Carried
	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	Tons Carried	Per Cent of Total	
1968	300,606,600	30.41	253,992,300	25.69	408,800,000	41.35	25,184,400	2.55	988,583,300
1967	274,623,200	29.25	246,515,200	26.26	393,100,000	41.87	24,616,300	2.62	938,854,700
1966	245,211,035	27.65	240,025,811	27.07	376,904,000	42.50	24,689,000	2.78	886,829,846
1965	220,746,000	26.50	241,588,552	29.01	345,784,000	41.51	24,796,000	2.98	832,914,552
1964	197,016,851	25.37	241,806,996	31.14	311,517,100	40.12	26,128,293	3.37	776,469,240
1963	169,272,168	23.25	252,376,335	34.67	280,393,430	38.52	25,877,390	3.56	727,919,323
1962	163,821,956	23.18	248,764,838	35.20	267,041,362	37.78	27,099,535	3.84	706,727,691
1961	150,851,755	22.56	244,399,351	36.55	245,442,428	36.71	27,936,750	4.18	668,630,284
1960	139,960,682	21.31	244,157,879	37.17	242,532,133	36.93	30,168,753	4.59	656,819,447
1959	136,593,959	21.19	237,030,474	36.77	239,183,563	37.10	31,812,545	4.94	644,620,541
1958	125,968,566	20.48	230,690,771	37.51	226,071,342	36.76	32,275,321	5.25	615,006,000
1957	120,800,269	20.19	225,710,230	37.71	217,376,366	36.32	34,597,624	5.78	598,484,489
1956	113,539,280	19.14	230,490,418	38.85	211,661,505	35.68	37,565,396	6.33	593,256,599
1955	102,490,445	18.24	220,925,284	39.32	199,680,665	35.53	38,834,961	6.91	561,931,355
1954	88,888,562	17.62	203,952,691	40.43	172,734,140	34.24	38,927,445	7.71	504,592,838
1953	75,762,935	15.59	202,890,739	41.76	165,612,789	34.09	41,568,336	8.56	485,834,799
1952	68,321,740	14.66	200,101,094	42.92	154,058,409	33.04	43,727,102	9.38	466,208,345
1951	61,236,481	13.67	194,920,107	43.51	146,722,294	32.76	45,085,809	10.06	447,964,691
1950	52,655,233	12.75	185,214,617	44.85	130,768,527	31.66	44,363,662	10.74	413,002,039
1949	45,972,057	12.49	165,709,587	45.03	113,219,494	30.76	43,115,737	11.72	368,016,875
1948	41,254,281	11.36	162,390,189	44.70	108,447,800	29.85	51,190,248	14.09	363,282,518
1947	33,504,554	10.26	141,754,388	43.39	94,728,500	28.99	56,720,468	17.36	326,707,910
1946	28,721,138	10.27	116,226,237	41.55	79,702,600	28.49	55,077,422	19.69	279,727,397
1945	35,564,492	13.06	94,020,674	34.53	86,235,600	31.67	56,487,483	20.74	272,308,249
1944	35,441,439	13.02	85,316,805	31.34	88,848,800	32.63	62,638,117	23.01	272,245,161
1943	19,556,443	8.39	84,865,592	36.42	68,596,500	29.44	59,984,665	25.75	233,003,200
1942	16,231,660	7.88	84,777,088	41.14	44,424,400	21.56	60,638,343	29.42	206,071,491
1941	14,384,472	6.90	106,206,760	50.98	25,740,020	12.36	62,006,011	29.76	208,337,263
1940	12,517,082	6.60	101,667,363	53.64	19,599,000	10.34	55,762,134	29.42	189,545,579
1939	12,264,686	6.57	101,009,188	54.09	19,337,680	10.36	54,128,454	28.98	186,740,008
1938	11,045,962	6.35	91,555,208	52.65	18,423,060	10.59	52,887,483	30.41	173,911,713

¹ Products in pipelines carry light products only—gasoline, Kerosine, distillate and liquefied petroleum gases.

² Estimated

Source: Association of Oil Pipe Lines, "Shifts in Petroleum Transportation."

Table I-14. Transportation of petroleum products by pipeline
(thousands of barrels)

Item	December	November	December	January-December (Incl.)	
	1972	1972	1971	1972	1971
Turned into lines:					
Gasoline, total	138,502	135,312	130,888	1,636,213	1,472,7
Motor	138,326	135,001	130,687	1,632,196	1,468,6
Aviation	176	311	201	4,017	4,1
Jet fuel, total	20,335	19,960	18,604	228,476	207,1
Naphtha-type	1,478	1,336	1,914	18,404	24,9
Kerosene-type	18,857	18,624	16,690	210,072	182,1
Kerosene	5,945	4,011	5,538	47,499	52,0
Distillate fuel oil	69,442	60,863	57,118	656,798	585,2
Natural gas liquids	38,677	36,361	34,341	399,176	340,5
Delivered from lines:					
Gasoline, total	140,130	135,011	126,070	1,638,756	1,466,8
Motor	139,949	134,671	125,897	1,634,925	1,462,8
Aviation	181	340	173	3,831	3,9
Jet fuel, total	20,222	20,513	18,151	222,317	204,7
Naphtha-type	1,414	1,363	1,987	18,263	24,8
Kerosene-type	18,808	19,150	16,164	208,054	179,9
Kerosene	5,332	4,090	5,205	46,132	51,2
Distillate fuel oil	72,675	60,620	59,203	659,409	583,2
Natural gas liquids	38,166	36,618	34,385	397,330	338,7
Shortage (or overage):					
Gasoline, total	(339)	(220)	(135)	(2,021)	(1,2)
Motor	(335)	(246)	(138)	(2,192)	(1,4)
Aviation	(4)	26	3	171	1
Jet fuel, total	124	115	199	1,776	1,2
Naphtha-type	(19)	(6)	12	(10)	1
Kerosene-type	143	121	187	1,786	1,2
Kerosene	165	75	123	1,539	1,2
Distillate fuel oil	(235)	(231)	(125)	(352)	(1,2)
Natural gas liquids	63	28	231	576	1,2
Stocks in lines and working tanks at end of month:					
Gasoline, total	43,989	45,278	44,511	43,989	44,2
Motor	43,796	45,084	44,333	43,796	44,2
Aviation	193	194	178	193	193
Jet fuel, total	5,806	5,817	5,423	5,806	5,8
Naphtha-type	701	618	550	701	701
Kerosene-type	5,105	5,199	4,873	5,105	4,8
Kerosene	2,448	2,000	2,620	2,448	2,6
Distillate fuel oil	25,545	28,543	27,804	25,545	27,8
Natural gas liquids	16,195	15,747	14,925	16,195	14,9

Source: Department of Interior, Bureau of Mines, *Mineral Industry Surveys*, Dec., 1972

Table I-14. Transportation of Petroleum Products by Pipeline - Continued
(thousands of barrels)

Item	March 1973	February 1973	March 1972	January-March (Incl.)	
				1973	1972
rned into lines:					
Gasoline, total	142,066	130,892	130,838	409,007	376,532
Motor	141,670	130,722	130,437	408,203	375,413
Aviation	396	170	401	804	1,119
Jet fuel, total	23,059	20,760	20,159	66,293	57,496
Naphtha-type	1,679	1,211	2,037	4,108	5,367
Kerosene-type	21,380	19,549	18,122	62,185	52,129
Kerosene	4,551	5,913	4,763	16,372	15,441
Distillate fuel oil	62,483	62,951	54,647	199,736	175,335
Natural gas liquids	35,440	34,541	32,309	108,627	95,583
ivered from lines:					
Gasoline, total	141,942	129,359	130,224	407,596	371,556
Motor	141,643	129,154	129,933	406,858	370,522
Aviation	299	205	291	738	1,034
Jet fuel, total	22,572	20,647	20,008	65,599	57,310
Naphtha-type	1,574	1,115	1,923	4,074	5,229
Kerosene-type	20,998	19,502	18,085	61,525	52,081
Kerosene	4,551	5,964	4,748	16,710	15,881
Distillate fuel oil	63,483	65,460	58,997	205,236	185,076
Natural gas liquids	35,211	34,092	32,795	110,096	98,377
rtage (or overage):					
Gasoline, total	(435)	(67)	(89)	(849)	(717)
Motor	(460)	(81)	(85)	(889)	(750)
Aviation	25	14	(4)	40	33
Jet fuel, total	83	192	36	603	325
Naphtha-type	26	3	5	24	(6)
Kerosene-type	57	189	31	579	331
Kerosene	282	186	106	591	372
Distillate fuel oil	135	(339)	(221)	(463)	(592)
Natural gas liquids	195	204	6	604	393
cks in lines and working					
unks at end of month:					
Gasoline, total	46,249	45,690	50,204	46,249	50,204
Motor	46,030	45,543	49,974	46,030	49,974
Aviation	219	147	230	219	230
Jet fuel, total	5,897	5,493	5,284	5,897	5,284
Naphtha-type	711	632	694	711	694
Kerosene-type	5,186	4,861	4,590	5,186	4,590
Kerosene	1,519	1,801	1,808	1,519	1,808
Distillate fuel oil	20,508	21,643	18,655	20,508	18,655
Natural gas liquids	14,122	14,088	11,738	14,122	11,738

Source: Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, March, 1973.

Table 1-15. Movements of Petroleum Products by Pipeline Between P.A.D. Districts
(Thousands of Barrels)

Item	January - December (Incl.)				
	December 1972	November 1972	December 1971	1972	1971
From District 1 to District 2:					
Gasoline, total	3,609	3,542	2,644	39,239	33,544
Motor	3,609	3,535	2,644	39,187	33,492
Aviation	-	7	-	52	52
Jet fuel, total	279	215	201	2,111	1,634
Naphtha-type	91	-	114	601	609
Kerosene-type	188	215	87	1,510	1,025
Kerosene	46	37	52	546	787
Distillate fuel oil	1,056	1,042	640	9,831	7,741
From District 2 to District 1:					
Gasoline, total	807	819	834	11,276	10,767
Motor	807	819	834	11,276	10,767
Jet fuel, total	-	-	-	111	112
Kerosene-type	-	-	-	111	112
Kerosene	-	-	-	76	-
Distillate fuel oil	93	58	61	795	934
Natural gas liquids	757	961	1,012	9,946	10,673
From District 2 to District 3:					
Gasoline, total	1,648	1,730	1,518	19,000	19,426
Motor	1,648	1,730	1,518	19,000	19,426
Jet fuel, total	81	40	69	522	611
Naphtha-type	80	40	69	518	606
Kerosene-type	1	-	-	4	5
Distillate fuel oil	382	286	364	4,592	4,256
Natural gas liquids	227	237	234	2,640	3,026
From District 3 to District 1:					
Gasoline, total	25,625	24,294	21,205	307,159	286,379
Motor	25,611	24,252	21,188	306,852	286,026
Aviation	14	42	17	307	353
Jet fuel, total	4,971	4,866	3,681	49,332	41,194
Naphtha-type	101	102	111	1,067	1,574
Kerosene-type	4,870	4,764	3,570	48,265	39,620
Kerosene	1,433	1,191	1,749	12,959	14,646
Distillate fuel oil	18,250	16,236	14,892	179,493	155,534
Natural gas liquids	2,236	1,754	1,701	16,603	14,705
From District 3 to District 2:					
Gasoline, total	4,007	3,864	3,226	58,588	49,954
Motor	3,941	3,746	3,162	57,389	48,708
Aviation	66	118	64	1,199	1,246
Jet fuel, total	301	463	238	4,960	3,120
Naphtha-type	-	-	-	4	5
Kerosene-type	301	463	238	4,956	3,115
Kerosene	138	110	279	1,741	3,026
Distillate fuel oil	948	1,382	1,364	13,197	11,593
Natural gas liquids	9,289	7,538	6,517	63,739	49,904
From District 3 to District 4:					
Gasoline, total	394	341	392	4,370	5,496
Motor	376	325	375	4,144	5,271
Aviation	18	16	17	226	225
Jet fuel, total	375	321	316	3,985	3,606
Kerosene-type	375	321	316	3,985	3,606
Kerosene	5	1	2	20	27
Distillate fuel oil	63	58	32	552	669
Natural gas liquids	204	163	211	1,159	1,156

**Table I-15. Movements of Petroleum Products by Pipeline Between P.A.D. Districts - Continued
(thousands of barrels)**

Item	December 1972	November 1972	December 1971	January - December (Incl.)	
				1972	1971
From District 3 to District 5:					
Gasoline, total	1,065	799	784	11,543	10,943
Motor	1,065	799	784	11,543	10,943
Jet fuel, total	222	239	349	3,115	4,978
Naphtha-type	73	79	166	1,177	2,799
Kerosene-type	149	160	183	1,938	2,179
Distillate fuel oil	288	301	309	3,850	3,690
From District 4 to District 2:					
Gasoline, total	338	362	364	4,679	4,240
Motor	338	362	364	4,679	4,240
Jet fuel, total	73	52	48	588	501
Naphtha-type	73	52	48	588	501
Kerosene	5	4	2	52	51
Distillate fuel oil	262	270	285	3,390	3,206
From District 4 to District 5:					
Gasoline, total	673	738	862	9,250	10,358
Motor	673	738	862	9,250	10,358
Jet fuel, total	65	31	110	1,325	1,959
Naphtha-type	24	17	107	880	1,260
Kerosene-type	41	14	3	445	699
Distillate fuel oil	318	260	547	4,270	5,453

Source: Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, Dec., 1972

Item	March 1973	February 1973	March 1972	January - March (Incl.)	
				1973	1972
From District 1 to District 2:					
Gasoline, total	3,704	3,353	2,650	10,423	8,085
Motor	3,695	3,353	2,646	10,408	8,068
Aviation	9	-	4	15	17
Jet fuel, total	297	380	209	1,013	701
Naphtha-type	81	104	67	225	281
Kerosene-type	216	276	142	788	420
Kerosene	38	13	75	113	229
Distillate fuel oil	1,013	825	732	2,852	2,143
From District 2 to District 1:					
Gasoline, total	825	772	1,052	2,294	2,817
Motor	825	772	1,052	2,294	2,817
Jet fuel, total	-	-	40	-	52
Kerosene-type	-	-	40	-	52
Kerosene	-	1	27	23	67
Distillate fuel oil	110	127	86	385	243
Natural gas liquids	1,021	722	944	2,480	2,283
From District 2 to District 3:					
Gasoline, total	1,842	1,645	1,569	5,123	4,791
Motor	1,842	1,645	1,569	5,123	4,791
Jet fuel, total	1	1	-	43	79
Naphtha-type	-	-	-	40	79
Kerosene-type	1	1	-	3	-
Distillate fuel oil	316	346	396	1,092	1,058
Natural gas liquids	227	161	231	580	644
From District 3 to District 1:					
Gasoline, total	26,068	21,210	24,522	70,925	67,481
Motor	26,052	21,183	24,479	70,867	67,371
Aviation	16	27	43	58	110
Jet fuel, total	5,330	5,399	4,396	15,848	12,407
Naphtha-type	26	55	121	111	342
Kerosene-type	5,304	5,344	4,275	15,737	12,065
Kerosene	1,200	1,620	1,176	4,912	4,853
Distillate fuel oil	16,512	16,525	15,986	52,556	49,611
Natural gas liquids	1,114	2,386	1,252	6,324	5,105

Table 1-15. Movements of Petroleum Products by Pipeline Between P.A.D. Districts - Continued
(thousands of barrels)

Item	March 1973	February 1973	March 1972	January - March (Incl.)	
				1973	1972
From District 3 to District 2:					
Gasoline, total	4,862	4,195	4,994	12,968	12,751
Motor	4,727	4,108	4,922	12,701	12,574
Aviation	135	87	72	267	177
Jet fuel, total	435	205	343	1,019	1,118
Kerosene-type	435	205	343	1,019	1,118
Kerosene	219	84	148	427	784
Distillate fuel oil	1,309	1,608	954	4,901	4,585
Natural gas liquids	6,124	6,180	4,338	18,290	14,945
From District 3 to District 4:					
Gasoline, total	366	350	268	1,096	701
Motor	346	329	248	1,037	650
Aviation	20	21	20	59	51
Jet fuel, total	322	322	342	982	987
Kerosene-type	322	322	342	982	987
Kerosene	-	-	1	1	5
Distillate fuel oil	46	41	30	160	101
Natural gas liquids	112	153	73	476	414
From District 3 to District 5:					
Gasoline, total	1,064	1,065	1,035	3,299	2,908
Motor	1,064	1,065	1,035	3,299	2,908
Jet fuel, total	169	112	273	428	820
Naphtha-type	100	40	93	209	268
Kerosene-type	69	72	180	219	552
Distillate fuel oil	339	321	308	1,013	908
From District 4 to District 2:					
Gasoline, total	386	318	335	1,044	921
Motor	386	318	335	1,044	921
Jet fuel, total	40	27	53	107	132
Naphtha-type	40	27	53	107	132
Kerosene	4	3	2	15	10
Distillate fuel oil	285	253	314	817	865
*From District 4 to District 3:					
Natural gas liquids	280	266	182	819	495
From District 4 to District 5:					
Gasoline, total	756	734	732	2,136	2,325
Motor	756	734	732	2,136	2,325
Jet fuel, total	129	24	216	219	532
Naphtha-type	58	12	177	106	396
Kerosene-type	71	12	39	113	136
Distillate fuel oil	147	234	341	666	1,158

*Movements for 1972 from District 4 to District 3:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
Natural gas liquids	155	158	182	229	280	266	276	285	323	339	330	273

Source: Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, March, 1973, and Dec., 1972.

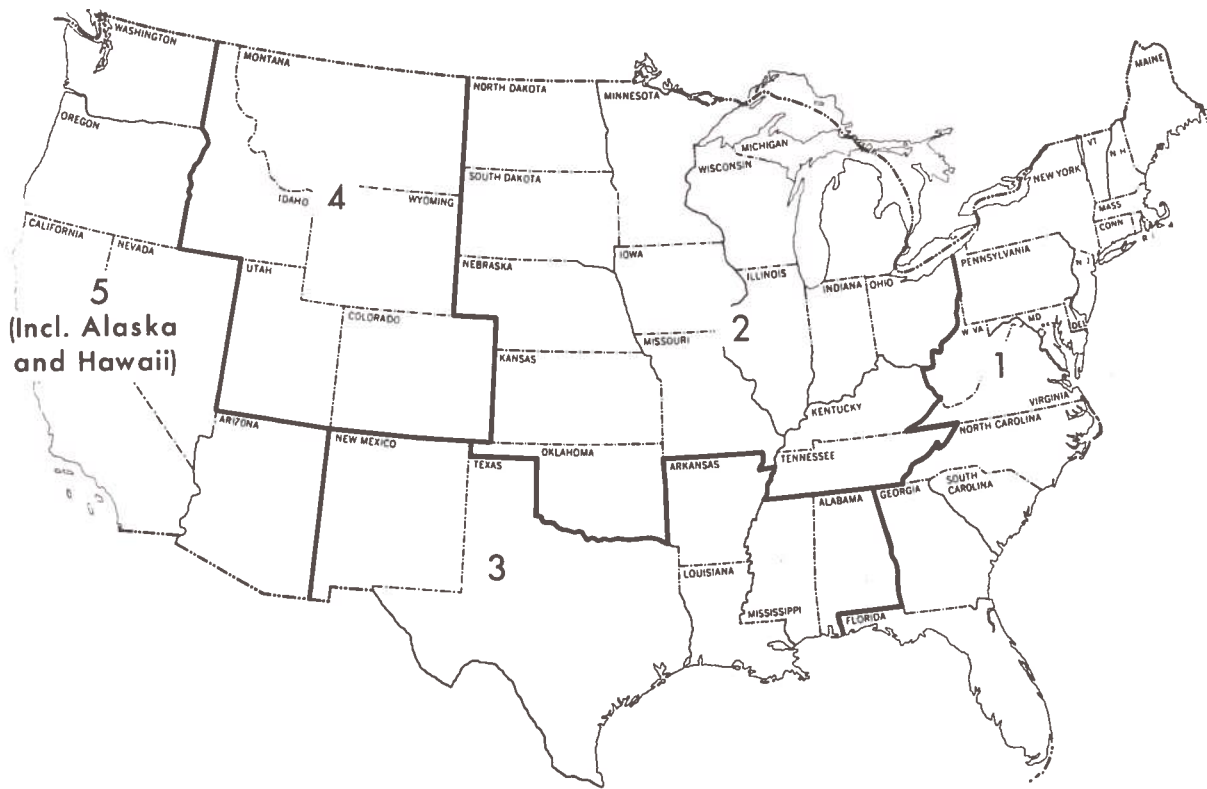


Figure 7. Petroleum Administration for Defense (PAD) Districts

Table I-16. Average Length of Movement on Crude Oil and Petroleum Product Pipelines¹, 1950-1968

Year	Crude Oil Trunk Pipelines			Petroleum Products Pipelines			Year
	Barrels	Barrel-Miles (Thousands)	Average Miles	Barrels	Barrel-Miles (Thousands)	Average Miles	
1968	4,273,298,625	1,270,465,366	297	2,559,522,918	951,655,430	372	1968
1967	3,886,370,613	1,207,321,010	311	2,338,581,680	925,121,262	396	1967
1966	3,661,172,872	1,181,152,599	323	2,049,934,224	719,728,561	351	1966
1965	3,504,832,301	1,121,113,143	320	1,871,969,652	626,755,696	335	1965
1964	3,445,981,826	1,061,521,062	308	1,600,713,475	448,859,033	280	1964
1963	3,354,648,208	1,053,747,896	314	1,415,605,280	369,475,357	261	1963
1962	3,213,244,700	998,096,023	311	1,321,859,609	347,178,499	263	1962
1961	3,107,930,439	995,642,315	320	1,191,421,488	317,141,089	266	1961
1960	3,090,718,604	976,357,818	316	1,123,854,986	304,448,973	271	1960
1959	3,037,683,008	980,013,807	323	1,054,674,841	284,361,887	270	1959
1958	2,946,672,171	905,200,921	307	934,671,206	259,789,783	278	1958
1957	3,056,065,958	930,558,064	304	876,234,678	248,318,537	283	1957
1956	3,061,918,045	935,801,321	306	817,045,873	233,457,898	286	1956
1955	2,781,178,550	839,009,465	302	716,703,580	204,886,356	286	1955
1954	2,574,335,641	782,219,391	304	606,861,438	182,702,180	301	1954
1953	2,596,578,447	755,997,975	291	507,845,083	161,228,916	317	1953
1952	2,454,702,973	714,722,720	291	441,788,756	142,425,912	322	1952
1951	2,336,641,710	694,723,304	297	404,976,104	122,188,184	302	1951
1950	1,976,569,928	577,054,200	292	360,276,454	106,648,715	296	1950

¹ ICC-regulated oil pipelines only

Source: Interstate Commerce Commission, *Transport Statistics in the United States*, Part 6, "Oil Pipelines."

Table I-17. U.S. Petroleum Freight Originated by Class I Railroad, by District and Commodity, 1959 - 1969
(thousands of tons)

District and Commodity	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959
Eastern District:											
Crude petroleum ¹	5	1	4	10	19	13	3	16	126	79	24
Gasoline	299	346	416	443	618	855	758	822	1,043	1,059	1,146
Residual and distillate fuel oils	2,705	2,557	2,454	2,538	2,497	2,213	1,802	1,794	1,734	1,778	1,951
Lubricating oils and greases	1,371	1,329	1,284	1,241	1,139	1,039	1,022	988	905	899	919
Other refined products	1,739	1,540	1,533	1,611	1,709	1,746	1,846	1,779	1,665	1,720	1,742
Asphalt (natural and petroleum)	763	620	891	936	1,001	1,095	665	694	693	730	790
Total Eastern District	6,882	6,393	6,582	6,779	6,983	6,961	6,096	6,093	6,167	6,265	6,572
Southern District:											
Crude petroleum ¹	231	247	298	274	256	247	189	185	185	188	183
Gasoline	728	877	1,091	1,100	1,274	1,883	2,026	2,237	2,326	2,617	2,825
Residual and distillate fuel oils	669	664	634	681	705	712	797	804	765	923	971
Lubricating oils and greases	236	246	261	27	246	265	252	272	236	225	218
Other refined products	1,141	1,075	978	912	807	761	882	875	802	720	734
Asphalt (natural and petroleum)	258	304	335	311	393	520	332	308	237	214	266
Total Southern District	3,263	3,413	3,597	3,545	3,681	4,388	4,478	4,681	4,551	4,887	5,197
Western District:											
Crude petroleum ¹	727	819	823	836	786	993	589	1,555	1,716	1,621	1,324
Gasoline	1,374	1,554	1,750	1,916	1,961	2,530	2,596	3,128	3,492	3,855	4,201
Residual and distillate fuel oils	2,879	2,993	2,870	2,731	2,985	3,251	3,214	3,611	3,870	4,578	5,144
Lubricating oils and greases	2,009	2,018	1,960	2,028	1,952	2,073	1,783	1,817	1,735	1,857	1,923
Other refined products	7,433	7,063	6,470	6,077	5,644	5,277	6,005	6,119	6,552	7,204	7,095
Asphalt (natural and petroleum)	1,734	1,788	1,691	1,957	1,866	1,908	1,897	1,851	1,880	1,790	1,888
Total Western District	16,156	16,235	15,564	15,545	15,194	16,032	16,084	18,081	19,245	20,905	21,575
United States:											
Crude petroleum ¹	963	1,067	1,126	1,120	1,061	1,253	781	1,756	2,027	1,888	1,531
Gasoline	2,401	2,777	3,257	3,458	3,853	5,268	5,380	6,187	6,861	7,531	8,172
Residual and distillate fuel oils	6,253	6,214	5,958	5,950	6,186	6,176	5,813	6,209	6,369	7,279	8,066
Lubricating oils and greases	3,616	3,593	3,505	3,540	3,337	3,377	3,057	3,077	2,876	2,981	3,060
Other refined products	10,313	9,678	8,980	8,600	8,160	7,784	8,733	8,773	9,020	9,644	9,571
Asphalt (natural and petroleum)	2,755	2,712	2,917	3,205	3,259	3,523	2,894	2,853	2,810	2,734	2,944
Total United States	26,301	26,041	25,743	25,873	25,856	27,381	26,658	28,855	29,963	32,057	33,344

¹ Includes crude oil, natural gas, and natural gasoline

Source: ICC, *Freight Commodity Statistics*

Table I-18. Movement of Petroleum in U.S. Water-Borne Trade, 1948-1967

Year	(Thousands of Short Tons)											
	Imports						Exports					
	Crude Oil and Products						Crude Oil and Products					
	Atlantic, ¹ Gulf, and Pacific Coasts	Great Lakes	Total Crude Oil and Products	All Other Imports	Atlantic, ¹ Gulf, and Pacific Coasts	Great Lakes	Total Crude Oil and Products	All Other Exports	Crude Oil and Products	All Other Trade	Total Foreign Trade	
1967	141,923	40	141,964	134,001	12,549	250	12,799	177,208	154,763	311,209	465,972	
1966	148,424	94	148,518	135,330	6,788	215	7,002	180,541	155,520	315,871	471,391	
1965	142,600	118	142,718	127,117	6,910	160	7,070	166,822	149,788	293,939	443,727	
1964	131,225	83	131,308	117,278	8,145	159	8,304	165,035	139,612	282,313	421,925	
1963	125,213	90	125,303	102,073	9,094	256	9,350	148,933	134,653	251,006	385,659	
1962	121,263	15	121,278	101,413	7,368	295	7,663	128,246	128,941	229,659	358,599	
1961	113,397	62	113,459	86,707	7,412	366	7,778	121,386	121,237	208,093	329,330	
1960	112,559	79	112,638	98,679	8,639	414	9,053	118,907	121,691	217,586	339,277	
1959	111,631	99	111,730	101,756	7,841	534	8,375	103,809	120,105	205,565	325,670	
1958	105,627	62	105,689	83,795	8,628	1,079	9,707	109,659	115,396	193,454	308,850	
1957	96,265	84	96,349	90,003	21,516	1,675	23,191	148,997	119,540	239,000	358,540	
1956	90,575	132	90,707	83,507	15,097	1,853	16,950	135,526	107,657	219,033	326,690	
1955	80,454	88	80,542	72,415	11,231	1,534	12,765	105,381	93,307	177,796	271,103	
1954	69,119	10	69,129	60,295	10,734	1,456	12,190	72,230	81,319	132,525	213,844	
1953	67,168	25	67,193	60,788	13,662	4,425	18,087	71,328	84,280	132,116	217,396	
1952	62,113	25	62,138	53,823	14,908	4,660	19,568	91,797	81,706	145,620	227,326	
1951	55,036	—	55,036	53,651	14,958	3,157	18,115	105,194	73,151	158,845	231,996	
1950	52,545	—	52,545	49,437	9,197	1,381	10,578	56,665	63,123	106,102	169,225	
1949	40,496	38	40,534	41,458	11,028	1,250	12,278	71,088	52,812	112,546	165,358	
1948	32,317	37	32,354	39,943	12,773	1,385	14,158	76,517	46,512	116,460	162,972	

TABLE 1-10. MOVEMENT OF PETROLEUM IN U.S. WATER-WAY TRADE, 1946-1958 (CONTINUED)

(Thousands of Short Tons)

Year	Domestic Trade										All Waterborne Trade, Foreign and Domestic					Petroleum as a Per Cent of Total Trade			
	Coastwise ²			Local, Intraport, ³ and Intraterritory			Lakewise and Internal				Total Domestic						All Other Foreign and Domestic Trade	Crude Oil and Products	All Domestic Trade
	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade	Crude Oil and Products	All Other Domestic Trade					
1967	167,012	47,635	45,778	58,020	137,511	414,678	350,301	520,333	870,634	505,064	831,542	1,336,606	37.8						
1966	158,752	49,622	42,707	57,755	131,417	422,472	332,877	529,848	862,725	488,397	845,719	1,334,116	36.6						
1965	155,183	46,325	41,296	63,055	127,192	396,118	323,671	505,498	829,169	473,459	799,437	1,272,896	37.2						
1964	161,568	44,120	37,712	63,448	122,525	386,796	321,805	494,364	816,169	461,417	776,677	1,238,094	37.2						
1963	172,835	41,018	40,375	60,236	122,402	351,242	335,612	452,496	788,108	470,307	703,460	1,173,767	40.1						
1962	173,035	42,426	39,194	64,345	117,501	334,305	329,730	441,076	770,805	458,714	670,690	1,129,404	40.6						
1961	169,798	37,102	38,361	56,671	114,538	316,355	322,697	410,128	732,825	443,934	618,221	1,062,155	41.8						
1960	167,986	41,211	39,848	65,362	110,462	335,704	318,296	442,277	760,573	439,987	659,863	1,099,850	40.0						
1959	164,120	41,389	39,641	68,093	105,634	307,855	309,395	417,337	726,732	429,500	622,902	1,052,402	40.8						
1958	154,858	39,192	41,778	66,479	102,003	291,355	298,639	397,026	695,665	414,035	590,480	1,004,515	41.2						
1957	153,689	42,730	41,487	71,741	104,625	358,590	299,801	473,061	772,862	419,341	712,061	1,131,402	37.1						
1956	158,745	47,165	41,952	74,637	97,606	346,118	298,303	467,920	766,223	405,960	686,953	1,092,913	37.1						
1955	153,163	42,554	40,825	73,989	90,676	343,826	284,664	460,369	745,033	377,971	638,165	1,016,136	37.2						
1954	148,564	38,676	36,692	67,438	83,752	278,673	269,008	384,787	653,795	350,327	517,312	867,639	40.4						
1953	148,325	40,433	34,101	69,714	91,828	321,751	274,254	431,898	706,152	359,534	564,014	923,548	38.9						
1952	143,364	40,856	38,498	66,924	93,980	276,302	275,842	384,062	659,924	357,548	529,702	887,250	40.3						
1951	145,868	40,805	37,652	75,793	84,218	307,650	267,738	424,248	691,986	340,889	583,093	923,982	36.9						
1950	141,269	41,275	35,380	72,765	76,434	284,236	253,083	398,276	651,359	316,206	504,378	820,584	38.5						
1949	127,367	34,064	33,316	69,322	69,965	241,329	230,648	344,715	575,363	283,460	457,261	740,721	38.3						
1948	134,312	39,769	36,633	77,326	66,718	275,470	237,663	392,565	630,228	284,175	509,025	793,200	35.8						

¹ Includes inland waterways.

² Atlantic, Gulf, and Pacific Coasts. Includes traffic between Great Lakes ports and seacoast ports.

³ Includes traffic within a single channel of a port and traffic between the several channels of a port. Includes such traffic within Great Lakes ports.

Source: Department of the Army, Corps of Engineers, *Waterborne Commerce of the United States*, "National Summaries."

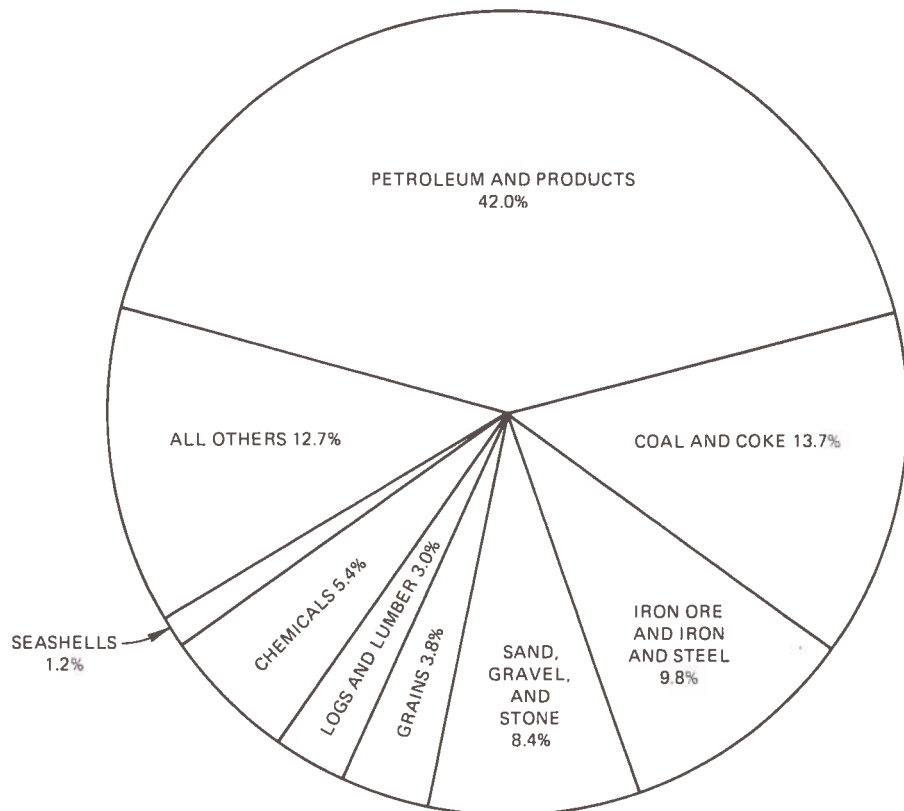
Table I-19. Summary of Foreign and Domestic Waterborne Commerce, by Type of Traffic and Commodity, Calendar Year 1971
(net traffic in tons of 2,000 pounds)

Commodity	Total	Foreign		Total	Domestic				Intra-territory
		Imports	Exports		Lakewise	Internal	Local	Intra-territory	
Total, all commodities ¹	1,512,583,690	359,745,840	206,239,744	946,598,106	242,916,056	140,954,956	479,217,765	81,252,652	2,256,677
Coal and lignite	196,878,987	24,550	56,801,713	140,052,724	4,607,428	25,916,468	105,110,994	4,417,834	-----
Crude Petroleum	231,590,025	116,549,243	320,035	114,720,747	56,957,494	-----	55,848,735	1,914,518	-----
Gasoline, including natural gasoline	94,051,721	321,558	216,559	93,513,604	46,577,965	2,694,430	37,274,996	6,927,362	38,851
Jet fuel	13,682,149	-----	-----	13,682,149	6,566,491	293,788	4,398,804	2,312,228	110,838
Kerosene	14,595,833	8,608,565	24,064	5,963,204	3,298,908	40,762	2,003,151	616,726	3,657
Distillate fuel oil	84,327,920	5,822,504	289,238	78,216,178	43,584,314	2,377,444	18,369,756	13,767,572	117,092
Residual fuel oil	172,010,447	80,494,903	2,432,587	89,082,957	29,906,045	1,400,237	32,085,009	24,652,240	1,039,426
Lubricating oils and greases	7,037,997	3,967	1,974,842	5,059,188	3,186,874	726	1,781,462	82,483	7,643
Naphtha, mineral spirits, solvents, nec	4,642,069	-----	-----	4,642,069	2,892,093	2,173	1,225,962	134,562	387,279
Asphalt, tar, and pitches	8,413,788	-----	-----	8,413,788	3,177,543	285,674	4,513,577	432,162	4,832
Coke, including petroleum coke	1,034,273	-----	-----	1,034,273	11,279	117,685	905,309	-----	-----
Liquefied petroleum gases, coal gases	2,722,972	543,451	1,096,802	1,082,719	186,157	30	889,449	5,230	1,853
natural gas, and natural gas liquids	145,677	27,188	42,125	76,364	71,257	4,794	-----	1	42
Asphalt building materials	2,728,305	168,526	220,690	2,339,089	878,561	134,794	895,838	429,216	680
Petroleum and coal products, nec	-----	-----	-----	-----	-----	-----	-----	-----	-----

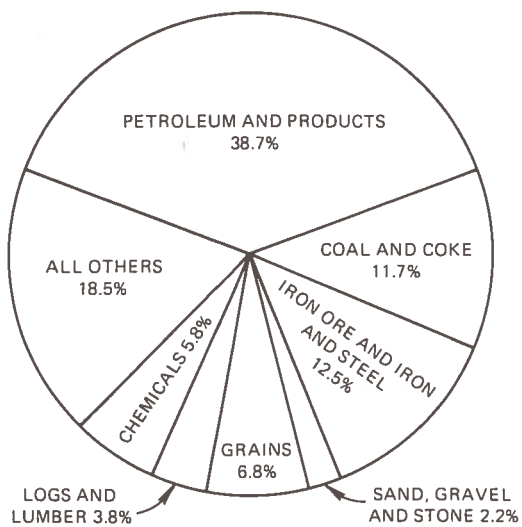
Source: Army Corps of Engineers, *Waterborne Commerce of the United States*, Part 5, 1971

¹ Includes the energy commodities listed in the table plus all other commodities.

TOTAL COMMERCE



FOREIGN COMMERCE



DOMESTIC COMMERCE

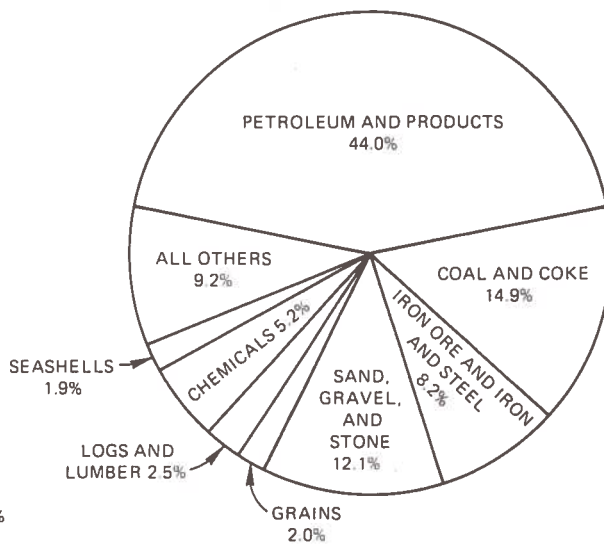


Figure 8. Principal Commodities Carried by Water, Calendar Year 1971

Source: Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5, 1971*

Table I-20. Tidewater movements of crude oil and products from the Gulf and West coasts to the East coast and from the Gulf coast to the West coast (thousands of barrels)

Item	December 1972	November 1972	December 1971	January-December (Incl.)	
				1972	1971
West Coast to East Coast:					
Crude oil	-	-	-	-	-
Unfinished oils	-	-	-	-	-
Gasoline, total	-	-	-	-	14
Motor	-	-	-	-	14
Aviation	-	-	-	-	-
Special naphthas	-	-	-	-	4
Kerosene	-	-	-	-	-
Distillate fuel oil	-	-	-	-	40
Residual fuel oil	-	-	-	160	69
Jet fuel, total	-	-	-	-	-
Naphtha-type	-	-	-	-	-
Kerosene-type	-	-	-	-	-
Lubricating oil	24	63	37	693	733
Wax	-	-	-	-	-
Asphalt and road oil	-	-	-	-	-
Liquefied gases	-	-	-	-	-
Petrochemical feedstocks	-	-	-	-	-
Other products	-	-	-	82	189
Total	24	63	37	935	1,049
Gulf Coast to West Coast:					
Crude oil	-	-	-	666	-
Unfinished oils	152	-	-	152	200
Gasoline, total	-	73	396	1,273	3,612
Motor	-	73	396	1,273	3,612
Aviation	-	-	-	-	-
Special naphthas	-	-	-	-	23
Kerosene	-	24	-	65	4
Distillate fuel oil	-	98	251	98	251
Residual fuel oil	-	-	-	-	-
Jet fuel, total	-	-	-	134	748
Naphtha-type	-	-	-	134	622
Kerosene-type	-	-	-	-	126
Lubricating oil	80	358	216	1,586	1,608
Wax	-	-	16	-	170
Asphalt and road oil	-	-	-	-	-
Liquefied gases	-	-	-	-	-
Petrochemical feedstocks	-	7	-	52	-
Other products	-	-	-	7	32
Total	232	560	879	4,033	6,648
Gulf Coast to East Coast, total:					
Crude oil	8,888	10,735	11,936	106,894	206,398
Unfinished oils	2,260	1,000	1,152	25,263	22,809
Gasoline, total	18,642	16,743	17,879	212,753	196,499
Motor	18,303	16,471	17,190	208,899	192,311
Aviation	339	272	689	3,854	4,188
Special naphthas	475	595	396	6,313	4,460
Kerosene	1,993	1,561	2,666	19,263	20,104
Distillate fuel oil	13,832	10,083	14,626	127,639	128,940
Residual fuel oil	1,796	2,855	2,891	27,732	30,927
Jet fuel, total	3,413	2,784	3,823	43,375	44,313
Naphtha-type	410	750	1,857	12,523	15,710
Kerosene-type	3,003	2,034	1,966	30,852	28,603
Lubricating oil	647	793	914	9,719	9,362
Wax	10	30	64	879	868
Asphalt and road oil	356	367	401	5,439	5,141
Liquefied gases	154	193	213	1,665	1,291
Petrochemical feedstocks	206	111	139	1,974	2,852
Other products	102	76	137	1,218	1,369
Total	52,774	47,926	57,237	590,126	675,333

Source: Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, Dec., 1972

**Table I-21. Shipments of Aviation Fuel in 1972 and 1971
(thousands of barrels)**

Product and use	Shipments to P. A. D. Districts					United States Total
	I	II	III	IV	V	
1972:						
I. Aviation gasoline:						
A. For commercial use, total	<u>2,843</u>	<u>3,103</u>	<u>1,762</u>	<u>486</u>	<u>2,513</u>	<u>10,707</u>
1. Airlines	385	225	149	28	138	925
2. Factory	46	39	15	1	51	152
3. General aviation	2,412	2,839	1,598	457	2,324	9,630
B. For military use	2,207	794	1,002	190	1,733	5,926
II. Jet fuel:						
A. For commercial use, total	<u>103,016</u>	<u>58,667</u>	<u>20,923</u>	<u>7,324</u>	<u>78,467</u>	<u>268,397</u>
1. Kerosene-type, total ¹	<u>100,354</u>	<u>58,379</u>	<u>20,881</u>	<u>7,322</u>	<u>74,882</u>	<u>261,818</u>
a. Airlines	92,851	55,057	18,916	6,934	73,185	246,943
b. Factory	626	554	290	-	645	2,115
c. General aviation	6,877	2,768	1,675	388	1,052	12,760
2. Naphtha-type, total	<u>2,662</u>	<u>288</u>	<u>42</u>	<u>2</u>	<u>3,585</u>	<u>6,579</u>
a. Airlines	1,154	7	-	-	3,308	4,469
b. Factory	1,015	166	20	-	20	1,221
c. General aviation	493	115	22	2	257	889
B. For military use, total ²	<u>27,020</u>	<u>17,047</u>	<u>13,516</u>	<u>2,965</u>	<u>35,537</u>	<u>96,085</u>
1. JP-4	² 16,935	16,786	11,183	2,650	² 25,153	72,707
2. JP-5	9,197	249	1,485	-	9,816	20,747
3. Other	888	12	848	315	568	2,631
1971:						
I. Aviation gasoline:						
A. For commercial use, total	<u>2,727</u>	<u>3,231</u>	<u>1,714</u>	<u>424</u>	<u>2,209</u>	<u>10,305</u>
1. Airlines	376	97	118	25	146	762
2. Factory	34	29	18	-	14	95
3. General aviation	2,317	3,105	1,578	399	2,049	9,448
B. For military use	2,560	1,065	1,350	258	2,356	7,589
II. Jet fuel:						
A. For commercial use, total*	<u>98,544</u>	<u>56,449</u>	<u>21,743</u>	<u>6,372</u>	<u>72,562</u>	<u>255,670</u>
1. Kerosene-type, total*	<u>94,727</u>	<u>56,002</u>	<u>21,029</u>	<u>6,372</u>	<u>70,508</u>	<u>248,638</u>
a. Airlines*	91,113	53,334	19,558	6,001	69,135	239,141
b. Factory	349	211	131	-	528	1,219
c. General aviation	3,265	2,457	1,340	371	845	8,278
2. Naphtha-type, total	<u>3,817</u>	<u>447</u>	<u>714</u>	<u>-</u>	<u>2,054</u>	<u>7,032</u>
a. Airlines	2,906	295	681	-	1,583	5,465
b. Factory	840	148	23	-	340	1,351
c. General aviation	71	4	10	-	131	216
B. For military use, total ³	<u>27,890</u>	<u>19,081</u>	<u>15,749</u>	<u>2,591</u>	<u>38,411</u>	<u>103,722</u>
1. JP-4	³ 16,965	17,377	13,924	2,197	³ 28,030	78,493
2. JP-5	10,160	1,687	1,177	31	9,924	22,979
3. Other	765	17	648	363	457	2,250

¹ Excludes shipments for non-aviation use, by P. A. D. District: I, 6,891,000 barrels; II, 1,464,000 barrels; III, 2,000 barrels; IV, 55,000 barrels; V, 409,000 barrels.

² Excludes direct imports by the military into: P. A. D. District I, 6,939,000 barrels; P. A. D. District V, 2,129,000 barrels.

³ Excludes direct imports by the military into: P. A. D. District I, 7,300,000 barrels; P. A. D. District V, 1,946,000 barrels.

* Revised.

Definitions of terms used in this table:

1. Aviation gasoline - Any fuel in the gasoline boiling range for use in a piston-type aviation engine.
2. Jet fuel - Any fuel for use in an aviation turbine engine.
3. Airline - Sales to U. S. certificated air carriers, including air freight carriers, international air carriers (if delivery is made in the U. S.), and to such other air carriers as supplemental or nonschedule carriers, air taxi, etc.
4. Factory - Direct sales to airframe and engine manufacturers.
5. General aviation - Primarily sales to distributors and airport dealers.
6. Military - Sales to Defense Fuel Supply Center and to other military agencies of the Government.

Source: Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, March, 1973

Table I-22. Inter-Area Total Oil Movements 1972

From	U.S.A.	Canada	Other Western Hemisphere	Western Europe	Africa	South East Asia	Japan	Australasia	Other Eastern Hemisphere	Destination * Not Known	Total Exports	
												Million Tons
U.S.A.	—	1.6	3.8	3.5	—	0.5	2.2	0.3	0.3	—	12.2	
Canada	53.1	—	—	—	—	—	—	—	—	—	53.1	
Caribbean	118.8	24.8	7.6	27.0	0.2	0.5	0.5	—	—	8.4	187.8	
Other Western Hemisphere	2.3	—	1.2	—	—	—	1.5	—	—	—	5.0	
Western Europe	7.9	0.7	—	—	2.0	—	—	—	1.0	4.4	16.0	
Middle East	24.3	12.0	52.5	426.4	22.9	62.6	185.8	12.7	29.5	13.9	842.6	
North Africa	11.8	1.4	12.0	129.9	0.5	—	0.2	—	10.7	—	166.5	
West Africa	13.6	3.4	13.8	57.4	—	—	3.4	—	1.5	1.0	94.1	
South East Asia	9.2	—	0.5	0.3	0.5	—	40.7	2.7	—	—	53.9	
U.S.S.R., E. Europe	1.0	—	6.2	51.2	3.7	—	1.2	—	2.1	—	65.4	
Other Eastern Hemisphere	0.5	—	—	0.2	—	1.4	0.2	—	—	—	2.3	
Total Imports	242.5	43.9	97.6	695.9	29.8	65.0	235.7	15.7	45.1	27.7	1,498.9	
				Thousand Barrels Daily								
U.S.A.	—	30	70	65	—	10	40	5	5	—	225	
Canada	1,085	—	—	—	—	—	—	—	—	—	1,085	
Caribbean	2,270	520	160	545	5	10	10	—	—	100	3,620	
Other Western Hemisphere	45	—	25	—	—	—	30	—	—	—	100	
Western Europe	160	15	—	—	40	—	—	—	20	90	325	
Middle East	475	250	1,115	8,570	460	1,265	3,770	260	605	180	16,950	
North Africa	230	30	250	2,730	10	—	5	—	220	—	3,475	
West Africa	265	70	290	1,170	—	—	70	—	30	20	1,915	
South East Asia	180	—	10	5	10	—	830	55	—	—	1,090	
U.S.S.R., E. Europe	20	—	130	970	75	—	25	—	40	—	1,260	
Other Eastern Hemisphere	10	—	—	5	—	30	5	—	—	—	50	
Total Imports	4,740	915	2,050	14,060	600	1,315	4,785	320	920	390	30,095	

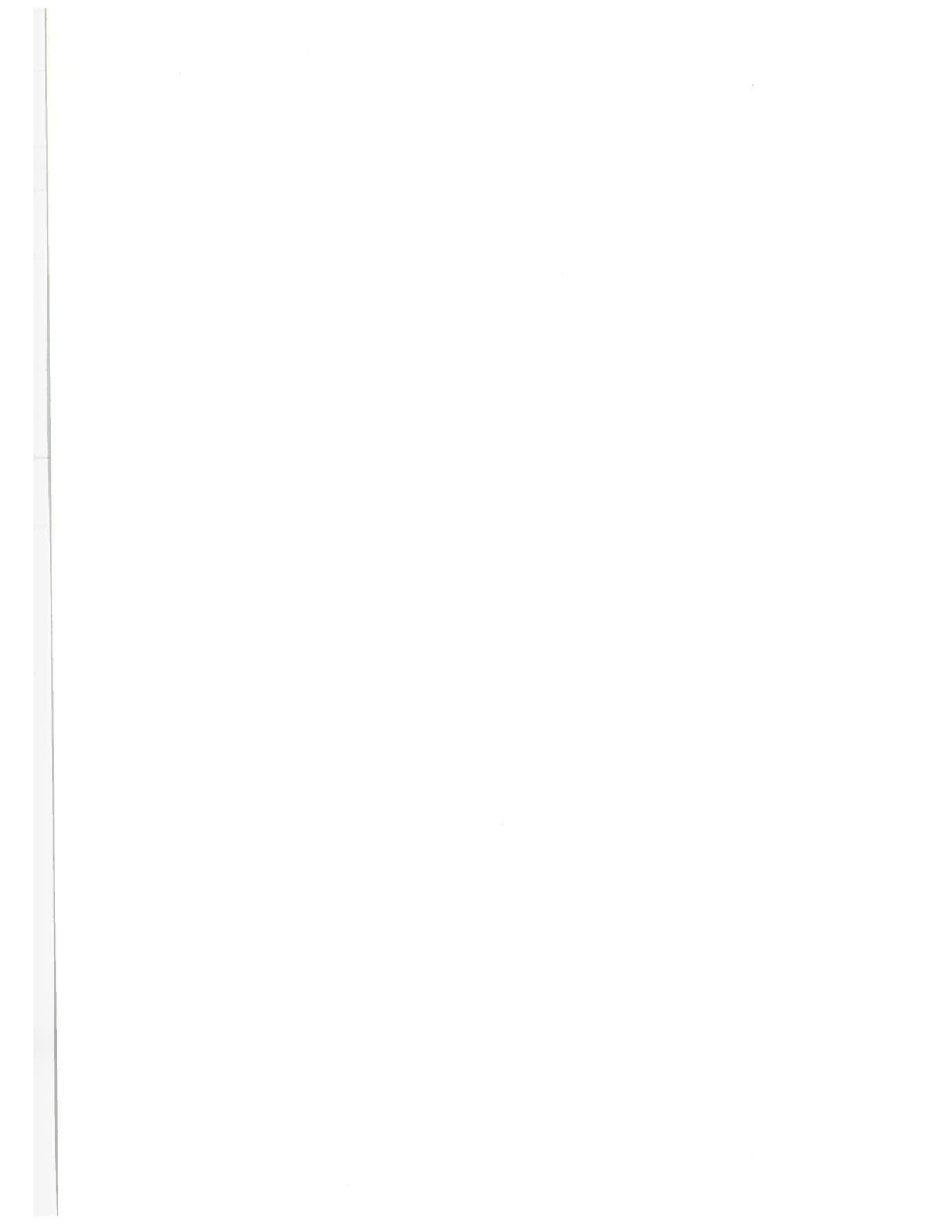
Table 1-26. Imports and Exports 1972

Crude Oil and Products

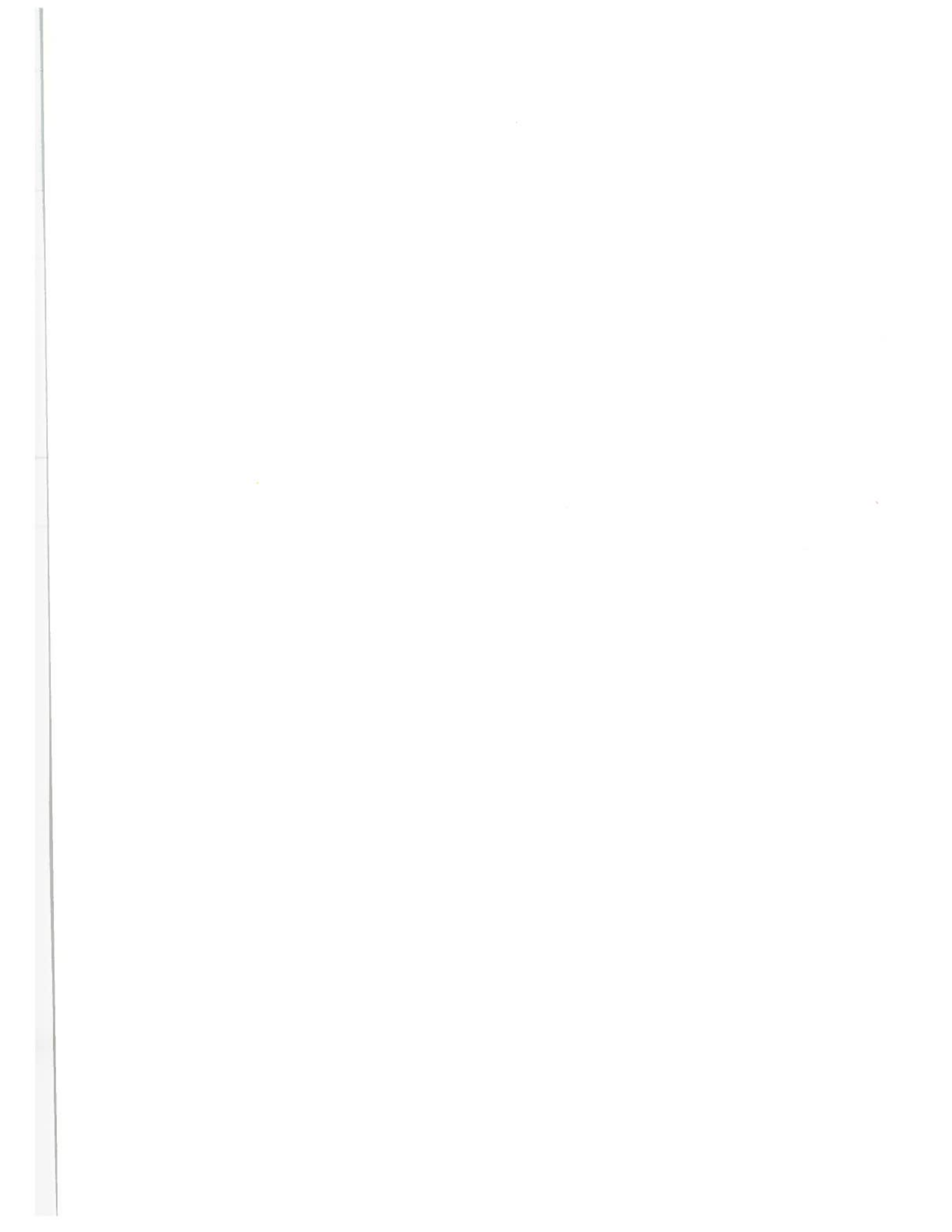
	Million Tons				Thousand Barrels Daily			
	Imports		Exports		Imports		Exports	
	Crude	Products	Crude	Products	Crude	Products	Crude	Products
U.S.A.	110.1	132.4	—	12.2	2,215	2,525	—	225
Canada	39.6	4.3	41.9	11.2	780	135	855	230
Caribbean	56.2	1.5	54.7	133.1	1,140	30	1,120	2,500
Other Western Hemisphere	33.7	6.2	3.5	1.5	710	170	70	30
Western Europe	656.9	39.0	—	16.0	13,280	780	—	325
Middle East	5.8	—	793.7	48.9	120	—	15,935	1,015
North Africa	0.7	4.6	165.6	0.9	15	85	3,455	20
West Africa	0.6	0.9	93.7	0.4	15	15	1,910	5
E. & S. Africa, S. Asia	36.6	6.8	—	0.3	740	150	—	10
South East Asia	44.5	20.5	39.6	14.3	890	425	800	290
Japan	204.5	31.2	—	1.0	4,095	690	—	20
Australasia	11.3	4.4	0.5	0.5	225	95	10	10
U.S.S.R., E. Europe & China	17.7	1.2	31.4	34.0	360	20	630	630
*Destination not known	6.4	21.3	—	—	200	190	—	—
Total	1,224.6	274.3	1,224.6	274.3	24,785	5,310	24,785	5,310

*Includes quantities in transit, transit losses, minor movements not otherwise shown, military use, etc.

Source: British Petroleum Co., B.P. *Statistical Review of the World Oil Industry, 1972*



**PART II. RESERVES, PRODUCTION,
AND REFINING**



Changes in Proved Reserves During 1972

State (1)	Proved Reserves as of 12/31/71 (2)	Revisions			New Field Discoveries (5)	New Reservoir Discoveries in Old Fields (6)	Production /a (7)	Proved Reserves as of 12/31/72 (8)	Changes in Reserves During 1972 (9)	Indicated Additional Reserves From Known Reservoirs /b (10)	State /c (11)
		Plus (3a)	Minus (3b)	Extensions (4)							
Alabama	61,478	1,117	1,842	4,277	1,400	9,696	56,734	(4,744)	32,521	Alabama	
Alaska	10,116,195	52,805	—	—	—	72,718	10,096,282	(19,913)	37,100	Alaska	
Arkansas	117,648	6,634	4,835	2,835	4,869	18,281	113,100	(4,548)	10,911	Arkansas	
California /c	3,705,750	273,951	89,002	4,243	1,700	346,812	3,553,735	(152,015)	1,473,150	California /c	
Coastal Region	543,772	56,940	15,012	640	1,700	78,403	513,322	(30,450)	246,250	Coastal Region	
Los Angeles Basin	1,344,017	84,342	8,827	1,105	—	138,609	1,282,048	(61,969)	499,500	Los Angeles Basin	
San Joaquin Basin	1,817,961	132,669	65,163	2,498	—	129,800	1,758,365	(59,596)	727,400	San Joaquin Basin	
Colorado	332,773	12,957	5,724	9,270	2,031	32,324	326,411	(6,362)	91,250	Colorado	
Florida	204,122	17,046	1,149	8,946	7,428	15,963	208,149	(4,027)	167,942	Florida	
Illinois	208,763	17,046	18,186	269	193	33,133	174,883	(33,880)	9,100	Illinois	
Indiana	30,855	4,744	1,869	520	1,205	6,152	29,383	(1,472)	2,700	Indiana	
Kansas	501,552	33,228	23,418	11,379	4,276	74,001	453,394	(48,158)	11,750	Kansas	
Kentucky	52,548	2,349	483	3,000	70	9,781	48,193	(4,355)	2,800	Kentucky	
Louisiana /c	5,399,000	250,198	129,809	145,080	39,005	779,886	5,028,178	(370,522)	140,197	Louisiana /c	
North	306,918	17,146	4,384	1,747	—	40,436	281,451	(25,461)	31,712	North	
South	5,092,082	283,052	125,425	143,333	39,005	104,430	4,747,027	(345,055)	108,185	South	
Michigan	58,765	3,039	182	7,710	4,960	12,290	62,002	(3,237)	3,100	Michigan	
Mississippi	342,368	27,980	18,472	12,572	6,778	60,592	312,458	(29,910)	23,452	Mississippi	
Montana	228,185	45,917	6,834	4,876	3,008	33,904	241,248	(13,063)	53,520	Montana	
Nebraska	36,124	3,556	1,729	1,090	229	8,717	30,553	(5,571)	4,775	Nebraska	
New Mexico	656,885	59,541	41,047	9,784	3,087	106,458	582,593	(74,292)	121,111	New Mexico	
Northwest	22,561	8,761	1,857	556	26	5,801	24,246	(1,685)	5,125	Northwest	
Southeast	634,324	50,780	39,190	9,228	3,061	100,657	558,347	(75,977)	115,986	Southeast	
New York	9,772	400	—	—	—	926	9,246	(526)	2,000	New York	
North Dakota	174,011	11,110	1,382	2,074	1,300	21,080	166,033	(7,978)	33,170	North Dakota	
Ohio	129,144	—	—	7,576	23	9,358	127,385	(1,759)	—	Ohio	
Oklahoma	1,404,608	84,132	43,601	27,023	8,642	198,417	1,303,004	(101,604)	319,337	Oklahoma	
Pennsylvania	47,052	7,734	14,000	—	—	3,441	37,345	(9,707)	42,770	Pennsylvania	
Texas /c	13,023,529	568,374	310,166	90,640	15,812	1,258,137	12,144,057	(879,472)	2,406,905	Texas /c	
District 1	157,078	10,441	2,122	4,282	1,185	23,684	147,324	(9,754)	35,927	District 1	
District 2	785,638	28,708	106,674	5,166	239	2,799	636,768	(148,870)	19,920	District 2	
District 3	1,638,611	85,803	30,704	11,169	1,361	173,178	1,536,426	(102,185)	148,132	District 3	
District 4	415,664	22,996	41,953	1,592	777	58,706	343,752	(71,912)	41,310	District 4	
District 5	118,305	1,921	1,387	267	5	20,228	98,963	(19,342)	36,000	District 5	
District 6	2,359,624	14,596	1,777	895	644	166,544	2,208,438	(151,186)	191,055	District 6	
District 7-B	209,473	58,037	6,657	10,076	1,885	36,977	235,962	(26,189)	13,476	District 7-B	
District 7-C	251,304	25,525	13,470	9,784	398	34,916	239,270	(12,034)	14,458	District 7-C	
District 8	3,528,991	189,235	65,756	33,562	2,864	287,443	3,402,358	(126,633)	1,030,108	District 8	
District 8-A	3,002,588	100,275	17,428	8,003	4,894	305,547	2,793,503	(209,085)	849,261	District 8-A	
District 9	356,007	29,800	19,393	4,539	1,426	49,019	324,018	(31,989)	24,258	District 9	
District 10	200,246	1,037	2,845	1,305	134	22,787	177,275	(22,971)	3,000	District 10	
Utah	165,806	16,281	1,763	89,300	1,138	2,721	34,040	(17,691)	5,000	Utah	
West Virginia	51,731	—	15,000	30	—	—	949,779	(47,206)	156,863	West Virginia	
Wyoming	996,985	88,497	22,297	16,487	165	138,660	6,526	(782)	—	Wyoming	
Miscellaneous /d	7,308	319	12	330	—	1,584	36,339,408	(1,723,549)	5,190,257	Miscellaneous /d	
Total U.S.	38,062,957	1,571,909	751,802	459,311	123,210	3,281,397	36,339,408	(1,723,549)	5,190,257	Total U.S.	
Gulf of Mexico /e	2,748,310	109,199	87,447	100,526	36,500	407,062	2,565,862	(182,448)	29,515	Gulf of Mexico /e	

/a Preliminary estimate.
 /b Additional reserves include additional recoveries in known reservoirs (in excess of the proved reserves) which engineering knowledge and judgment indicate will be economically available by application of fluid injection, whether or not such program is currently installed.
 /c Includes offshore reserves.
 /d Includes Arizona, Missouri, Nevada, South Dakota, Tennessee, and Virginia.
 /e Gulf of Mexico /e
 Source: API, AGA, CPA, Reserves of Crude Oil, Natural Gas, Liquids, and Natural Gas in the United States and Canada and United States Productive Capacity as of December 31, 1972, Volume 27, May 1973, pp 22-23.
 () Denotes negative volume.

Table II-2. Annual Estimates of Proved Crude Oil Reserves in the United States 1946 through 1972
(Thousands of barrels of 42 U.S. gallons)

Year (1)	Proved Reserves at Beginning of Year (2)	Revisions (3)	Extensions (4)	New Field Discoveries (5)	New Res- ervoir Dis- coveries in Old Fields (6)	Total of Discoveries, Revisions, and Extensions (7)	Production /a (8)	Proved Reserves at End of Year (9)	Net Change From Previous Year (10)
1946	19,941,846	1,254,705	1,158,923	/b	244,434	2,658,062	1,726,348	20,873,560	931,714
1947	20,873,560	749,278	1,269,862	/b	445,430	2,464,570	1,850,445	21,487,685	614,125
1948	21,487,685	1,958,853	1,439,873	269,438	127,043	3,795,207	2,002,448	23,280,444	1,792,759
1949	23,280,444	603,566	1,693,862	544,319	346,098	3,187,845	1,818,800	24,649,489	1,369,045
1950	24,649,489	663,378	1,334,391	407,739	157,177	2,562,685	1,943,776	25,268,398	618,909
1951	25,268,398	1,776,110	2,248,588	205,959	183,297	4,413,954	2,214,321	27,468,031	2,199,633
1952	27,468,031	743,729	1,509,131	280,066	216,362	2,749,288	2,256,765	27,960,554	492,523
1953	27,960,554	1,264,832	1,439,618	344,053	247,627	3,296,130	2,311,856	28,944,828	984,274
1954	28,944,828	537,788	1,749,443	307,625	278,181	2,873,037	2,257,119	29,560,746	615,918
1955	29,560,746	696,114	1,697,653	219,824	257,133	2,870,724	2,419,300	30,012,170	451,424
1956	30,012,170	804,803	1,702,311	234,727	232,495	2,974,336	2,551,857	30,434,649	422,479
1957	30,434,649	465,421	1,543,182	207,437	208,760	2,424,800	2,559,044	30,300,405	(134,244)
1958	30,300,405	954,605	1,338,908	151,210	163,519	2,608,242	2,372,730	30,535,917	235,512
1959	30,535,917	1,518,678	1,778,705	165,695	203,667	3,666,745	2,483,315	31,719,347	1,183,430
1960	31,719,347	787,934	1,323,538	141,296	112,560	2,365,328	2,471,464	31,613,211	(106,136)
1961	31,613,211	1,087,092	1,209,101	107,423	253,951	2,657,567	2,512,273	31,758,505	145,294
1962	31,758,505	759,053	1,041,257	92,488	288,098	2,180,896	2,550,178	31,389,223	(369,282)
1963	31,389,223	966,051	858,168	96,732	253,159	2,174,110	2,593,343	30,969,990	(419,233)
1964	30,969,990	899,292	1,419,182	126,682	219,611	2,664,767	2,644,247	30,990,510	20,520
1965	30,990,510	1,783,231	792,901	237,335	234,612	3,048,079	2,686,198	31,352,391	361,881
1966	31,352,391	1,839,307	814,249	160,384	150,038	3,048,079	2,864,242	31,452,127	99,736
1967	31,452,127	1,900,969	716,467	125,105	219,581	2,962,122	3,037,579	31,376,670	(75,457)
1968	31,376,670	1,320,109	776,780	166,291	191,455	2,454,635	3,124,188	30,707,117	(699,553)
1969	30,707,117	1,258,142	614,710	96,435	150,749	2,120,036	3,195,291	29,631,862	(1,075,255)
1970	29,631,862	2,088,927	631,354	9,852,512	116,125	12,688,918	3,319,445	39,001,335	9,369,473
1971	39,001,335	1,600,426	560,596	91,469	65,241	2,317,732	3,256,110	38,062,957	(938,378)
1972	38,062,957	820,107	459,311	123,210	155,220	1,557,848	3,281,397	36,339,408	(1,723,549)

/a Production is the amount originally estimated and used by the committee in prior volumes of the reserves report.

/b All discoveries were classified as "New Reservoirs".

() Denotes negative volume.

Source: API, AGA, CPA, *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada and United States Productive Capacity as of December 31, 1979*

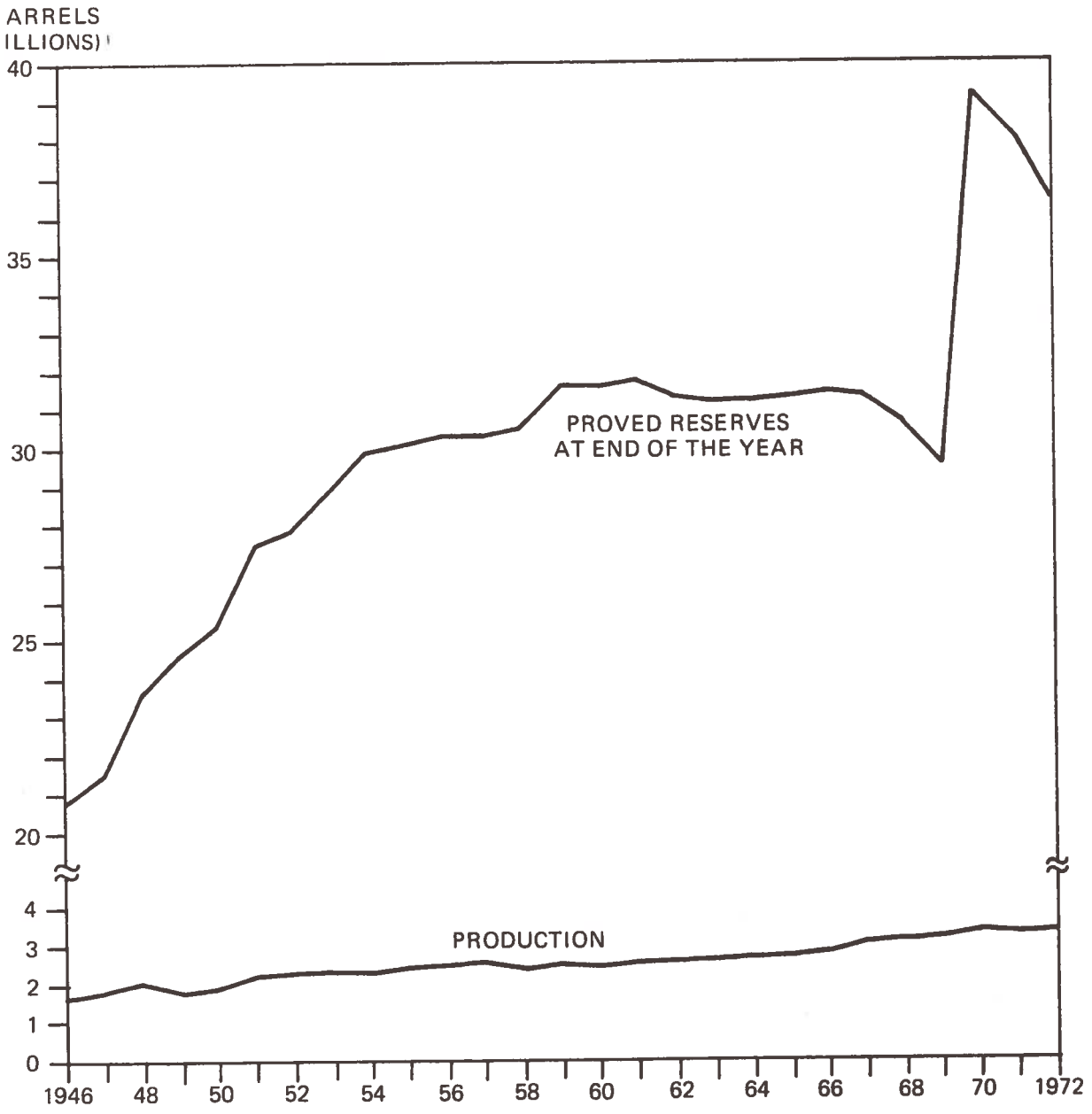


Figure 9. Production and Proved Crude Oil Reserves in the U.S., 1946-1972

**Table II-3. Estimated Total Proved Reserves of Natural Gas in the United States, 1971 and 1972
(Millions of Cubic Feet - 14.73 psia, at 60°F)**

State	Reserves as of 12/31/71	Changes in Reserves During 1972						Reserves as of December 31, 1972				g St
		Revisions	Extensions	New Field Discoveries	New Reservoir Discoveries in Old Fields	Net Change in Underground Storage/c	Production/e	Total Gas	Non-Associated	Associated-Dissolved		
Alabama	180,508	(10,010)	4,852	75,406	0	0	5,042	245,714	227,909	17,805		
Alaska	31,365,341	236,838	0	0	0	0	146,736	31,455,443	5,056,777	26,398,666		
Arkansas	2,430,115	24,039	149,684	0	21,011	194	169,166	2,455,877	2,253,925	163,190	3	
California/a	5,729,499	(171,941)	51,781	119,280	42,135	72,074	513,966	5,328,862	2,289,908	2,755,181	28	
San Joaquin Basin	4,336,132	(91,324)	50,190	117,800	37,235	(3,176)	372,916	4,073,942	2,184,829	1,777,998	11	
Coastal Region/a	832,743	(72,139)	491	1,480	4,900	75,963	81,858	761,580	101,657	539,199	12	
Los Angeles Basin/a	560,624	(8,478)	1,100	0	0	(714)	59,192	493,340	3,422	437,984	5	
Colorado	1,818,323	(193,059)	94,225	42,158	4,215	(730)	109,932	1,655,200	1,458,215	174,012	2	
Florida	178,659	2,013	8,091	6,266	0	0	14,400	180,629	0	180,629		
Illinois	498,953	19,092	0	0	0	31,681	4,365	545,361	2,898	23,262	51	
Indiana	86,678	3,410	0	0	0	(1,604)	1,160	87,324	3,222	3,600	8	
Kansas	12,535,198	(56,177)	308,715	21,272	0	(3,820)	866,472	11,938,716	11,602,586	245,720	9	
Kentucky	956,292	1,742	28,276	3,198	5,225	6,997	63,648	938,082	747,241	46,158	14	
Louisiana/a	78,625,854	718,139	1,611,414	293,389	2,135,650	(694)	8,412,418	74,971,334	61,550,914	13,247,854	17	
North	3,657,209	(47,527)	87,190	10,075	45,026	(6,877)	424,768	3,320,328	2,050,694	1,111,190	15	
South/a	74,968,645	765,666	1,524,224	283,314	2,090,624	6,183	7,987,650	71,651,006	59,500,220	12,135,944	1	
Michigan	1,016,482	8,283	210,986	135,386	0	(35,165)	39,157	1,296,815	293,938	385,580	61	
Mississippi	1,117,432	(65,281)	5,797	64,243	1,024	90,823	109,702	1,104,336	863,785	139,910	10	
Montana	1,024,561	(30,867)	97,719	3,978	1,020	(1,586)	30,789	1,064,036	790,660	92,628	18	
Nebraska	59,433	(13,687)	676	1,683	0	6,556	4,401	50,260	16,909	7,547	2	
New Mexico	13,067,954	16,953	378,016	45,259	3,652	(2490)	1,173,697	12,335,647	10,056,220	2,279,427		
Northwest	8,568,033	(59,577)	243,914	4,554	0	0	596,050	8,160,874	8,088,979	71,895		
Southeast	4,499,921	76,530	134,102	40,705	3,652	(2,490)	577,647	4,174,773	1,967,241	2,207,532		
New York	139,092	3,600	7,275	800	350	(8,549)	3,384	139,184	31,512	88	10	
North Dakota	503,683	(34,727)	2,448	7,140	0	0	36,919	441,625	10,422	431,203		
Ohio	1,068,372	(1,800)	171,961	20,000	0	(21,369)	90,487	1,146,677	573,633	141,518	43	
Oklahoma	15,712,818	(169,248)	588,763	104,704	20,278	(8,973)	1,756,312	14,492,030	11,494,770	2,767,400	22	
Pennsylvania	1,395,931	416	89,125	2,500	1,800	(8,866)	73,958	1,406,948	787,638	12,369	60	
Texas/a	101,472,108	(1,525,321)	2,030,625	460,500	826,449	46,776	8,269,094	95,042,043	70,000,290	24,903,481	13	
District 1	1,843,711	(145,756)	27,522	12,660	6,719	(11)	124,440	1,620,405	1,298,892	321,011		
District 2	9,811,922	32,812	1,394	36,648	148,513	(142)	534,911	9,496,136	7,217,232	2,278,016		
District 3/a	22,115,227	(372,428)	69,170	109,443	313,295	56,442	1,594,275	20,696,874	15,308,234	5,322,198	6	
District 4/a	27,073,438	(1,514,118)	85,018	90,539	239,979	0	1,640,746	24,334,110	18,164,518	6,169,592		
District 5	1,260,652	16,549	2,500	5,500	18,280	(6,398)	125,688	1,171,395	996,594	147,377	2	
District 6	5,736,503	94,959	154,275	50,310	8,100	0	333,706	5,710,441	3,901,131	1,809,310		
District 7B	627,582	42,946	75,931	2,603	142	(1,921)	83,723	663,560	278,851	354,051	3	
District 7C	3,074,154	(472,824)	216,160	15,001	1,343	(198)	251,656	2,581,980	1,739,729	840,603		
District 8	15,887,502	185,347	1,248,709	77,521	59,645	0	1,979,387	15,481,337	10,765,351	4,715,986		
District 8A	2,533,463	73,280	1,607	355	65	0	241,819	2,366,951	99,365	2,267,586		
District 9	1,683,171	19,220	15,653	5,494	158	(996)	163,106	1,559,594	1,198,605	350,279	1	
District 10	9,824,783	512,692	132,686	54,426	30,310	0	1,195,637	9,359,260	9,031,788	327,472		
Utah	981,954	(64,259)	123,093	27,093	0	92	45,863	1,022,110	561,711	458,732	1	
Virginia	31,075	0	7,200	500	0	0	2,754	35,921	35,921	0		
West Virginia	2,411,784	(1,875)	119,858	10,050	11,500	(17,126)	188,234	2,345,957	1,916,685	53,672	37	
Wyoming	4,131,492	227,707	62,203	17,434	21,523	7,107	378,738	4,088,728	3,422,904	610,830	5	
Miscellaneous/b	266,027	(1,771)	900	400	300	5,235	1,104	269,987	17,050	950	25	
Total United States	278,805,618	(1,077,791)	6,153,683	1,462,539	3,096,132	156,563	22,511,898	266,084,846	186,072,643	75,541,412	4,470	

/a Includes offshore reserves.

The remaining proved natural gas reserves in the Gulf of Mexico are estimated to be 38,785,667 MMCF; of which 33,554,747 MMCF are non-associated, and 5,230,920 MMCF are associated-dissolved. As of this date the ultimate recoverable natural gas reserves in the Gulf of Mexico are estimated to be 62,503,468 MMCF; of which 53,042,562 MMCF are non-associated, and 9,560,906 MMCF are associated-dissolved.

/b Includes Arizona, Iowa, Maryland, Minnesota, Missouri, South Dakota, Tennessee and Washington.

/c The net difference between gas stored in and gas withdrawn from underground storage reservoirs, inclusive of adjustments and native gas transferred from other reserve categories.

/d Gas held in underground reservoirs (including native and net injected gas) for storage purposes.

/e Preliminary net production.

() Denotes negative volume.

Source: API, AGA, CPA, *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada and United States Productive Capacity as of December 31, 1972*, Volume 27, May 1973, p 114

Table II-4. Annual Estimates of Proved Natural Gas and Natural Gas Liquids Reserves, 1945 through 1972
 United States ^b
 (Millions of Cubic Feet - 14.73 psia, at 60° F,
 and Thousands of Barrels of 42 U.S. Gallons)

Year	NATURAL GAS				NATURAL GAS LIQUIDS		
	Non-Associated	Associated-Dissolved	Underground Storage	Total Gas	Non-Associated	Associated-Dissolved	Total NGL
45	110,113,066	36,873,657	a	146,986,723	a	a	a
46	115,807,949	43,895,864	a	159,703,813	1,929,926	1,233,293	3,163,219
47	119,101,110	45,924,655	a	165,025,765	1,928,127	1,325,848	3,253,975
48	122,724,358	49,995,941	204,757	172,925,056	2,023,155	1,517,628	3,540,783
49	125,432,561	53,682,229	286,903	179,401,693	2,104,620	1,624,392	3,729,012
50	129,919,009	54,325,898	339,838	184,584,745	2,372,189	1,895,474	4,267,663
51	133,044,892	59,242,150	471,868	192,758,910	2,404,128	2,320,474	4,724,602
52	136,892,642	61,069,290	669,634	198,631,566	2,411,496	2,585,155	4,996,651
53	146,052,855	63,062,645	1,183,263	210,298,763	2,729,919	2,708,003	5,437,922
54	145,282,729	64,004,531	1,273,671	210,560,931	2,648,599	2,595,858	5,244,457
55	151,229,351	69,892,358	1,360,835	222,482,544	2,619,926	2,818,639	5,488,565
56	159,163,774	75,825,365	1,494,076	236,483,215	2,809,846	3,092,486	5,902,332
57	167,558,391	75,998,909	1,672,837	245,230,137	2,706,246	2,981,114	5,687,360
58	176,894,570	74,136,803	1,730,419	252,761,792	3,230,975	2,973,043	6,204,018
59	183,170,257	76,109,302	1,890,872	261,170,431	3,417,915	3,104,393	6,522,308
60	185,291,523	74,862,658	2,172,145	262,326,326	3,686,986	3,129,073	6,816,059
61	190,669,393	73,272,560	2,331,689	266,273,642	3,852,152	3,196,944	7,049,096
62	198,687,335	71,100,603	2,490,920	272,278,858	4,237,659	3,073,858	7,311,517
63	201,219,649	72,186,931	2,744,653	276,151,233	4,571,636	3,102,342	7,673,978
64	207,122,360	71,189,331	2,939,763	281,251,454	4,791,833	2,954,799	7,746,632
65	213,315,274	70,063,403	3,090,246	286,468,923	5,040,024	2,983,510	8,023,534
66	217,426,169	68,681,867	3,224,769	289,332,805	5,229,261	3,099,705	8,328,966
67	221,751,275	67,780,256	3,376,172	292,907,703	5,575,956	3,038,275	8,614,231
68	220,990,299	62,864,813	3,494,740	287,349,852	5,693,001	2,905,107	8,598,108
69	211,873,282	59,633,644	3,601,909	275,108,835	5,416,898	2,726,276	8,143,174
70	204,098,552	82,643,929	4,003,927	290,746,408	5,110,939	2,592,002	7,702,941
71	195,953,617	78,537,773	4,314,228	278,805,618	4,867,070	2,437,157	7,304,227
72	186,072,643	75,541,412	4,470,791	266,084,846	4,572,721	2,213,838	6,786,559

Not estimated.
 includes offshore reserves.

Source: API, AGA, CPA, *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada and United States Productive Capacity as of December 31, 1972*, Volume 27, May 1973, p 124

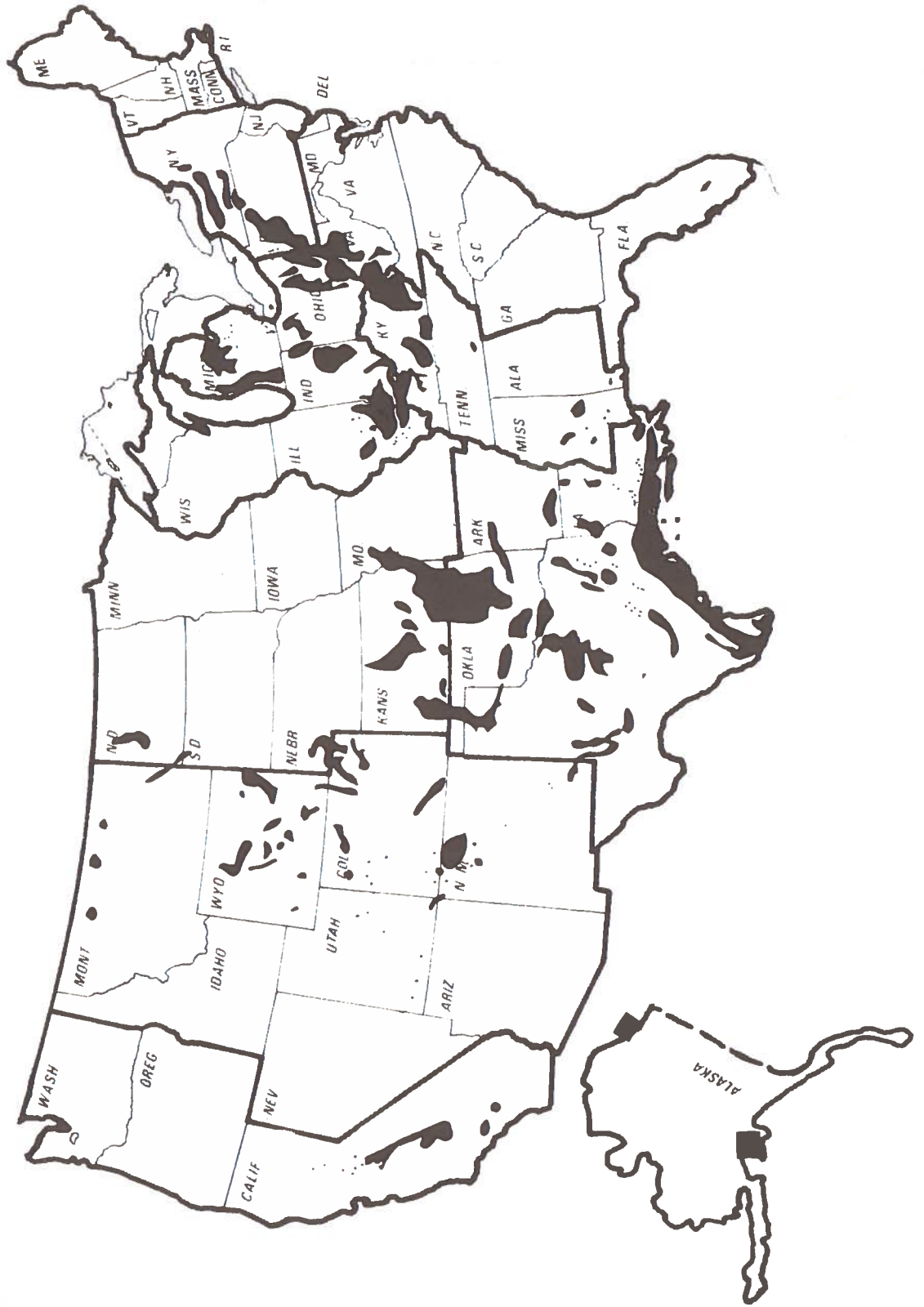


Figure 10. Oil and Gas Fields in the United States

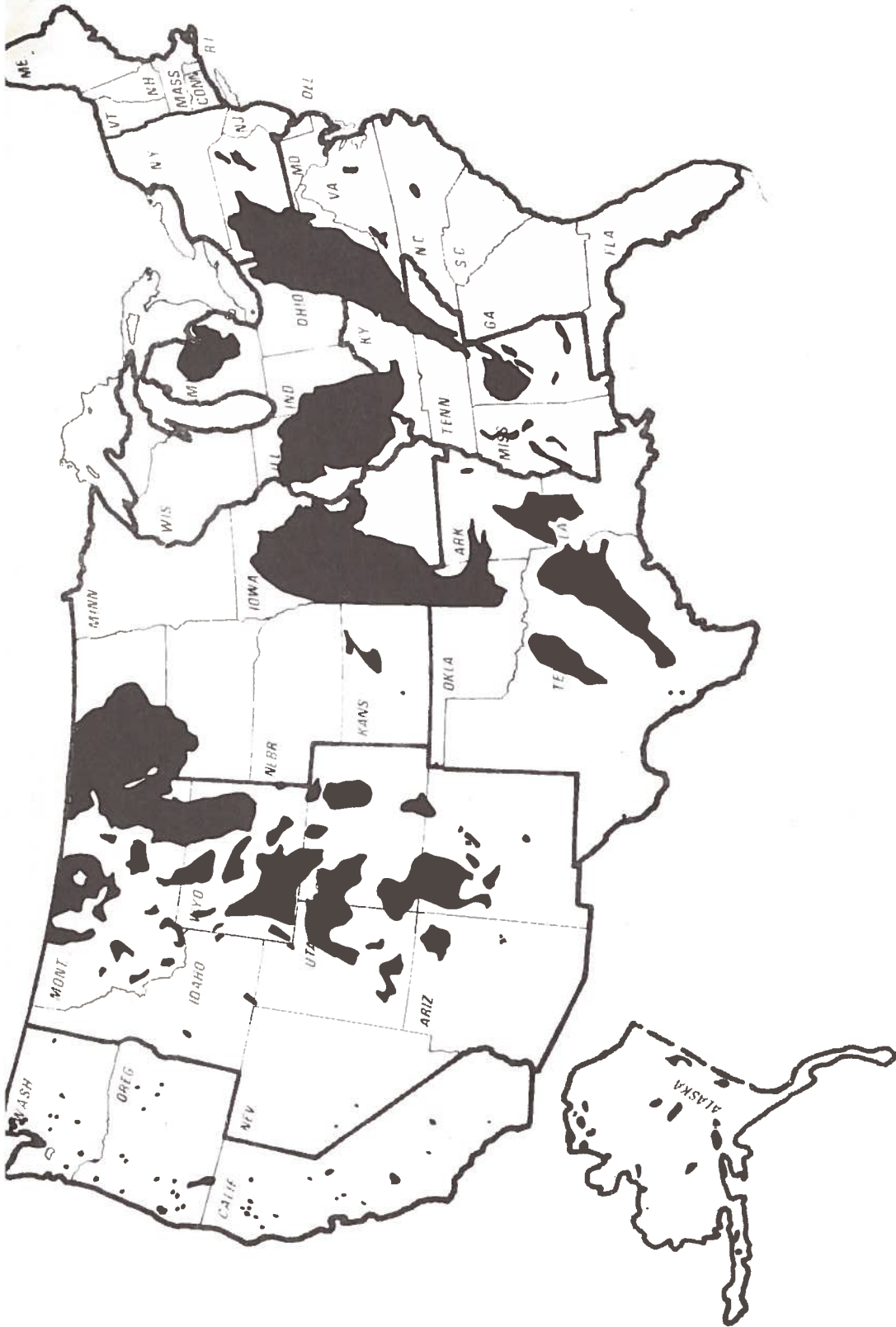


Figure 11. Coal Fields of the United States

Source: Department of the Interior, *U.S. Energy Fact Sheets 1971*, February, 1973

Table II-5. World Oil Production, 1962-1972

Country/Area	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Yearly Cl 1972 over 1962
MILLION TONS												
NORTH AMERICA												
U.S.A.												
Crude Oil	364.1	374.5	379.2	387.6	412.0	437.5	452.9	458.8	478.5	469.9	470.6	+ 2.6% +
Natural Gas Liquids	36.9	39.5	41.7	43.6	46.1	50.5	53.8	56.4	58.9	60.1	61.6	+ 5.3% +
	401.0	414.0	420.9	431.2	458.1	488.0	506.7	515.2	537.5	530.0	532.2	+ 2.9% +
Canada	35.7	38.2	40.8	44.6	49.2	53.8	58.2	62.2	71.5	76.6	89.1	+ 9.6% +
Mexico	16.5	17.1	17.6	17.8	18.3	20.2	21.5	22.8	23.9	23.9	24.5	+ 4.0% +
TOTAL NORTH AMERICA	453.2	469.3	479.3	493.6	525.6	562.0	586.4	600.2	632.9	630.5	645.8	+ 3.6% +
CARIBBEAN												
Venezuela	167.6	170.1	177.4	182.1	177.0	186.1	189.7	188.7	195.2	187.7	170.8	+ 0.2% -
Colombia	7.2	8.4	8.7	10.2	10.0	9.6	8.8	10.7	11.2	11.0	11.0	+ 4.3% +
Trinidad	7.0	6.9	7.1	7.0	7.9	9.3	9.6	8.2	7.3	6.7	7.7	+ 1.0% -
TOTAL CARIBBEAN	181.8	185.4	193.2	199.3	194.9	205.0	208.1	207.6	213.7	205.4	189.5	+ 0.4% -
SOUTH AMERICA												
Argentina	14.0	13.9	14.3	14.0	15.0	16.4	17.9	18.6	20.4	22.1	22.5	+ 4.8% +
Brazil	4.6	5.1	4.5	4.6	5.6	7.1	8.0	8.5	8.0	8.3	8.1	+ 5.9% +
Other South America	5.0	5.3	5.5	5.6	5.8	7.1	7.6	7.2	6.4	6.4	10.9	+ 8.1% +
TOTAL SOUTH AMERICA	23.6	24.3	24.3	24.2	26.4	30.6	33.5	34.3	34.8	36.8	41.5	+ 5.8% +
TOTAL WESTERN HEMISPHERE	658.6	679.0	696.8	717.1	746.9	797.6	828.0	842.1	881.4	872.7	876.8	+ 2.9% +
WESTERN EUROPE												
France	2.4	2.5	2.8	3.0	2.9	2.8	2.7	2.5	2.3	1.9	1.5	- 4.6% -
W. Germany	6.8	7.4	7.7	7.9	7.9	7.9	8.0	7.9	7.5	7.4	7.1	+ 0.5% -
Austria	2.3	2.6	2.7	2.8	2.7	2.7	2.7	2.7	2.8	2.5	2.5	+ 0.7% -
Turkey	0.6	0.7	0.9	1.6	2.1	2.8	3.1	3.6	3.5	3.5	3.4	+19.0% +
Other Western Europe	5.6	5.9	7.5	6.8	6.5	6.5	6.5	6.7	6.7	6.5	7.8	+ 3.4% +
TOTAL WESTERN EUROPE	17.7	19.1	21.6	22.1	22.1	22.7	23.0	23.4	22.8	21.8	22.3	+ 2.3% -
MIDDLE EAST												
Iran	66.0	73.1	85.4	95.0	105.2	129.6	142.2	168.1	191.3	227.0	251.9	+14.3% +
Iraq	49.2	56.7	61.7	64.4	68.1	60.3	74.3	74.9	76.9	83.5	71.6	+ 3.8% +
Kuwait	92.2	97.2	106.7	109.1	114.4	115.2	122.1	129.5	137.5	147.1	151.2	+ 5.1% +
Neutral Zone	13.0	16.7	18.8	19.4	21.7	21.5	22.1	23.3	26.0	28.3	29.2	+ 8.4% +
Qatar	8.8	9.1	10.2	11.1	13.8	15.5	16.3	17.0	17.7	20.5	23.2	+10.1% +
Saudi Arabia	75.8	80.5	86.2	100.6	118.8	129.0	140.9	148.6	176.2	223.4	285.5	+14.2% +
Abu Dhabi	0.8	2.6	9.0	13.5	17.3	18.3	24.0	28.9	33.4	44.9	50.6	+51.4% +
Oman	-----	-----	-----	-----	-----	2.9	12.0	16.4	16.6	14.4	14.2	* +
Other Middle East	2.3	2.4	2.5	3.0	3.3	3.6	5.2	9.5	12.6	16.2	18.0	+23.1% +
TOTAL MIDDLE EAST	308.1	338.3	380.5	416.1	462.6	495.9	559.1	616.2	688.2	805.3	895.4	+11.3% +
AFRICA												
Algeria	20.7	23.9	26.5	26.6	34.2	39.1	42.8	44.5	48.5	36.5	52.0	+ 9.7% +
Libya	8.7	22.4	41.4	58.9	72.3	84.0	125.5	149.8	159.8	133.1	106.7	+28.4% +
Other North Africa	4.8	5.8	6.6	6.7	7.0	8.6	14.6	20.9	27.7	25.2	21.2	+15.9% +
Nigeria	3.5	3.8	6.0	13.5	20.4	15.6	6.9	26.4	52.9	74.7	88.8	+38.1% +
Other West Africa	1.5	1.8	2.4	2.0	2.2	4.1	6.2	7.5	10.9	11.5	13.6	+24.8% +
TOTAL AFRICA	39.2	57.7	82.9	107.7	136.1	151.4	196.0	249.1	299.8	281.0	282.3	+21.8% +
SOUTH EAST ASIA												
Indonesia	23.1	22.5	23.3	24.0	23.5	25.2	29.7	37.1	42.2	44.1	51.9	+ 8.4% +
Other South East Asia	4.0	4.0	3.6	4.0	4.7	5.4	6.2	6.8	7.8	11.0	12.3	+11.8% +
TOTAL SOUTH EAST ASIA	27.1	26.5	26.9	28.0	28.2	30.6	35.9	43.9	50.0	55.1	64.2	+ 9.0% +
U.S.S.R.	186.0	206.1	223.6	243.0	265.1	288.0	309.0	328.0	353.0	372.0	394.0	+ 7.8% +
Eastern Europe and China	21.8	22.4	24.2	25.2	26.7	27.0	29.7	32.0	37.6	43.7	48.8	+ 8.4% +
Other Eastern Hemisphere	3.1	3.5	4.2	5.1	7.0	8.5	9.7	10.3	17.6	24.3	25.8	+23.8% +
TOTAL EASTERN HEMISPHERE	603.0	673.6	763.9	847.2	947.8	1,024.1	1,162.4	1,302.9	1,469.0	1,603.2	1,732.8	+11.1% +
WORLD (excl. U.S.S.R., E. Europe and China)	1,053.8	1,124.1	1,212.9	1,296.1	1,402.9	1,506.7	1,651.7	1,785.0	1,959.8	2,060.2	2,166.8	+ 7.5% +
WORLD	1,261.6	1,352.6	1,460.7	1,564.3	1,694.7	1,821.7	1,990.4	2,145.0	2,350.4	2,475.9	2,609.6	+ 7.5% +

* Greater than 300%

Source: British Petroleum Corp. BP Statistical Review of the World Oil Industry, 1972

P.A.D. District	Operable Refinery Capacity			Capacity Shut Down on March 31, 1973 (Included in Column 1) (4)	Inoperable Refinery Capacity		
	March 31 1973 (1)	June 30 1973 (2)	September 30 1973 (3)		March 31 1973 (5)	June 30 1973 (6)	September 30 1973 (7)
I. East Coast	1,407,366	1,382,366	1,382,666	—	15,000	75,000	15,000
Appalachian No. 1	185,450	185,450	185,450	—	—	—	—
I. Total	1,592,816	1,567,816	1,568,116	—	15,000	75,000	15,000
II. Appalachian No. 2	60,000	60,000	60,000	—	—	—	—
Ind., Ill., Ky.	2,396,006	2,472,506	2,474,506	76,120	151,000	76,000	76,000
Minn., Wisc., Daks.	268,958	270,458	270,458	—	—	—	—
Okla., Kan., Mo.	969,267	971,267	971,767	37,400	—	—	—
II. Total	3,694,231	3,774,231	3,776,731	113,520	151,000	76,000	76,000
III. Inland Texas	436,400	442,900	445,900	6,979	13,500	14,500	13,500
Texas Gulf Coast	3,098,700	3,074,700	3,092,700	171,900	—	30,000	60,000
Louisiana Gulf Coast	1,812,800	1,830,800	1,834,800	16,000	—	—	—
No. La. & Ark.	151,550	151,550	151,750	6,424	1,400	1,400	1,400
New Mexico	46,950	46,950	46,950	—	—	—	—
III. Total	5,546,400	5,546,900	5,572,100	201,303	14,900	45,900	74,900
IV. Other Rocky Mt.	458,442	462,492	478,492	5,702	10,000	10,000	10,000
V. West Coast	2,202,266	2,213,266	2,216,866	113,019	7,000	—	—
Total United States	13,494,155	13,564,705	13,612,305	433,544	197,900	206,900	175,900

NOTE: These data were collected by the API by means of a new survey using a revised definition of operable refinery capacity which has been adopted by the Bureau of Mines and the API with the approval of the industry. According to this survey, total operable refinery capacity on June 30, 1973 was 13,564,705 barrels per calendar day, as compared to a capacity of 13,618,000 barrels per calendar day which was the last capacity figure based on the old definition. This decrease reflects (1) changes in the definition of operable capacity; and (2) a more current assessment of operable and inoperable capacity.

Source: American Petroleum Institute, *Weekly Statistical Bulletin*, July 6, 1973.

See Appendix B for new definition of operable refinery capacity.

Table II-7. Number and Capacity of U.S. Refineries, 1918-1970

Year	Number of Refineries As of January 1					Capacity as of January 1 (Barrels Per Day)					De Ave Crud Run St (bar)
	Operating	Shut- down	Total Operating and Shut- down	Build- ing	Total Oper- ating, and Shut- down and Build- ing	Operating	Shutdown ²	Total Operating and Shutdown	Building ¹	Total Operating, Shutdown and Building	
1970	262	19	281	4	285	11,882,393	191,930	12,074,323	386,700	12,461,023	
1969	264	20	284	3	287	11,575,829	163,680	11,739,509	362,500	12,102,009	10,63
1968	270	21	291	1	292	11,172,694	360,160	11,532,854	751,550	12,284,404	10,31
1967	260	21	281	4	285	10,412,447	347,160	10,759,607	391,700	11,151,307	9,81
1966	267	19	286	3	289	10,171,159	321,580	10,492,739	148,300	10,641,039	9,44
1965	273	27	300	1	301	10,161,311	613,284	10,774,595	74,960	10,849,555	9,04
1961	282	22	304	1	305	10,063,164	322,210	10,385,374	54,700	10,440,074	8,80
1963	287	21	308	2	310	9,814,791	303,530	10,118,321	178,300	10,296,621	8,68
1962	287	24	311	1	312	9,812,248	292,899	10,105,147	110,350	10,215,497	8,40
1961	289	22	311	0	311	9,629,685	380,388	10,010,073	36,500	10,046,573	8,18
1960	290	20	310	2	312	9,543,329	358,095	9,901,424	70,947	9,972,371	8,06
1959	291	22	313	0	313	9,450,741	369,105	9,819,846	108,400	9,928,246	7,99
1958	289	29	318	2	320	8,939,907	467,800	9,407,707	185,265	9,592,972	7,60
1957	298	21	319	3	322	8,808,841	314,833	9,123,674	256,350	9,380,024	7,91
1956	294	24	318	2	320	8,380,801	251,589	8,632,390	267,000	8,899,390	7,93
1955	296	30	326	4	330	8,069,154	351,476	8,420,630	146,800	8,567,430	7,48
1954	308	29	337	7	344	7,782,103	224,794	8,006,897	397,500	8,404,397	6,95
1953	315	28	343	4	347	7,481,701	156,960	7,638,661	509,721	8,148,382	6,99
1952	327	23	350	0	350	7,161,366	171,519	7,332,885	282,680	7,615,565	6,67
1951	325	32	357	1	358	6,701,815	261,829	6,963,644	160,100	7,123,744	6,49
1950	320	47	367	2	369	6,222,998	473,302	6,696,300	145,600	6,841,900	5,73
1949	336	39	375	3	378	6,230,505	208,490	6,438,995	341,500	6,780,495	5,23
1948	352	38	390	2	392	5,825,566	208,686	6,034,252	367,250	6,401,502	5,59
1947	361	38	399	0	399	5,336,399	233,083	5,569,482	162,200	5,731,682	5,07
1946	364	29	393	1	394	5,086,165	229,691	5,315,856	53,100	5,368,956	4,74
1945	380	33	413	1	414	5,077,690	223,463	5,301,153	36,075	5,337,228	4,71
1944	384	68	452	0	452	4,709,382	383,641	5,093,023	118,270	5,211,293	4,55
1943	386	85	471	1	472	4,409,013	492,998	4,902,011	195,100	5,097,111	3,91
1942	430	92	522	1	523	4,496,843	459,756	4,956,599	43,400	4,999,999	3,65
1941	420	136	556	6	562	4,180,588	538,381	4,718,969	141,225	4,860,194	3,86
1940	461	86	547	10	557	4,196,694	431,952	4,628,646	92,567	4,721,213	3,53
1939	435	103	538	7	545	3,933,785	574,770	4,508,555	142,250	4,650,805	3,39
1938 ³	431	120	551	10	561	3,970,196	380,955	4,351,151	283,020	4,634,171	3,19
1938 ⁴	431	120	551	10	561	4,151,276	199,875	4,351,151	22,550	4,373,701	
1937	423	149	572	11	583	3,966,616	328,265	4,294,881	81,200	4,376,081	3,24
1936	422	210	632	15	647	3,749,835	367,212	4,117,047	46,899	4,163,946	2,91
1935	435	196	631	7	638	3,614,749	443,751	4,058,500	13,900	4,072,400	2,64
1934	454	137	591	13	604	3,553,569	364,648	3,918,217	44,450	3,962,667	2,45
1933	372	133	505	18	523	3,445,118	444,118	3,889,510	31,545	3,921,055	2,35
1932	365	108	473	6	479	3,624,992	389,616	4,014,608	8,720	4,023,328	2,24
1931	346	89	435	10	445	3,706,610	236,075	3,942,685	45,000	3,987,685	2,45
1930	358	54	412	8	420	3,634,825	130,760	3,765,585	37,200	3,802,785	2,54
1929	341	72	413	14	427	3,325,890	183,650	3,509,540	99,000	3,608,540	2,70
1928	326	97	423	5	428	3,036,125	214,255	3,250,380	22,000	3,272,380	2,49
1927	327	138	465	7	472	2,834,282	226,725	3,061,007	61,000	3,122,007	2,27
1926	352	158	510	2	512	2,562,357	290,610	2,852,967	5,500	2,858,467	2,13
1925 (May 1)	365	185	550	4	554	2,511,817	342,025	2,853,842	11,000	2,864,842	2,02
1924 (November 1)	357	190	547	8	555	2,480,922	333,410	2,814,332	18,200	2,832,532	1,59
1922	325	154	479	30	509	1,854,590	254,610	2,109,200	59,950	2,169,150	1,37
1921	350	65	415	44	459	1,794,395	94,405	1,888,800	76,600	1,965,400	1,24
1920	373 ⁵	(⁶)	373	99	472	1,530,565 ⁶	(⁶)	1,530,565	263,500	1,794,065	1,18
1919	—	—	—	—	289	1,295,115	0	1,295,115	0	1,295,115	990
1918	—	—	—	—	267	1,186,155	0	1,186,155	0	1,186,155	893

¹ New plants.

² Beginning in 1938, shutdown capacity includes inoperative portions of operating refineries as well as plants completely shutdown. In previous years, shutdown capacity represented only plants completely shutdown.

³ Beginning in 1938, building capacity includes additional capacity being built at existing refineries as well as new plants under construction. In previous years, building capacity included only new plants being built.

⁴ New basis; see footnotes 2 and 3.

⁵ Old basis; see footnotes 2 and 3.

⁶ Shutdown facilities included with operating facilities.

Source: Bureau of Mines, "Petroleum Refineries in the United States."

Table II-8. Total Input at U.S. Refineries and Percent Yields of Products, 1956 - 1972

Net Change in Stocks Thousands of 42 Gallon Barrels	Unfinished Oils Re-run (Net) ¹	Total Input ²	Gasoline From Crude	Kero- sene	Jet Fuel Naphtha Type	Jet Fuel Kero- sene Type	Dist. Fuel Oil	Resid. Fuel Oil	Lubri- cants	Others	
15,106	+ 4,008	2,909,114	43.37	4.24			22.88	14.67	2.04	12.80	1956
10,436	- 1,355	2,889,081	43.79	3.77			23.14	14.39	1.93	12.98	1957
19,404	+32,493	2,821,897	45.17	3.90			22.38	12.88	1.82	13.85	1958
17,661	+25,868	2,943,529	44.85	3.76			23.06	11.82	1.91	14.60	1959 ³
17,661	+25,868	2,943,529	44.85	3.76			23.06	11.82	1.91	14.60	1959 ⁴
12,534	+22,094	2,974,628	45.16	4.56 ⁵			22.42	11.17	2.00	14.69	1960
17,158	+19,260	3,006,418	44.67	4.70			23.15	10.50	1.97	15.01	1961
19,631	+27,733 ⁶	3,097,364	44.80	5.05			23.23	9.55	1.98	15.39	1962
10,652	+31,934	3,202,586	44.14	5.14			23.87	8.62	1.97	16.26	1963
13,329	+27,322	3,250,651	44.10 ⁷	5.17			22.83	8.21	1.96	17.73	1964
10,842	+32,111	3,332,953	44.05	2.79	2.47	3.26	22.95	8.06	1.89	14.53	1965
17,193	+34,632	3,481,825	44.46	2.90	2.57	3.62	22.54	7.58	1.88	14.45	1966
12,594	+34,237	3,616,831	44.07	2.74	3.03	4.52	22.24	7.63	1.79	13.98	1967
14,360	+26,152	3,800,512	43.97	2.65	3.19	5.09	22.09	7.25	1.73	14.03	1968
19,605	+34,346	3,913,951	44.81	2.60	2.68	5.54	21.64	6.79	1.66	14.28	1969
17,503	+38,091	4,005,594	45.32	2.36	2.10	5.44	22.36	6.43	1.65	14.34	1970
17,809	+43,608	4,131,417	46.15	2.09	2.07	5.31	22.04	6.65	1.58	14.11	1971
11,634	+51,518	4,333,152	46.25	1.82	1.76	5.39	22.21	6.75	1.51	15.31	1972
											1971
14,936	+ 7,629	352,565	45.12	2.65	1.93	5.42	22.92	8.89	1.49	11.58	January
12,266	+ 6,408	318,674	45.04	2.61	2.03	5.40	22.65	8.50	1.55	12.22	February
15,078	+ 2,744	347,822	44.96	2.37	2.04	5.53	22.40	7.63	1.66	13.41	March
16,222	- 4,876	331,346	44.77	1.98	2.14	5.44	23.10	6.71	1.71	14.15	April
12,799	+ 1,008	333,807	45.31	1.75	2.15	5.57	22.45	5.69	1.71	15.37	May
14,505	+ 1,284	345,789	45.56	1.86	2.04	5.28	22.18	5.80	1.66	15.62	June
15,007	+ 3,686	358,693	46.99	1.98	1.92	4.88	21.65	5.57	1.59	15.42	July
12,405	+ 7,989	360,394	47.85	1.66	1.84	5.06	21.60	5.32	1.55	15.12	August
14,034	+ 5,311	339,345	47.65	1.62	2.23	5.15	20.99	5.82	1.53	15.01	September
15,516	+ 381	345,897	46.82	2.05	2.14	5.46	21.58	5.70	1.59	14.66	October
13,561	+ 3,318	336,879	46.69	2.08	2.27	5.49	21.40	6.62	1.52	13.93	November
11,480	+ 8,726	360,206	46.78	2.45	2.09	5.08	21.72	7.66	1.44	12.78	December
17,809	+43,608	4,131,417	46.15	2.09	2.07	5.31	22.04	6.65	1.58	14.11	Total
											1972
13,096	+ 3,331	356,427	46.54	2.42	1.60	5.22	22.07	8.04	1.53	12.58	January
12,390	+ 7,842	337,232	44.46	1.97	1.96	5.78	22.81	8.28	1.46	13.28	February
11,770	- 793	350,977	45.18	1.98	1.97	6.03	22.65	7.31	1.54	13.34	March
13,601	- 211	335,390	45.45	1.75	2.09	5.75	22.15	6.61	1.55	14.65	April
15,877	- 150	355,727	45.83	1.43	1.93	5.80	22.53	5.79	1.60	15.09	May
15,307	- 1,508	353,799	46.39	1.38	1.93	5.35	22.24	5.60	1.58	15.53	June
13,519	+ 7,819	376,338	48.06	1.48	1.70	5.49	20.83	5.54	1.44	15.46	July
19,449	+ 8,303	377,752	47.75	1.52	1.80	5.07	21.19	5.53	1.53	15.61	August
13,439	+ 2,784	366,223	47.46	1.82	1.59	5.05	21.49	5.82	1.46	15.31	September
13,077	+ 6,775	374,852	47.05	1.68	1.62	5.18	22.51	6.16	1.50	14.30	October
15,614	+ 6,107	361,721	45.88	2.15	1.59	5.05	22.55	7.38	1.49	13.91	November
15,495	+11,219	386,714	44.65	2.30	1.49	5.01	23.55	9.01	1.43	12.56	December
11,634	+51,518	4,333,152	46.25	1.82	1.76	5.39	22.21	6.75	1.51	14.31	Total

This figure represents the net of running imported unfinished oils and the change in stocks of unfinished oils. A decrease in stocks appears here as a plus, indicating the re-running of a larger amount of unfinished oils than was produced in the period. Includes natural gas liquids and benzol blended and the re-running of unfinished gasoline. Beginning with 1968, other hydrocarbons are excluded. These figures and those for preceding years are on a 48 state basis. These figures and those for subsequent years are on a 50 state basis. These figures and those through 1964 include commercial jet fuel. Includes net re-running of unfinished gasoline beginning with January 1962. Beginning with 1964 Special Naphthas are excluded.

Source: American Petroleum Institute, *Annual Statistical Review*, 1956 - 1972

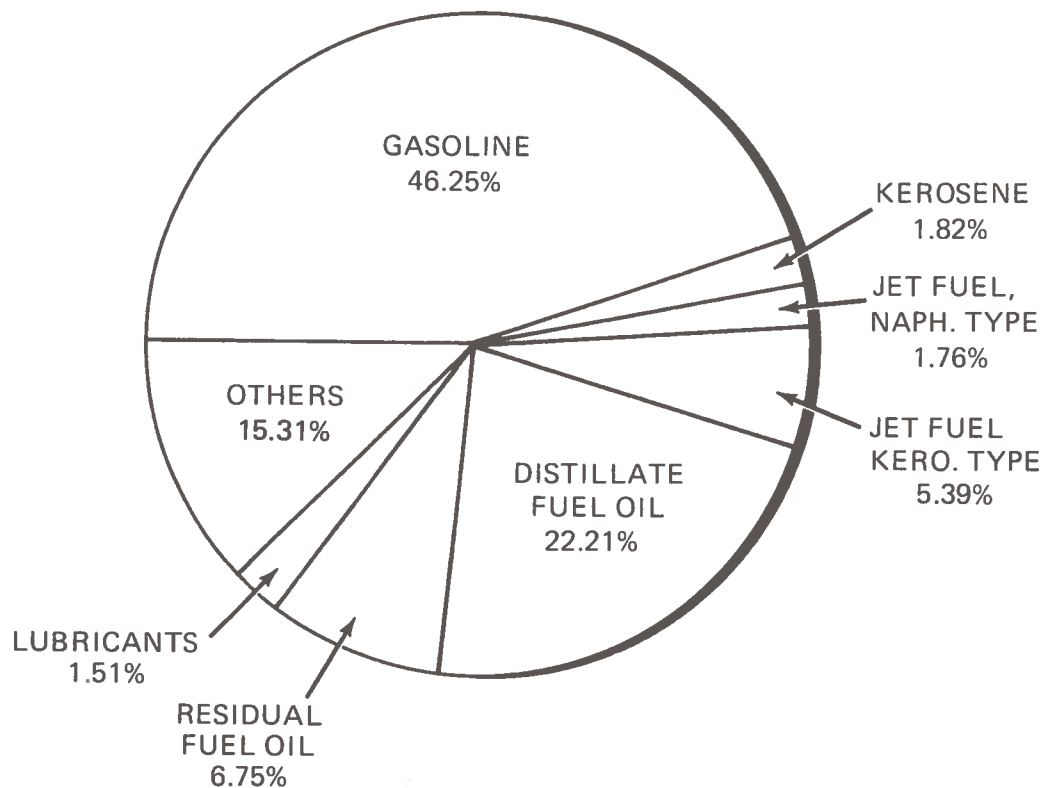


Figure 12. Percentage Yields of Petroleum Products at U.S. Refineries, 1972

PART III. ENERGY CONSUMPTION



Table III-1. Estimated Cost of Operating a Standard Size 1972 Model Automobile, Including Cost of Gasoline and Oil¹
(total costs in dollars, costs per mile in cents)

Item	First Year (14,500 miles)		Second Year (13,000 miles)		Totals And Averages For Ten Years (100,000 miles)	
	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile
Costs Excluding Taxes:						
Depreciation	1,226.00	8.46	900.00	6.92	4,379.00	4.38
Repairs and Maintenance	81.84	.56	115.37	.89	2,146.91	2.14
Replacement Tires	17.90	.12	16.05	.12	399.85	.40
Accessories	3.21	.02	3.08	.02	52.18	.05
Gasoline	286.75	1.98	257.16	1.98	1,977.96	1.98
Oil	11.25	.08	11.25	.09	118.50	.12
Insurance ²	164.00	1.13	156.00	1.20	1,350.00	1.35
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	1,809.40	1.81
Total	1,999.31	13.79	1,658.13	12.75	12,233.80	12.23
Taxes and Fees:						
State:						
Gasoline	74.62	.51	66.92	.52	514.71	.51
Registration	30.00	.21	30.00	.23	300.00	.30
Titling	177.15	1.22	0.00	.00	177.15	.18
Subtotal	281.77	1.94	96.92	.75	991.86	.99
Federal:						
Gasoline	42.64	.30	38.24	.30	294.12	.30
Oil ³	.22	—	.22	—	2.37	—
Tires	1.38	.01	1.24	.01	30.80	.03
Subtotal	44.24	.31	39.70	.31	327.29	.33
Total Taxes	326.01	2.25	136.62	1.06	1,319.15	1.32
Total of All Costs	2,325.32	16.04	1,794.75	13.81	13,552.95	13.55
Total Gasoline and Oil Costs, Including Taxes	415.48	2.87	373.79	2.89	2,907.66	2.94
Gasoline and Oil Costs Percent of all Costs	18%	18%	21%	21%	22%	22%

¹This estimate covers the total costs of a fully equipped, medium priced, standard size, 4-door sedan, purchased for \$4,379, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used.

²Previous editions of this study used insurance rates designated for Baltimore city. The rates shown above are for the Baltimore suburbs, and consequently are less than the rates presented in the previous study. If the Baltimore city rates had been used in this study, the insurance costs would have been higher. (For example, the first year would have been \$232).

³Where costs per mile were computed to be less than 1/20 cent, a dash (—) appears in the column.

See Appendix C for bases of estimates.

Source: U.S. Department of Transportation, Federal Highway Administration, *Cost of Operating an Automobile*, April 1972.

**Table III-2. Estimated Cost of Operating a Compact Size 1972 Model Automobile,
Including Cost of Gasoline and Oil¹**
(total costs in dollars, costs per mile in cents)

Item	First Year (14,500 miles)		Second Year (13,000 miles)		Totals And Averages For Ten Years (100,000 miles)	
	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile
Costs Excluding Taxes:						
Depreciation	674.00	4.65	519.00	3.99	2,696.00	2.70
Repairs and Maintenance	79.41	.55	107.14	.83	1,784.50	1.79
Replacement Tires	15.30	.11	13.71	.11	341.77	.34
Accessories	3.21	.02	3.08	.02	52.18	.05
Gasoline	244.25	1.68	218.97	1.69	1,684.48	1.68
Oil	10.50	.07	10.50	.08	113.25	.11
Insurance	155.00	1.07	147.00	1.13	1,299.00	1.30
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	1,809.40	1.81
Total	1,390.03	9.59	1,218.62	9.38	9,780.58	9.78
Taxes and Fees:						
State:						
Gasoline	63.56	.44	56.98	.44	438.34	.44
Registration	20.00	.14	20.00	.15	200.00	.20
Titling	109.86	.75	0.00	.00	109.86	.11
Subtotal	193.42	1.33	76.98	.59	748.20	.74
Federal:						
Gasoline	36.32	.25	32.56	.25	250.48	.25
Oil ²	.21	—	.21	—	2.27	—
Tires	1.17	.01	1.05	.01	26.07	.03
Subtotal	37.70	.26	33.82	.26	276.82	.28
Total Taxes	231.12	1.59	110.80	.85	1,027.02	1.03
Total of All Costs	1,621.15	11.18	1,329.42	10.23	10,807.60	10.81
Total Gasoline and Oil Costs Including Taxes	354.84	2.40	319.22	2.46	2,488.82	2.49
Gasoline and Oil Costs as Percent of All Costs	22%	22%	24%	24%	23%	23%

¹ This estimate covers the total costs of a medium priced, compact size, 2-door sedan, purchased for \$2,696, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used.

² Where costs per mile were computed to be less than 1/20 cent, a dash (—) appears in the column.

See Appendix C for bases of estimates.

Source: U.S. Department of Transportation, Federal Highway Administration, *Cost of Operating an Automobile, A*, 1972.

Table III-3. Estimated Cost of Operating a *Subcompact* Size 1972 Model Automobile, Including Cost of Gasoline and Oil¹
(total costs in dollars, costs per mile in cents)

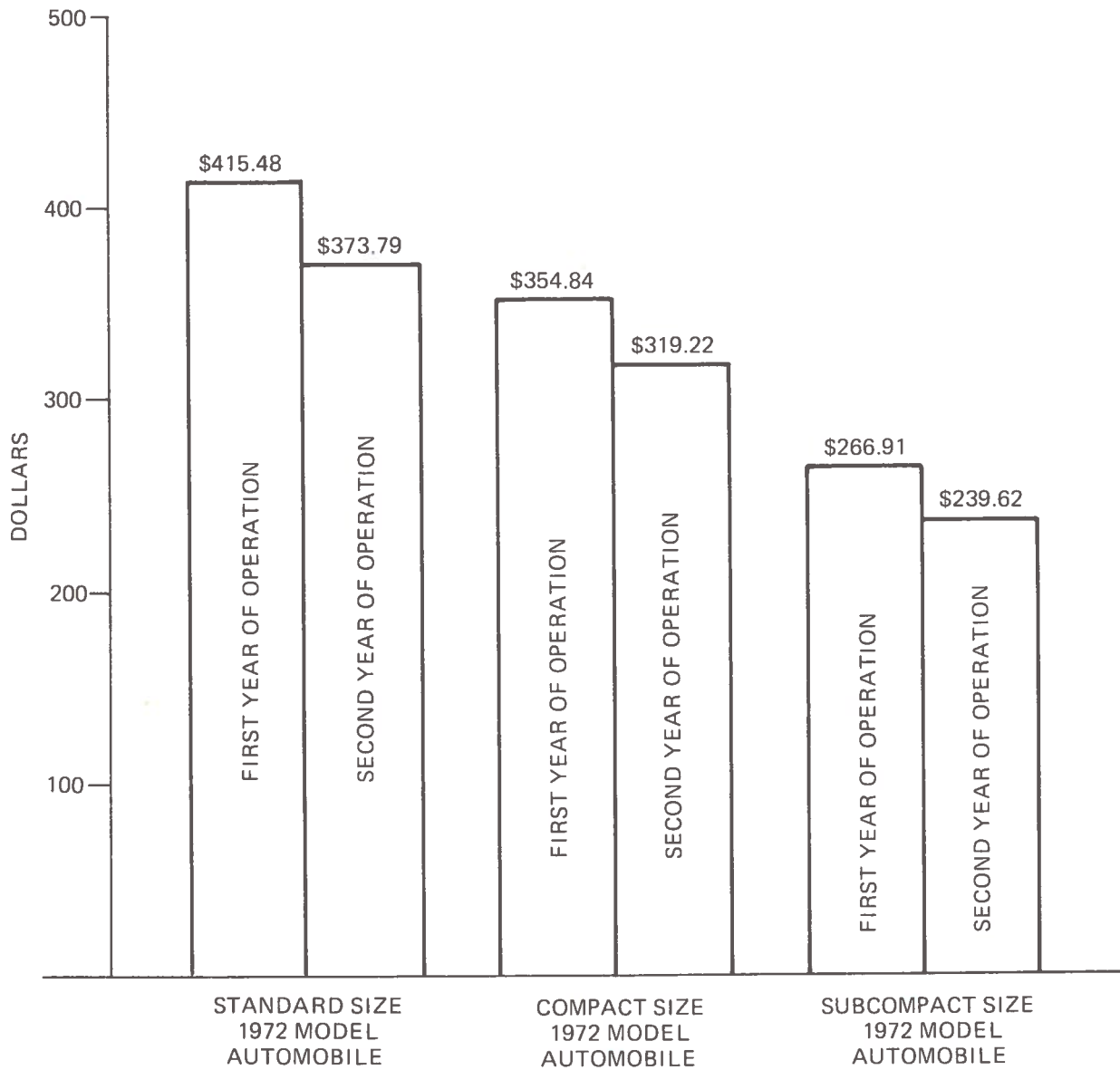
Item	First Year (14,500 miles)		Second Year (13,000 miles)		Totals And Averages For Ten Years (100,000 miles)	
	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile	Total Cost	Cost Per Mile
Costs Excluding Taxes:						
Depreciation	310.00	2.14	285.00	2.19	2,064.00	2.07
Repairs and Maintenance	76.15	.53	114.59	.88	1,775.71	1.78
Replacement Tires	13.98	.10	12.53	.10	312.29	.31
Accessories	3.21	.02	3.08	.02	52.18	.05
Gasoline	181.84	1.25	163.02	1.25	1,255.15	1.25
Oil	10.50	.07	9.75	.08	103.50	.10
Insurance	145.00	1.00	140.00	1.08	1,251.00	1.25
Garaging, Parking, Tolls, etc.	208.36	1.44	199.22	1.53	1,809.40	1.81
Total	949.04	6.55	927.19	7.13	8,623.23	8.62
Taxes and Fees:						
State:						
Gasoline	47.32	.33	42.42	.33	326.62	.33
Registration	20.00	.14	20.00	.15	200.00	.20
Titling	84.57	.58	0.00	.00	84.57	.08
Subtotal	151.89	1.05	62.42	.48	611.19	.61
Federal:						
Gasoline	27.04	.18	24.24	.19	186.64	.19
Oil ²	.21	—	.19	—	2.07	—
Tires	.94	.01	.84	.01	20.90	.02
Subtotal	28.19	.19	25.27	.20	209.61	.21
Total Taxes	180.08	1.24	87.69	.68	820.80	.82
Total of All Costs	1,129.12	7.79	1,014.88	7.81	9,444.03	9.44
Total Gasoline and Oil Costs, Including Taxes	266.91	1.83	239.62	1.85	1,873.98	1.87
Gasoline and Oil Costs Percent of All Costs	24%	24%	24%	24%	20%	20%

This estimate covers the total costs of a low priced, subcompact size, 2-door sedan, purchased for \$2,064, operated 100,000 miles over a 10-year period, then scrapped. Baltimore area prices, considered to be in the middle range, were used. Since cost data for American made subcompacts does not exist past the second year, only the first, second, and estimated ten-year totals are shown.

Where costs per mile were computed to be less than 1/20 cent, a dash (—) appears in the column.

See Appendix C for bases of estimates.

Source: U.S. Department of Transportation, Federal Highway Administration, *Cost of Operating an Automobile*, April, 1972.



NOTE: First year of operation based on 14,500 miles.
 Second year of operation based on 13,000 miles.
 See Appendix C for bases of these estimates.

Figure 13. Estimated Annual Automobile Gasoline and Oil Costs, Including Taxes, by Size and Year of Operation

Table III-4. Expenditures for Fuel by Class I Common Motor Carriers of General Freight Engaged in Intercity Service, All Districts, 1969-1971

	Fuel for Revenue Equipment (\$000)	Oil (\$000)	Total Transportation Expenses (\$000)	Grand Total Expenditures (\$000)	Fuel and Oil Expenditures as Percent of Grand Total
9	177,060	9,761	3,205,122	6,287,848	2.9
0	171,992	9,045	3,204,372	6,413,223	2.8
1	187,900	9.615	3,673,858	7,325,096	2.6

ce: ICC, *Transport Statistics*, Part 7, "Motor Carriers".

**Table III-5. Average Price of Railroad Fuel,*
Class I Railroads 1961-1971**

	Diesel Oil (¢/gallon)	Fuel Oil (¢/gallon)	Coal (\$/net ton)	Gasoline (¢/gallon)
1961	9.27	6.33	5.97	24.23
1962	9.16	6.16	5.90	24.21
1963	9.11	6.06	5.93	24.49
1964	8.84	4.83	5.38	27.72
1965	9.10	4.97	5.47	—
1966	9.19	5.18	6.12	—
1967	9.61	5.07	7.42	—
1968	9.94	5.14	6.71	—
1969	10.17	5.38	6.68	—
1970	10.73	—	6.00	—
1971	10.88	—	10.68	—

*Average costs exclude non-locomotive fuel use beginning in 1964.

Source: A.A.R. *Statistics of Railroads of Class I, 1961-1971*

Table III-6. Jet Operating Expenses, Including Fuel and Oil B-747, L-1011, and DC-10, Fourth Quarter, 1972

	B-747		L-1011		DC-10		NA Dom.	UA Dom.						
	AA Combined	BI Dom.	CO Dom.	DL Dom.	PA Combined	TW Combined			UA Dom.	EA Combined	TW Dom.	AA Dom.	CO Dom.	DL Dom.
Traffic & Service														
Fleet size	16.0	1.0	4.0	6.2	29.0	19.0	13.0	8.0	5.5	20.7	5.0	1.0	7.2	15.0
Aircraft Operating Expenses (Dollars per total block hours)														
Flying Operations														
Crew salaries & exp.	276.86	244.13	287.74	285.61	309.11	298.98	344.70	262.23	253.23	169.23	218.25	208.21	184.57	285.62
Fuel, oil & taxes	398.29	345.07	458.30	324.70	415.39	392.67	405.88	281.21	264.27	251.60	256.17	254.71	253.50	253.20
Insurance	5.00	(6.70)	39.93	26.67	55.08	92.10	32.90	83.54	63.31	9.54	33.99	12.36	36.32	24.79
Other	13.44	—	—	—	4.51	.97	.03	—	1.01	10.70	.14	—	—	.04
Total	693.59	582.50	785.97	636.98	784.09	784.72	783.51	626.98	581.82	441.07	508.85	475.31	474.39	563.71
Maintenance														
Airframe	145.09	(136.22)	183.90	160.20	72.44	106.57	78.56	112.57	52.52	77.39	98.57	77.35	71.02	62.17
Engine	88.21	414.89	370.26	157.37	(20.60)	414.56	151.92	43.14	308.11	34.13	161.69	141.83	61.76	122.65
Other	19.11	4.38	34.40	5.85	41.60	34.28	26.31	31.37	35.00	9.40	19.95	3.99	9.48	23.54
Total direct	252.41	283.05	588.56	323.42	93.44	555.41	256.79	187.08	395.63	120.92	280.21	223.17	142.26	208.36
Main. burden	162.65	29.49	68.75	287.91	289.54	311.36	172.60	255.31	110.75	120.59	59.79	77.81	97.75	122.52
Total	415.06	312.54	657.31	611.33	332.98	866.77	429.39	442.39	506.38	241.51	340.00	300.98	240.01	330.88
Cash acct. oper. exp.	1,108.65	895.04	1,443.28	1,248.31	1,117.07	1,651.49	1,212.90	1,069.37	1,088.20	687.58	848.85	776.29	714.40	894.59
Depr. & rentals	868.57	462.57	378.39	506.42	879.55	593.42	545.86	608.03	486.74	404.82	275.08	742.35	348.31	433.36
Total acct. oper. exp.	\$1,977.22	\$1,357.61	\$1,771.67	\$1,754.72	\$1,996.62	\$2,244.91	\$1,758.76	\$1,677.40	\$1,574.94	\$1,087.40	\$1,123.93	\$1,518.64	\$1,062.71	\$1,327.95
Cost per rev. mile	\$ 4.41	\$ 2.94	\$ 3.75	\$ 4.32	\$ 4.38	\$ 4.81	\$ 3.74	\$ 4.21	\$ 3.72	\$ 2.64	\$ 2.72	\$ 4.44	\$ 2.76	\$ 3.17
Cost per sch. seat mile	1.42¢	0.90¢	1.28¢	1.18¢	1.31¢	1.54¢	1.23¢	1.83¢	1.81¢	1.15¢	1.36¢	1.78¢	1.11¢	1.44¢
Fuel and oil costs as % of total acct. oper. exp.	20.1	25.4	25.9	18.5	20.8	17.5	23.1	16.8	16.8	23.1	22.8	16.8	23.9	19.1

Source: Air Transport World, June, 1973

(Trillion Btu)*

Year	Anthracite	Bituminous Coal and Lignite	Natural Gas Dry ²	Petroleum ³	Total Fossil Fuels	Hydro-power ⁴	Nuclear Power ⁴	Total Gross Energy Inputs	Percentage Change From Prior Year
1947	1,224	14,600	4,518	11,367	31,709	1,326	—	33,035	—
1948	1,275	13,622	5,033	12,557	32,487	1,393	—	33,880	+2.6
1949	958	11,673	5,289	12,119	30,039	1,449	—	31,488	-7.1
1950	1,013	11,900	6,150	13,489	32,552	1,440	—	33,992	+8.0
1951	940	12,285	7,248	14,848	35,321	1,454	—	36,775	+8.2
1952	897	10,971	7,760	15,334	34,962	1,496	—	36,458	- .9
1953	711	11,182	8,156	16,098	36,147	1,439	—	37,586	+3.1
1954	683	9,512	8,548	16,132	34,875	1,388	—	36,263	-3.5
1955	599	10,941	9,232	17,524	38,296	1,407	—	39,703	+9.5
1956	610	11,142	9,834	18,627	40,213	1,487	—	41,700	+5.0
1957	528	10,640	10,416	18,570	40,154	1,551	1	41,706	—
1958	483	9,366	10,995	19,214	40,058	1,636	2	41,696	—
1959	478	9,332	11,990	19,747	41,547	1,591	2	43,140	+3.5
1960	447	9,693	12,699	20,067	42,906	1,657	6	44,569	+3.3
1961	404	9,502	13,228	20,487	43,621	1,680	18	45,319	+1.7
1962	363	9,826	14,121	21,267	45,577	1,821	24	47,422	+4.6
1963	361	10,353	14,843	21,950	47,507	1,767	34	49,308	+4.0
1964	365	10,899	15,648	22,386	49,298	1,907	35	51,240	+3.9
1965	328	11,580	16,098	23,241	51,247	2,058	38	53,343	+4.1
1966	290	12,205	17,393	24,394	54,282	2,073	57	56,412	+5.8
1967	274	11,982	18,250	25,335	55,841	2,344	80	58,265	+3.3
1968	258	12,401	19,580	27,052	59,291	2,342	130	61,763	+6.0
1969	224	12,509	21,020	28,421	62,174	2,659	146	64,979	+5.2
1970	210	12,712	22,029	29,614	64,565	2,650	229	67,444	+3.8
1971	186	11,887	22,819	30,570	65,462	2,862	404	68,728	+1.9
P 1972	149	12,279	23,308	32,812	68,548	2,937	606	72,091	+4.9

*One British Thermal Unit (BTU) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at or near 39.2° F.

¹ Gross energy is that contained in all types of commercial energy at the time it is incorporated in the economy, whether the energy is produced domestically or imported. Gross energy comprises inputs of primary fuels (or their derivatives), and outputs of hydropower and nuclear power converted to theoretical energy inputs. Gross energy includes the energy used for the production, processing, and transportation of energy proper.

² Excludes natural gas liquids.

³ Petroleum products including still gas, liquefied refinery gas, and natural gas liquids.

⁴ Outputs of hydropower (adjusted for net imports or net exports) and nuclear power converted to theoretical energy inputs calculated from national average heat rates for fossil-fueled steam-electric plants provided by the Federal Power Commission. Energy input for nuclear power in 1971 is converted at an average heat rate of 10,660 Btu per net kilowatt-hour based on information from the Atomic Energy Commission. Excludes inputs for power generated by nonutility fuel-burning plants, which are included within the other consuming sectors.

P Preliminary

Source: U.S. Department of the Interior, *U.S. Energy through the Year 2000*, Dec., 1972; and *News Release*, March 10, 1973.

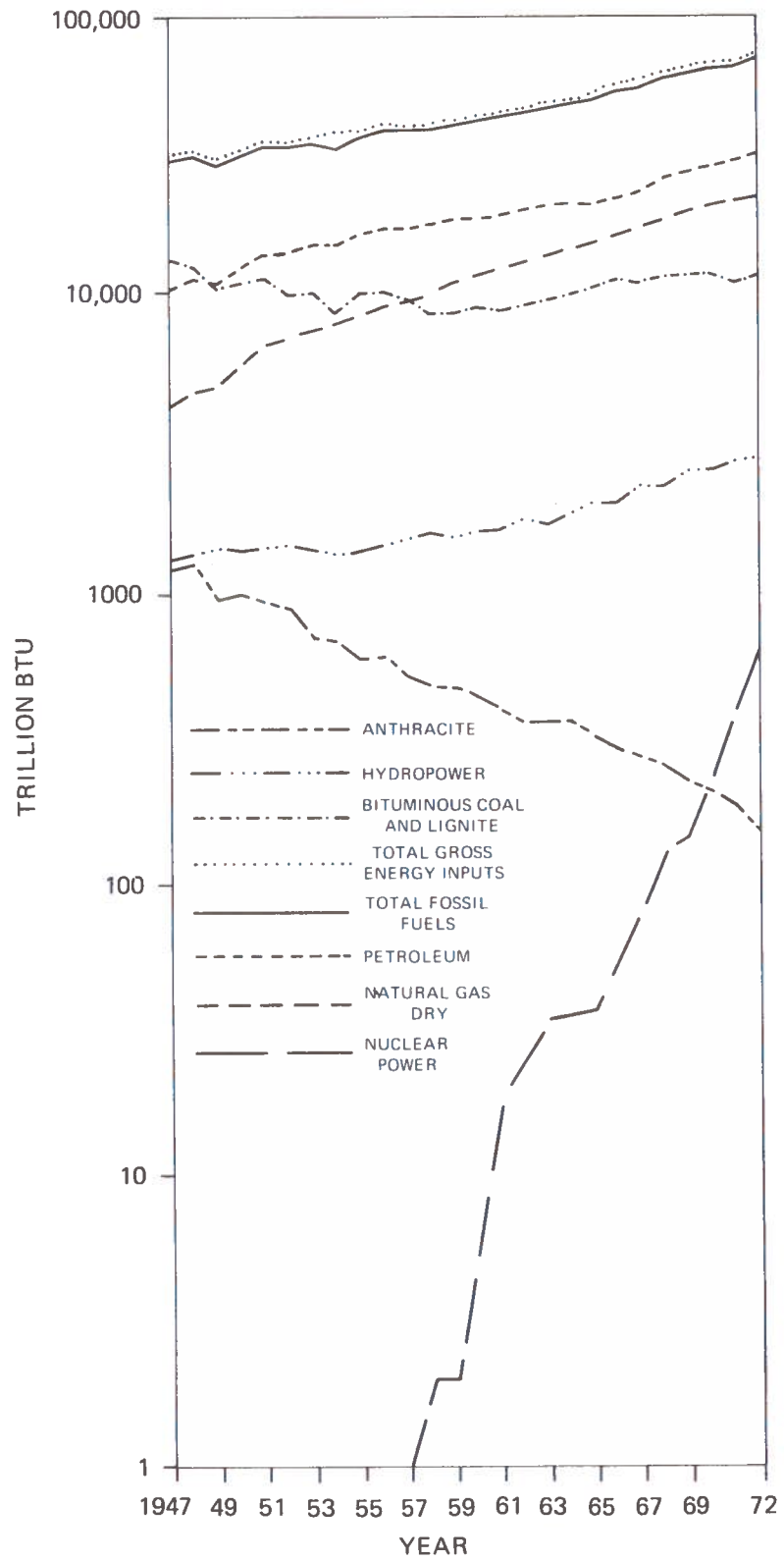


Figure 14. United States Total Gross Consumption of Energy Resources by Major Sources, 1947-1972

Consuming Sectors	Anthracite	Bituminous coal and lignite	Natural gas dry ²	Petroleum ³	Hydropower ⁴	Nuclear ⁴	Total gross energy inputs ⁵	Utility electricity purchased ⁶	Total sector energy inputs	Percentage change from 1971
Household and commercial:										
1971	98	310	7,366	6,440	—	—	14,214	3,209	17,423	
1972 (preliminary)	84	300	7,629	6,689	—	—	14,702	3,449	18,151	+4.2
Industrial:										
1971	47	4,283	10,570	5,094	34	—	20,028	2,293	22,321	
1972 (preliminary)	34	4,423	10,723	5,544	36	—	20,760	2,465	23,225	+4.0
Transportation:⁷										
1971	—	6	766	16,286	—	—	17,058	17	17,075	
1972 (preliminary)	—	6	799	17,231	—	—	18,036	18	18,054	+5.7
Electricity generation, utilities:⁴										
1971	41	7,288	4,117	2,543	2,828	404	17,221	5,519	18,451	
1972 (preliminary)	31	7,550	4,157	3,206	2,901	606	18,451	5,932	18,451	+7.1
Miscellaneous and unaccounted for:										
1971	—	—	—	207	—	—	207	—	207	
1972 (preliminary)	—	—	—	142	—	—	142	—	142	
Total energy inputs:										
1971	186	11,887	22,819	30,570	2,862	404	68,728	—	68,728	
1972 (preliminary)	149	12,279	23,308	32,812	2,937	606	72,091	—	72,091	+4.9

1 Gross energy is the total of inputs into the economy of the primary fuels (petroleum, natural gas, and coal, including imports) or their derivatives, plus the generation of hydro and nuclear power (converted to equivalent energy inputs; see footnote 4).

2 Excludes natural gas liquids.

3 Petroleum products including still gas, liquefied refinery gas, and natural gas liquids.

4 Outputs of hydropower are converted to theoretical energy inputs calculated from national average heat rates for fossil-fueled steam-electric plants provided by the Federal Power Commission using 10,478 Btu per net kilowatt-hour. Energy inputs for nuclear power are converted at an average heat rate of 10,660 Btu per net kilowatt-hour based on information from the Atomic Energy Commission. Excludes inputs for power generated by nonutility plants, which are included within the other consuming sectors.

5 Gross energy resource inputs with electricity generation shown as separate consuming sectors.

6 Utility electricity generated and imported, distributed to the other consuming sectors as energy resource inputs. Distribution to sectors is based on sales reported in the Edison Electric Institute "Statistical Year Book of the Electric Utility Industry for 1971." Conversion of electricity to energy equivalent by sector was made at the value of contained energy corresponding to 100 percent thermal efficiency using a theoretical rate of 3,412 Btu/kwhr.

7 Includes bunkers and military transportation.

Sources: Division of Fossil Fuels, Bureau of Mines, U.S. Department of the Interior, News Release, March 10, 1973

Table III-9. Gross Consumption of Mineral Energy Resources and Electricity from Hydropower and Nuclear Power in the United States, 1947-1972

Year	Coal Thousand tons	Natural Gas, dry Million Cu. Ft.	Petroleum ¹ Million barrels	Hydropower Million Kilowatt-hours	Nuclear Power Million Kilowatt-hours
1947	605,443	4,365,608	1,989.8	84,981	—
1948	570,109	4,862,427	2,120.0	88,535	—
1949	483,238	5,109,680	2,128.0	96,361	—
1950	494,102	5,942,429	2,375.1	102,671	—
1951	505,904	7,002,545	2,584.2	106,554	—
1952	454,057	7,497,945	2,671.1	111,977	—
1953	454,798	7,869,867	2,775.3	111,625	—
1954	389,960	8,258,515	2,848.9	113,980	—
1955	447,012	8,920,259	3,100.2	120,304	—
1956	456,858	9,501,857	3,232.9	129,775	—
1957	434,468	10,063,912	3,233.8	136,959	10
1958	385,703	10,623,393	3,370.9	147,581	165
1959	385,056	11,584,909	3,481.2	145,002	188
1960	398,029	12,269,341	3,611.2	153,958	518
1961	390,305	12,750,043	3,641.3	157,754	1,692
1962	402,774	13,612,325	3,796.0	172,458	2,270
1963	423,325	14,341,255	3,924.5	168,573	3,212
1964	445,516	15,118,174	4,034.2	182,258	3,341
1965	472,064	15,598,427	4,202.0	196,843	3,657
1966	497,666	16,853,606	4,410.8	199,030	5,520
1967	491,216	17,684,573	4,584.5	224,650	7,655
1968	508,990	18,972,915	4,901.8	225,242	12,528
1969	516,084	20,387,827	5,159.9	254,540	13,928
1970	525,406	21,367,036	5,364.5	252,571	21,801
1971	494,862	22,132,453	5,552.6	269,851	37,899
1972 ^P	511,200	22,607,000	5,960.1	276,828	56,850

^P Preliminary.

¹ Includes petroleum products derived from crude oil including still gas, liquefied refinery gas and natural gas liquids.

(All Figures in Trillions of Btu)

Year	Household and Commercial			Industrial			Transportation as % of Total	Electrical Generation	Other Not Specified	Total Input
	Fuel use	Non-fuel use	Total	Fuel use	Non-fuel use	Total				
1947	1,925	326	2,251	2,085	432	2,517	50.7	468	371	11,368
1948	2,154	385	2,539	2,102	428	2,530	49.0	444	889	12,559
1949	2,093	379	2,472	2,064	402	2,466	51.0	577	422	12,120
1950	2,603	435	3,038	2,213	453	2,666	50.3	662	337	13,488
1951	2,722	480	3,202	2,509	535	3,044	50.4	499	621	14,848
1952	2,833	517	3,350	2,514	520	3,034	51.3	492	590	15,334
1953	2,869	522	3,391	2,584	560	3,144	50.7	577	829	16,099
1954	3,094	556	3,650	2,542	576	3,118	51.8	480	531	16,137
1955	3,386	615	4,001	2,754	652	3,406	52.0	512	496	17,524
1956	3,523	660	4,183	2,975	713	3,688	50.7	497	809	18,625
1957	3,432	637	4,069	2,715	763	3,478	52.0	512	862	18,570
1958	3,889	679	4,568	2,519	773	3,292	51.0	515	1,020	19,214
1959	3,997	721	4,718	2,674	915	3,589	50.3	546	971	19,747
1960	4,189	734	4,923	2,674	1,008	3,682	51.7	564	526	20,067
1961	4,275	753	5,028	2,634	1,048	3,682	51.6	577	625	20,487
1962	4,423	804	5,227	2,750	1,130	3,880	51.7	579	580	21,267
1963	4,434	824	5,258	2,739	1,255	3,994	52.4	600	592	21,950
1964	4,350	841	5,191	2,922	1,262	4,184	52.7	636	585	22,387
1965	4,744	891	5,635	2,826	1,313	4,139	52.4	744	545	23,242
1966	4,830	936	5,766	2,883	1,470	4,353	52.4	905	594	24,395
1967	5,289	917	6,206	2,820	1,612	4,432	52.9	1,013	276	25,335
1968	5,145	984	6,129	3,186	1,780	4,966	53.7	1,180	242	27,052
1969	5,260	1,009	6,269	3,220	1,951	5,171	53.2	1,628	229	28,422
1970	5,371	1,082	6,453	3,252	2,015	5,267	52.7	2,087	215	29,614
1971	5,331	1,108	6,439	3,196	1,898	5,094	53.3	2,543	207	30,570
1972 ^P	5,533	1,156	6,689	3,433	2,110	5,543	52.5	3,206	142	32,812

^P Preliminary.

¹ Petroleum products refined and processed from crude oil, including still gas, liquefied refinery gas and natural gas liquids.

² Includes bunkers and military transportation.

Source: U.S. Department of the Interior, *U.S. Energy through the Year 2000*, Dec. 1972; and News Release, March 10, 1973

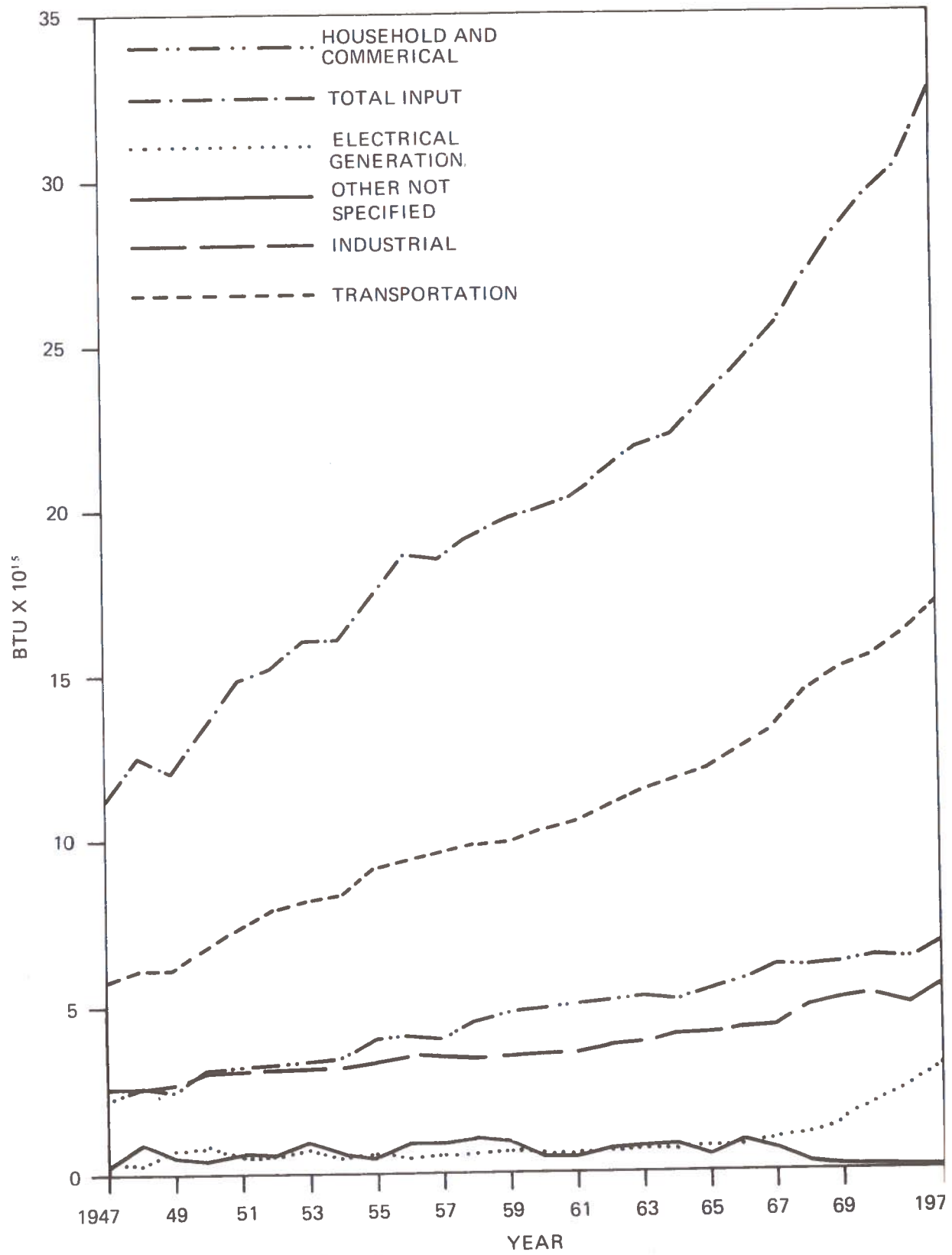


Figure 15. Petroleum Consumption by Sector 1947-1972

	Household and Commercial		Industrial		Transportation ²		Electricity generation, utilities		Miscellaneous and unaccounted for		Total domestic product demand	
	Million bbl	Trillion Btu	Million bbl	Trillion Btu	Million bbl	Trillion Btu	Million bbl	Trillion Btu	Million bbl	Trillion Btu	Million bbl	Trillion Btu
Fuel and power:	182.6	732.4	26.6	106.7	31.5	126.3	—	—	6.4	25.7	247.1	991.1
Liquefied gases	—	—	—	—	—	—	—	—	—	—	—	—
Jet fuels:	—	—	—	—	—	—	—	—	—	—	—	—
Naphtha type	—	—	—	—	94.7	497.1	—	—	—	—	94.7	497.1
Kerosine type	—	—	—	—	274.0	1,553.6	—	—	—	—	274.0	1,553.6
Total	—	—	—	—	368.7	2,050.7	—	—	—	—	368.7	2,050.7
Gasoline	—	—	—	—	2,213.2	11,614.9	—	—	—	—	2,213.2	11,614.9
Kerosine	70.7	400.9	20.2	114.5	—	—	—	—	—	—	90.9	515.4
Distillate fuel	523.6	3,050.0	113.6	661.7	288.6	1,681.1	35.3	205.6	10.2	59.4	971.3	5,657.8
Residual fuel	182.6	1,148.0	168.1	1,056.9	109.2	686.5	371.8	2,337.5	6.3	39.6	838.0	5,268.5
Still gas	—	—	157.0	942.0	—	—	—	—	—	—	157.0	942.0
Petroleum coke	—	—	52.2	314.5	—	—	—	—	—	—	52.2	314.5
Total	959.5	5,331.3	537.7	3,196.3	3,011.2	16,159.5	407.1	2,543.1	22.9	124.7	4,938.4	27,354.9
Raw material:³	—	—	—	—	—	—	—	—	—	—	—	—
Special naphthas	—	—	29.8	156.4	—	—	—	—	—	—	29.8	156.4
Lubes ⁴ and waxes	—	—	33.7	201.6	20.9	126.8	—	—	—	—	54.6	328.4
Petroleum coke ⁵	—	—	27.7	166.9	—	—	—	—	—	—	27.7	166.9
Asphalt and road oil	167.0	1,108.2	—	—	—	—	—	—	—	—	167.0	1,108.2
Petrochemical feedstock offtake:	—	—	—	—	—	—	—	—	—	—	—	—
Liquefied refinery gas ⁶	—	—	32.2	116.6	—	—	—	—	—	—	32.2	116.6
Liquefied petroleum gas ^{6,7}	—	—	177.5	642.9	—	—	—	—	—	—	177.5	642.9
Naphtha (-400 degrees)	—	—	56.8	298.1	—	—	—	—	—	—	56.8	298.1
Still gas	—	—	16.2	97.2	—	—	—	—	—	—	16.2	97.2
Miscellaneous (+400 degrees)	—	—	37.5	218.4	—	—	—	—	—	—	37.5	218.4
Total	167.0	1,108.2	411.4	1,898.1	20.9	126.8	—	—	—	—	599.3	3,133.1
Miscellaneous and unaccounted for	—	—	—	—	—	—	—	—	14.9	82.0	14.9	82.0
Total domestic product demand	1,126.5	6,439.5	949.1	5,094.4	3,032.1	16,286.3	407.1	2,543.1	37.8	206.7	5,552.6	30,570.0

- 1 Includes liquefied refinery gas and natural gas liquids.
- 2 Includes bunkers and military transportation.
- 3 Includes some fuel and power used by raw materials industries.
- 4 Lubricants are distributed on basis of data from Bureau of the Census survey.
- 5 Includes portions of petroleum coke estimated to be consumed in nonfuel uses.
- 6 Includes ethane.
- 7 Includes LP gas for synthetic rubber.

Source: Division of Fossil Fuels, Bureau of Mines, U.S. Department of the Interior, News Release, March 10, 1973

Table III-12. Petroleum Consumption by Major Products¹ and by Major Consuming Sectors, 1972 (Preliminary)

	Household and Commercial		Industrial		Transportation ²		Electricity Generation, Utilities		Miscellaneous and Unaccounted for		Total Domestic Product Demand	
	Million bb1	Trillion Btu	Million bb1	Trillion Btu	Million bb1	Trillion Btu	Million bb1	Trillion Btu	Million bb1	Trillion Btu	Million bb1	Trillion Btu
Fuel and power:	206.3	827.5	31.0	124.3	33.0	132.4	—	—	5.0	20.0	275.3	1,104.2
Liquefied gases	—	—	—	—	—	—	—	—	—	—	—	—
Jet fuels:	—	—	—	—	89.2	468.1	—	—	—	—	89.2	468.1
Naphtha type	—	—	—	—	294.2	1,668.1	—	—	—	—	294.2	1,668.1
Kerosine type	—	—	—	—	383.4	2,136.2	—	—	—	—	383.4	2,136.2
Total	—	—	—	—	2,344.6	12,304.5	—	—	—	—	2,344.6	12,304.5
Gasoline	62.5	354.4	21.5	121.9	—	—	—	—	—	—	84.0	476.3
Kerosine	554.5	3,230.0	117.0	681.5	312.0	1,817.4	68.0	396.1	3.5	20.4	1,055.0	6,145.4
Distillate fuel	178.3	1,121.0	182.0	1,144.2	112.5	707.3	447.0	2,810.3	3.0	18.8	922.8	5,801.6
Residual fuel	—	—	171.0	1,026.0	—	—	—	—	—	—	171.0	1,026.0
Still gas	—	—	55.7	335.5	—	—	—	—	—	—	55.7	335.5
Petroleum coke	—	—	—	—	—	—	—	—	—	—	—	—
Total	1,001.6	5,532.9	578.2	3,433.4	3,185.5	17,097.8	515.0	3,206.4	11.5	59.2	5,291.8	29,329.7
Raw material: ³	—	—	—	—	—	—	—	—	—	—	—	—
Special naphthas	—	—	33.2	174.2	—	—	—	—	—	—	33.2	174.2
Lubes ⁴ and waxes	—	—	35.8	214.2	22.0	133.4	—	—	—	—	57.8	347.6
Petroleum coke ⁵	—	—	30.5	183.7	—	—	—	—	—	—	30.5	183.7
Asphalt and road oil	174.2	1,156.0	—	—	—	—	—	—	—	—	174.2	1,156.0
Petrochemical feedstock offtake:	—	—	—	—	—	—	—	—	—	—	—	—
Liquefied refinery gas ⁶	—	—	37.4	135.4	—	—	—	—	—	—	37.4	135.4
Liquefied petroleum gas ^{6,7}	—	—	196.0	709.9	—	—	—	—	—	—	196.0	709.9
Naphtha (-400 degrees)	—	—	57.8	303.3	—	—	—	—	—	—	57.8	303.3
Still gas	—	—	14.5	87.0	—	—	—	—	—	—	14.5	87.0
Miscellaneous (+400 degrees)	—	—	51.9	302.3	—	—	—	—	—	—	51.9	302.3
Total	174.2	1,156.0	457.1	2,110.0	22.0	133.4	—	—	—	—	653.3	3,399.4
Miscellaneous and unaccounted for	—	—	—	—	—	—	—	—	15.0	82.6	15.0	82.6
Total domestic product demand	1,175.8	6,688.9	1,035.3	5,543.4	3,207.5	17,231.2	515.0	3,206.4	26.5	141.8	5,960.1	32,811.7

1 Includes liquefied refinery gas and natural gas liquids.

2 Includes bunkers and military transportation.

3 Includes some fuel and power used by raw materials industries.

4 Lubricants are distributed on basis of data from Bureau of the Census survey.

5 Includes portions of petroleum coke estimated to be consumed in nonfuel uses.

Year	Coal ¹			Petroleum ²		Natural gas ³		Total fossil fuels	Utility electricity purchased		Total energy input	% of Total U.S. Energy Consumption
	Thousand short tons	Trillion Btu	Million barrels	Trillion Btu	Million cubic feet	Trillion Btu	Trillion Btu	Billion kilowatt-hours	Trillion Btu	Trillion Btu		
											Trillion Btu	
1947	113,324	3,030	1,050.3	5,761	Neg	—	8,791	8	29	8,820	26.7	
1948	98,295	2,624	1,126.6	6,157	Neg	—	8,781	8	27	8,808	26.0	
1949	70,915	1,892	1,137.8	6,183	Neg	—	8,075	7	25	8,100	25.7	
1950	63,783	1,701	1,248.8	6,785	125,546	130	8,616	7	24	8,640	25.4	
1951	56,903	1,525	1,377.5	7,482	192,496	199	9,206	7	23	9,229	25.1	
1952	40,428	1,086	1,451.3	7,868	207,207	214	9,168	6	22	9,190	25.2	
1953	30,074	809	1,511.5	8,158	230,314	238	9,205	6	20	9,225	24.5	
1954	19,060	516	1,551.4	8,358	230,615	239	9,113	6	18	9,131	25.2	
1955	17,429	464	1,691.4	9,109	245,246	253	9,826	6	19	9,845	24.8	
1956	14,187	378	1,756.2	9,448	295,972	306	10,132	5	17	10,149	24.3	
1957	10,126	270	1,832.0	9,649	299,235	310	10,229	4	15	10,244	24.6	
1958	5,015	133	1,825.1	9,819	312,221	323	10,275	5	16	10,291	24.7	
1959	3,861	102	1,849.4	9,923	349,348	362	10,387	5	17	10,404	24.1	
1960	3,294	87	1,934.1	10,372	347,075	359	10,818	5	18	10,836	24.3	
1961	770	21	1,971.9	10,575	377,607	390	10,986	6	19	11,005	24.3	
1962	687	18	2,051.3	11,001	382,496	396	11,415	5	18	11,433	24.1	
1963	670	18	2,146.7	11,506	423,783	438	11,962	6	19	11,981	24.3	
1964	711	19	2,198.9	11,791	435,570	451	12,261	6	20	12,281	24.0	
1965	655	18	2,271.9	12,179	500,524	517	12,714	5	18	12,732	23.9	
1966	609	16	2,382.6	12,777	535,353	552	13,345	5	16	13,361	23.7	
1967	467	13	2,497.1	13,408	575,752	594	14,015	5	17	14,032	24.1	
1968	417	11	2,703.8	14,535	590,965	610	15,156	5	18	15,174	24.6	
1969	313	8	2,815.8	15,125	630,962	651	15,784	5	17	15,801	24.3	
1970	298	8	2,902.8	15,592	722,166	745	16,345	5	16	16,361	24.3	
1971	207	6	3,032.0	16,286	742,592	766	17,058	5	17	17,075	24.8	
1972 ^P	200	6	3,208.0	17,231	775,000	799	18,036	5	18	18,054	25.0	

P Preliminary.

1 Includes anthracite, bituminous, and lignite coals.

2 Includes bunkers and military transportation.

3 Consumption of natural gas by pipelines

Source: U.S. Department of the Interior, *U.S. Energy to the Year 2000*, Dec., 1972 and News Release, March 10, 1973

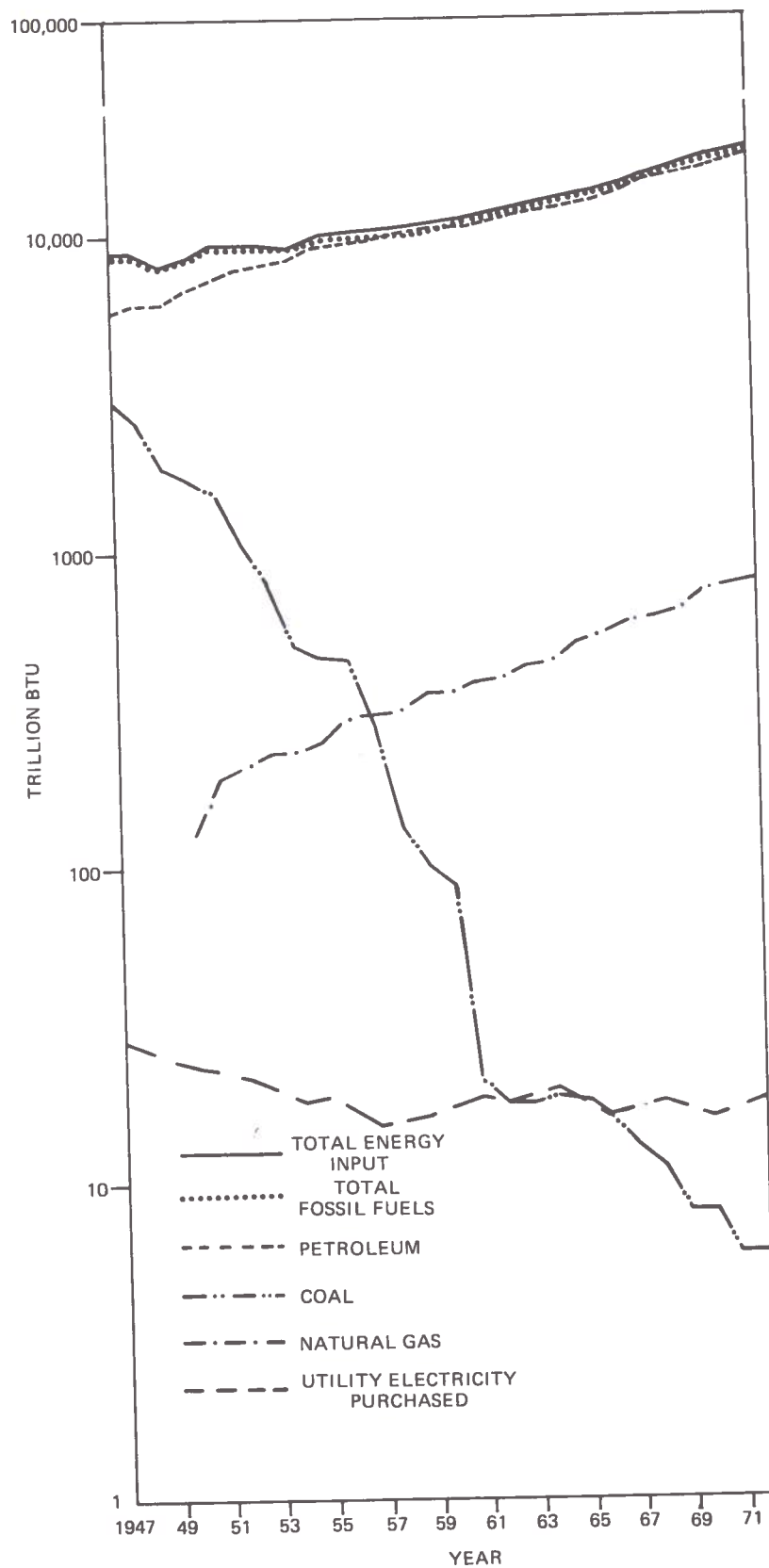


Figure 16. Energy Consumption: Transportation Sector

Table III-14. Domestic Supply and Demand for Petroleum¹, 1971 and 1972

	1971		1972 (Preliminary)		Percentage change from 1971
	Million bbl	Trillion Btu	Million bbl	Trillion Btu	
Supply:					
Crude oil: ²					
Production	3,453.9	19,321.6	3,462.1	19,630.8	+ 0.2
Exports	- 0.5	- 2.8	- 0.2	- 1.1	
Imports	613.4	3,431.4	798.2	4,480.1	+30.1
Stock change: withdrawals (+), additions (-)	16.7	93.4	17.7	- 99.3	
Losses, transfers for use as crude, and unaccounted for	4.3	24.0	- 7.1	- 39.8	
Total	4,087.8	22,867.6	4,270.7	23,970.7	+ 4.5
Petroleum input runs to stills:					
Crude oil ²	4,087.8	22,867.6	4,270.7	23,970.7	+ 4.5
Transfers in, natural gas liquids ³	284.9	1,267.9	308.3	1,372.0	+ 8.2
Other hydrocarbons	6.1	34.1	10.2	57.2	
Total	4,378.8	24,169.6	4,589.2	25,399.9	+ 4.8
Output:					
Refined products	4,378.8	24,169.6	4,589.2	25,399.9	+ 4.8
Unfinished oils, net	43.6	274.1	52.1	327.6	+19.5
Overage or loss	139.4	769.4	142.4	788.1	
Total	4,561.8	25,213.1	4,783.7	26,515.6	+ 4.9
Exports ⁴	- 81.3	- 466.1	- 79.7	- 456.9	- 2.0
Imports ⁴	819.5	4,974.2	916.8	5,564.7	+11.9
Stock change, including natural gas liquids	- 42.8	- 201.9	62.6	295.3	
Transfers in, natural gas liquids ^{3,5}	332.9	1,257.2	325.2	1,230.0	- 2.3
Losses, gains, and unaccounted for	- 37.5	- 206.5	- 48.5	- 337.0	
Total	5,552.6	30,570.0	5,960.1	32,811.7	+ 7.3
Demand by major consuming sectors:					
Fuel and Power:					
Household and commercial	959.5	5,331.3	1,001.6	5,532.9	+ 4.4
Industrial	537.7	3,196.3	578.2	3,433.4	+ 7.5
Transportation ⁶	3,011.2	16,159.5	3,185.5	17,097.8	+ 5.8
Electricity generation, utilities	407.1	2,543.1	515.0	3,206.4	+26.5
Other, not specified	22.9	124.7	11.5	59.2	-49.8
Total	4,938.4	27,354.9	5,291.8	29,329.7	+ 7.2
Raw Material:⁷					
Petrochemical feedstock offtake	320.2	1,373.2	357.6	1,537.9	+11.7
Other nonfuel use	279.1	1,759.9	295.7	1,861.5	+ 5.9
Total	599.3	3,133.1	653.3	3,399.4	+ 9.0
Miscellaneous and unaccounted for	14.9	82.0	15.0	82.6	+ .7
Total domestic product demand	5,552.6	30,570.0	5,960.1	32,811.7	+ 7.3

Supply and demand for crude oil and petroleum products. Petroleum products include products refined and processed from crude oil, including still gas and liquefied refinery gas; also natural gas liquids transferred from natural gas.
 Btu value for crude oil for each year shown is based on average British thermal unit value of total output of petroleum products (including refinery fuel and losses) adjusted to exclude natural gas liquids inputs and their implicitly derived values.
 Btu values for natural gas liquids for each year shown are implicitly derived from weighted averages of major natural gas liquids, with natural gasoline and cycle products converted at 110,000 Btu per gallon, liquefied petroleum gases at 95,500 Btu per gallon, and ethane at 73,390 Btu per gallon.
 Btu values for imported and exported refined products for each year shown are based on the average values of the respective products.
 Includes natural gas liquids other than those channeled into refinery input as follows: Petrochemical feedstocks, direct uses for fuel and power, and other uses.
 Includes bunkers and military transportation.
 Includes some fuel and power use by raw materials industries.

Source: Division of Fossil Fuels, Bureau of Mines, U.S. Department of the Interior, News Release, March 10, 1973

Table III-15. Domestic Supply and Demand for Natural Gas, 1971 and 1972

	1971			1972 (Preliminary)			Percentage change from 1971
	Million cubic feet	Trillion Btu	Million cubic feet	Trillion Btu	Million cubic feet	Trillion Btu	
Supply:							
Production ¹	22,493,012	24,805.0	22,910,000	25,284.0			+ 1.9
Imports	934,548	963.5	1,032,000	1,064.0			+10.4
Exports	- 80,212	- 82.7	- 80,000	- 82.5			- 0.3
Stock change; withdrawals (+), additions (-)	- 331,768	- 342.1	- 345,000	- 355.7			+ 3.0
Transfers out, extraction loss ²	- 883,127	-2,525.1	- 910,000	-2,602.0			+ 2.1
Losses, gains, and unaccounted for	-	-	-	-			
Total supply	22,132,453	22,818.6	22,607,000	23,307.8			
Demand by major consuming sectors:							
Fuel and Power:							
Household and commercial	7,144,389	7,365.9	7,400,000	7,629.4			+ 3.6
Industrial ³	9,603,790	9,901.5	9,740,000	10,041.9			+ 1.4
Transportation	742,592	765.6	775,000	799.0			+ 4.4
Electricity generation, utilities	3,992,983	4,116.8	4,032,000	4,157.0			+ 1.0
Total fuel and power	21,483,754	22,149.8	21,947,000	22,627.3			+ 2.2
Raw material: Industrial ⁴							
Carbon black	63,699	65.7	60,000	61.9			+ 5.8
Other chemicals ⁵	585,000	603.1	600,000	618.6			+ 2.3
Total raw materials	648,699	668.8	660,000	680.5			+ 1.7
Total demand	22,132,453	22,818.6	22,607,000	23,307.8			+ 2.1

- 1 Marketed production includes wet gas sold or consumed by producers, losses in transmission, producers' additions, storage, and increases in gas pipeline fill; excludes repressuring and vented and wasted. British thermal unit value of production is for wet gas prior to extraction of natural gas liquids. Higher values assigned to extraction loss are reflected in value of production of natural gas liquids for each year.
- 2 Extraction loss from cycling plants represents offtake of natural gas for natural gas liquids as reported to Bureau of Mines. Values for extraction loss are based on annual outputs of natural gasoline and cycle products at 110,000 Btu per gallon, liquefied petroleum gases at 95,500 Btu per gallon, and ethane at 73,390 Btu per gallon.
- 3 Includes transmission losses and unaccounted for of 330,999 million cubic feet in 1971 and 310,000 million cubic feet in 1972.
- 4 Includes some fuel and power use by raw materials industries.
- 5 Estimated from partial data.

Table III-16. Domestic Supply and Demand for Coal 1971 and 1972

ANTHRACITE	1971		1972 (Preliminary)		Percentage change from 1971
	Thousand short tons	Trillion Btu	Thousand short tons	Trillion Btu	
Supply:					
Production ¹					
Exports ²	8,727.0	221.7	7,100.0	180.4	-18.6
Stock Change; withdrawals (+), additions (-)	- 1,389.0	- 35.3	- 1,247.0	- 31.7	-10.2
Losses, gains, and unaccounted for	-	-	-	-	-
Total supply	7,338.0	186.4	5,853.0	148.7	-20.2
Demand by major consuming sectors:³					
Household and commercial ⁴					
Industrial ⁵	3,850.0	97.8	3,300.0	83.8	-14.3
Electricity generation, utilities	1,842.0	46.8	1,333.0	33.9	-27.6
Total demand	1,646.0	41.8	1,220.0	31.0	-25.9
	7,338.0	186.4	5,853.0	148.7	-20.2
BITUMINOUS COAL AND LIGNITE					
Supply:					
Production ¹					
Exports	552,192.0	13,451.4	590,000.0	14,372.4	+ 6.8
Imports	111.0	2.8	200.0	5.3	+80.2
Stock change; withdrawals (+), additions (-)	-56,633.0	-1,534.5	-57,000.0	-1,514.3	+ 0.6
Losses, gains, and unaccounted for	2,553.0	61.3	-22,000.0	- 584.4	
Total supply	- 3,361.0	- 94.4	-	-	
	494,862.0	11,886.6	511,200.0	12,270.0	+ 3.3
Demand by major consuming sectors:					
Fuel and Power:					
Household and commercial ⁴					
Industrial ⁵	11,351.0	309.6	11,000.0	300.4	- 3.1
(Coal carbonized for coke) ⁶	152,747.0	4,166.9	157,341.0	4,296.3	+ 3.0
Transportation ⁷	(82,820.0)	(2,259.3)	(87,812.0)	(2,397.7)	(+ 6.0)
Electricity generation, utilities	207.0	5.6	200.0	5.5	(- 3.4)
Total fuel and power	326,280.0	7,287.8	338,000.0	7,549.6	+ 3.6
Material: Industrial ⁸	490,585.0	11,769.9	506,541.0	12,151.8	+ 3.3
Grade light oil					
Grade coal tar	1,008.0	27.5	1,065.0	29.1	+ 5.8
Total raw material	3,269.0	89.2	3,594.0	98.1	+10.0
	4,277.0	116.7	4,659.0	127.2	+ 9.0
Total demand	494,862.0	11,886.6	511,200.0	12,279.0	+ 3.3

¹ Includes use by producers for power and heat.

² Includes shipments to U.S. Armed Forces in West Germany.

³ With the exception of small quantities used as raw material for coal chemicals, all anthracite is used for fuel and power.

⁴ Includes "retail dealer deliveries to other consumers." These are mainly household and commercial users, with some unknown portion for use by all industries.

⁵ Includes consumption by coke plants, steel and rolling mills, and other industrial users.

⁶ Figures in parentheses are not added into totals.

⁷ Includes bunkers and military transportation.

⁸ Equivalent based on British thermal unit value of raw materials used for coal chemicals.

Source: Division of Fossil Fuels, Bureau of Mines, U.S. Department of the Interior, News Release, March 10, 1973

Item	Passenger vehicles						Cargo vehicles			
	Personal passenger vehicles			Buses			Single-unit trucks	Combinations	All trucks	All motor vehicles
	Passenger cars	Motorcycles	All personal passenger vehicles	Commercial	School	All buses					All passenger vehicles
Number of vehicles registered (thousands)	92,799	3,345	96,144	90.3	307.3	397.6	18,828	974	19,802	116,344
Average miles traveled per vehicle	10,121	4,500	9,926	31,949	7,198	12,819	9,794	43,779	11,465	10,198
Fuel consumed (million gallons)	69,213	301	69,514	631	316	947	18,221	8,865	27,086	97,547
Average fuel consumption per vehicle (gallons)	746	90	723	6,988	1,028	2,382	968	9,102	1,368	838
Average miles traveled per gallon of fuel consumed	13.57	50.00	13.73	4.57	7.00	5.38	10.12	4.81	8.38	12.16

¹ For the 50 States and District of Columbia.

Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, 1971, Table VM-1*

Table III-19. Electrical Energy and Motor Fuel Consumed by the
Transit Industry of the United States
At Five Year Intervals 1940 - 1955 and Annually 1955 - 1972

Calendar Year	Kilowatt Hours Consumed (In Millions)				Gallons of Motor Fuel Used (In Thousands)		
	Rapid Transit	Surface Railway	Trolley Coach	Total	Gasoline	Diesel Oil	Propane
1940	1,977	4,050	307	6,334	*	*	0
1945	1,966	4,547	520	7,033	510,000	11,800	0
1950	2,000	2,410	841	5,251	430,000 ^(a)	98,600	(a)
1955	1,900	910	720	3,530	246,000	172,600	30,300
1956	1,960	700	680	3,340	219,400	183,500	30,300
1957	1,980	560	600	3,140	198,400	190,000	34,200
1958	2,073	485	535	3,093	181,700	192,700	35,100
1959	2,067	431	464	2,962	167,800	196,600	36,600
1960	2,098	393	417	2,908	153,600	208,100	38,300
1961	2,108	362	381	2,851	125,900	217,500	35,700
1962	2,115	325	346	2,786	108,400	229,000	36,100
1963	2,125	255	262	2,642	102,500	235,300	35,900
1964	2,171	222	204	2,597	95,900	242,200	33,400
1965	2,185	218	181	2,584	91,500	248,400	32,700
1966	2,075	226	166	2,467	76,000	256,000	33,600
1967	2,194	180	157	2,531	57,800	270,300	33,000
1968	2,250	179	157	2,586	45,700	274,200	32,200
1969	2,291	173	154	2,618	40,000	273,800	31,600
1970	2,261	157	143	2,561	37,200	270,600	31,000
1971	2,262	153	141	2,556	29,400	256,800	26,500
1972 ^P	2,149	146	133	2,428	25,600	247,300	24,400

* Data not available

^P Preliminary

(a) Propane included with gasoline

Source: American Transit Association, *Transit Fact Book*, '72-'73

**TABLE III-20. Consumption of aviation gasoline by U.S. airlines
Scheduled plus Non-scheduled Service, 1960-1970
(000 gallons)**

Total certified route air carriers	Certificated route air carriers											International and territorial operations	
	Domestic operations											Total	Passenger/cargo carriers
	Passenger/cargo carriers												
	Total domestic operations	Total	Big Four	Other trunks	Local service	Helicopter	Intra-Alaska	Intra-Hawaii	All-cargo carriers	Total	Passenger/cargo carriers	All-cargo carriers	
1960	1,330,564	988,003	963,878	651,574	312,305	20,025	11	1,470	2,619	33	342,528	342,513	15
1961	2,072,591	1,514,457	1,503,856	1,475,536	394,009	23,677	55	1,576	3,012	10,601	558,135	556,095	2,040
1962	2,808,437	2,080,040	2,046,922	2,016,397	1,457,538	24,646	984	1,679	3,215	33,119	728,397	714,102	14,295
1963	3,290,513	2,375,557	2,342,101	2,310,013	1,665,901	24,298	1,819	1,825	4,145	33,456	914,956	896,203	18,753
1964	3,829,510	2,759,529	2,722,315	2,679,016	1,903,627	33,341	2,474	2,185	5,299	37,214	1,069,982	1,043,699	26,283
1965	4,650,340	3,420,095	3,367,915	3,305,661	2,317,962	51,267	3,142	2,367	5,478	52,180	1,230,245	1,194,765	35,480
1966	5,669,485	4,079,711	3,993,205	3,856,317	2,622,880	117,041	3,983	2,696	13,168	86,506	1,589,774	1,529,713	60,061
1967	7,522,739 ¹	5,422,095 ¹	5,324,794 ¹	5,054,561	3,447,674	241,997	4,597	3,623	20,016	97,301	2,100,644	1,983,292	117,352
1968	8,980,577 ¹	6,561,655 ¹	6,454,803 ¹	6,012,886	4,044,156	407,860	4,036	5,702	24,319	106,852	2,418,922	2,267,156	151,766
1969	10,112,684 ¹	7,534,865 ¹	7,441,547 ¹	6,856,018	4,524,675	542,277	2,707	9,747	30,799	93,318	2,577,819	2,354,729	223,090
1969*	10,112,553 ¹	7,978,471 ¹	7,885,153 ¹	7,271,930	4,689,640	542,277	2,707	9,615	30,799	93,318	2,134,082	1,910,992	223,090
1970*	10,084,693 ¹	7,842,744 ¹	7,782,536 ¹	7,105,591	4,740,271	608,617	1,560	8,803	29,890	60,208	2,241,949	2,013,883	228,066

Note: Individual figures may not add to totals because of rounding.

¹Data for other carrier (Aspen) which commenced scheduled operations June 22, 1967 and (Alaska) from January 1, 1970 are included.

* Compiled on a 50-state basis

Sources: C.A.B., *Handbook of Airline Statistics*, 1971, p 67

Table III-21. Consumption of Aviation Gasoline by the Certified Route Air Carriers,
Scheduled Plus Non-scheduled Service, 1960-1970
(000 gallons)

	Certificated route air carriers													
	Total certified route air carriers	Domestic Operations										International and territorial operations		
		Total domestic operations	Passenger/cargo carriers							All-cargo carriers	Total	Passenger/cargo carriers	All-cargo carriers	
			Total	Big Four	Other trunks	Local service	Helicopter	Intra-Alaska	Intra-Hawaii					
1960	1,189,192	966,201	922,480	842,324	576,948	265,376	68,007	2,258	3,850	5,881	43,721	222,991	204,526	18,465
1961	950,668	798,338	752,078	662,402	451,724	210,677	79,359	2,414	4,090	3,560	46,260	152,330	128,394	23,936
1962	737,896	633,344	583,398	478,230	336,293	141,937	95,291	1,234	4,804	3,537	49,945	104,552	90,598	13,954
1963	651,150	581,620	554,177	434,544	311,927	122,617	109,538	420	5,485	4,090	27,443	69,530	61,275	8,255
1964	589,497	537,790	506,916	377,925	254,393	123,532	117,865	338	5,775	5,014	30,873	51,707	46,010	5,697
1965	518,684	468,739	448,022	311,511	206,906	104,606	124,985	261	5,394	5,870	20,718	49,944	41,114	8,831
1966	397,558	342,501	331,869	209,118	129,845	79,274	114,882	176	5,261	2,432	10,632	55,067	31,258	23,799
1967	267,634 ¹	232,412 ¹	223,355 ¹	141,597	86,118	55,479	76,691	88	4,918	—	9,057	35,222	17,900	17,321
1968	127,873 ¹	115,293 ¹	113,234 ¹	68,617	52,474	16,143	41,641	91	2,628	—	2,059	12,580	8,840	3,740
1969	32,566 ¹	29,831 ¹	26,324 ¹	5,785	2,644	3,141	19,059	39	948	—	3,507	2,735	907	1,828
1969*	32,697 ¹	30,777 ¹	27,270 ¹	5,785	2,644	3,141	19,059	39	1,079	—	3,507	1,920	92	1,828
1970*	14,479 ¹	13,849 ¹	13,839 ¹	1,312	277	1,035	9,509	70	2,036	—	10	630	—	630

Note: Individual figures may not add to totals because of rounding.

¹Data for other carrier (Aspen) which commenced scheduled operations June 22, 1967 and (Alaska) from January 1, 1970 are included.

* Compiled on a 50-state basis

Source: C.A.B., *Handbook of Airline Statistics*, 1971, p 66.

Table III-22. Energy Intensity of the Certificated Route All Carriers, Scheduled Plus Non-scheduled Service, 1951-1970

(British Thermal Units per Overall Revenue Ton-mile)

Total certified route air carriers	Certificated route air carriers											International and territorial operations			
	Total domestic operations	Domestic operations							Passenger/cargo carriers				All-cargo carriers	Passenger/cargo carriers	All-cargo carriers
		Total	Domestic trunk		Other trunks		Local service	Helicopter	Intra-Alaska	Intra-Hawaii	Total	Passenger/cargo carriers			
			Big Four	Other	Big Four	Other									
1951	47,528	49,565	47,845	45,699	53,474	106,807	444,000	70,686	63,017	21,397	53,929	54,411	23,516	1951	
1952	49,043	50,629	49,115	48,094	51,996	101,969	462,000	76,621	63,921	22,213	52,017	52,716	23,670	1952	
1953	49,608	50,930	49,409	48,107	53,152	103,979	568,000	73,109	66,767	22,855	40,229	50,063	22,577	1953	
1954	49,929	50,941	49,677	48,174	54,111	93,667	515,000	65,630	63,164	21,745	48,572	49,461	23,839	1954	
1955	49,000	50,355	49,313	48,046	53,119	88,297	650,000	49,460	55,752	22,066	46,579	48,018	16,793	1955	
1956	49,517	51,298	50,340	48,459	56,077	89,042	407,000	40,614	55,140	23,605	43,478	46,511	20,494	1956	
1957	50,347	55,476	54,551	51,739	62,174	86,266	386,000	52,278	54,883	20,199	45,116	46,051	32,088	1957	
1958	51,688	56,348	55,449	52,385	63,102	83,783	346,000	57,286	48,835	21,825	46,171	46,669	38,081	1958	
1959	54,250	60,147	59,106	56,856	64,402	88,555	298,000	61,810	58,840	20,979	45,335	45,642	39,534	1959	
1960	65,338	71,396	70,642	68,743	75,049	92,479	270,000	63,972	61,560	21,905	57,394	58,941	31,606	1960	
1961	73,894	82,432	82,090	81,203	84,437	92,091	318,000	61,129	68,048	24,395	63,113	66,880	24,550	1961	
1962	75,562	81,059	88,002	88,038	89,291	89,467	316,000	61,600	69,657	22,695	61,180	66,503	20,699	1962	
1963	76,617	81,429	85,886	86,004	83,907	85,570	224,000	56,660	75,976	23,151	65,158	69,337	20,584	1963	
1964	73,687	82,772	82,963	82,886	83,147	80,316	222,000	56,744	75,976	22,488	62,479	65,816	22,758	1964	
1965	69,998	76,805	80,993	81,345	80,506	80,232	232,000	53,844	72,974	20,533	55,221	58,261	22,326	1965	
1966	65,516	73,700	77,419	77,191	74,793	81,280	232,000	53,302	89,631	23,444	50,491	54,178	22,027	1966	
1967	66,884	76,237	78,915	78,045	77,703	95,514	210,000	56,104	97,106	27,465	50,508	52,800	30,597	1967	
1968	67,812	78,544	80,744	79,478	79,300	101,516	223,000	55,132	114,668	29,711	49,322	51,378	31,086	1968	
1969	68,500	77,526	78,990	77,680	76,755	108,833	218,000	58,589	128,484	27,464	47,687	52,086	27,757	1969	
1970	67,532	76,416	76,211	75,318	78,064	97,883	187,000	55,341	101,218	26,967	47,988	52,426	27,490	1970	

Values calculated from the following formula:

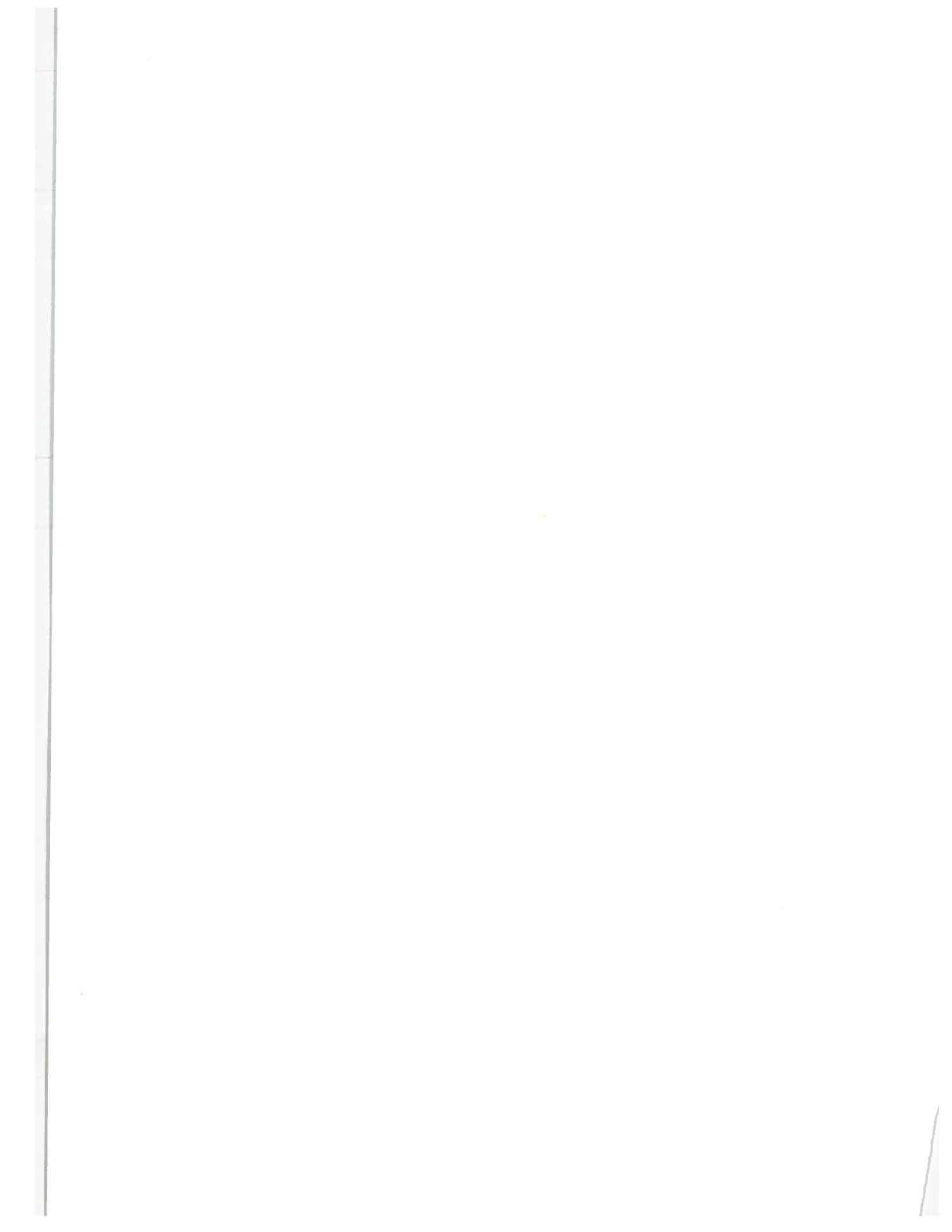
$$B = (aX + bY)/Z$$

where B is BTU per overall revenue ton-mile,
 X is aviation gasoline in gallons,
 Y is jet fuel in gallons,
 Z is overall revenue ton-miles,
 a = 125,000 BTU/gallon,
 b = 135,000 BTU/gallon.

Sources: Ton-miles, aviation gasoline, jet fuel data from CAB, *Handbook of Airline Statistics*, 1971, pages 12, 66, 67 respectively.

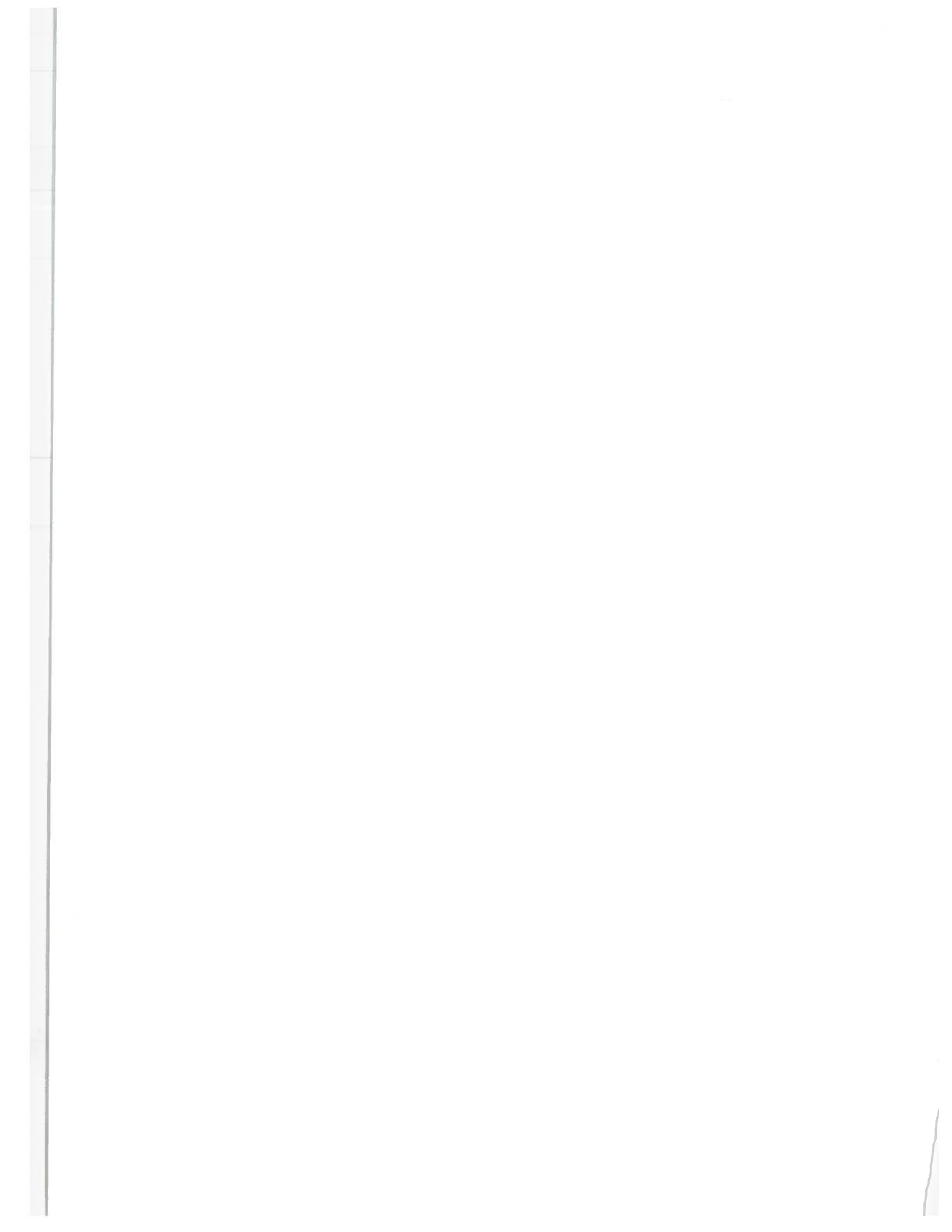
Constants a and b from American Petroleum Institute, *Petroleum Facts and Figures*, 1971, page 589.

Note: One BTU is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at or near 35.2° F. Overall revenue ton-miles include freight, mail, express, excess baggage, and passenger ton-miles.



APPENDIX A

**Definitions of Natural Gas and Crude Oil; Natural Gas and Crude Oil Reserves;
Natural Gas and Crude Oil Production**



APPENDIX A

Definitions of Natural Gas and Crude Oil; Natural Gas and Crude Oil Reserves; Natural Gas and Crude Oil Production

NATURAL GAS

Natural gas is a mixture of hydrocarbons and varying quantities of nonhydrocarbons that exists either in the gaseous phase or in solution with crude oil in natural underground reservoirs. Natural gas may be subclassified as follows:

Associated Gas — Natural gas, commonly known as gas-cap gas, which overlies and is in contact with crude oil in the reservoir.*

Dissolved Gas — Natural gas which is in solution with crude oil in the reservoir.

Nonassociated Gas — Natural gas which is in reservoirs that do not contain significant quantities of crude oil.

Dissolved gas and associated gas may be produced concurrently from the same well bore. In such situations, it is not feasible to measure the production of dissolved gas and associated gas separately; therefore, production is reported under the heading of associated-dissolved or casinghead gas. Reserves and productive capacity estimates for associated and dissolved gas are also reported as totals for associated-dissolved gas combined.

For statistical purposes, all natural gas volumes are reported in cubic feet on a pressure base of 14.73 psia, at 60° F.

NATURAL GAS - PROVED RESERVES

Proved reserves of natural gas as of December 31 of any given year are the estimated quantities of natural gas which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known natural oil and gas reservoirs under existing economic and operating conditions.

Reservoirs are considered proved if economic producibility is supported by either actual production or conclusive formation tests. The area of a reservoir considered proved includes: (1) that portion delineated by drilling and defined by gas-oil, gas-water, or oil-water contacts; and (2) the adjoining portions not yet drilled but which can be reasonably judged as economically productive on the basis of available geological and engineering data. In the absence of information on fluid contacts, the lowest known structural occurrence of hydrocarbons controls the lower proved limit of the reservoir.

Reserve estimates are prepared for total recoverable natural gas, nonassociated gas, and associated-dissolved gas. Estimates do not include (1) gaseous equivalents of natural gas liquids expected to be recovered from reservoir natural gas as it is produced; (2) natural gas being held in underground storage; or (3) nonhydrocarbon gases.

Classifications of reservoirs by regulatory agencies are used as the basis for dividing total reserves between nonassociated and associated-dissolved reserves. In the absence of classification by a regulatory agency, allocations are based on the natural occurrence of the gaseous hydrocarbons in reservoirs as determined by the operator.

*Where reservoir conditions are such that the production of associated gas does not substantially affect the recovery of crude oil in the reservoir, such gas may be reclassified as nonassociated gas by a regulatory agency. In this event, reserves and production are reported in accordance with the classification used by the regulatory agency.

NATURAL GAS - PRODUCTION

Statistics pertaining to natural gas production represent volumes of gas produced from natural oil and gas reservoirs during given periods of time with adjustments (where applicable) to reflect (1) the volume of gas returned to natural reservoirs, and (2) the reduction of volume resulting from the removal of natural gas liquids and nonhydrocarbon gases. The volume of natural gas withdrawn from underground storage facilities is not included in natural gas production statistics.

CRUDE OIL

Crude oil is technically defined as a mixture of hydrocarbons that existed in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. For statistical purposes, volumes reported as crude oil include:

1. Liquids technically defined as crude oil;
2. Small amounts of hydrocarbons that existed in the gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators; and
3. Small amounts of nonhydrocarbons produced with the oil.

Statistical data pertaining to crude oil production, reserves, and productive capacity are reported as liquid equivalents at the surface (excluding basic sediment and water) measured in terms of barrels of 42 U.S. gallons at atmospheric pressure, and corrected to 60° F.

Estimates of proved crude oil reserves do not include the following: (1) oil that may become available from known reservoirs but is reported separately as "indicated additional reserves"; (2) natural gas liquids; (3) oil the recovery of which is subject to reasonable doubt because of uncertainty as to geology, reservoir characteristics, or economic factors; (4) oil that may occur in untested prospects; and (5) oil that may be recovered from oil shales, coal, gilsonite, etc.

CRUDE OIL - INDICATED ADDITIONAL RESERVES

With the present state of industry technology, certain quantities of crude oil (other than those defined and reported as proved reserves) may be economically recoverable from the following potential sources:

Known productive reservoirs in existing fields expected to respond to improved recovery techniques such as fluid injection where (a) an improved recovery technique has been installed but its effect cannot yet be fully evaluated; or (b) an improved technique has not been installed but knowledge of reservoir characteristics and the results of a known technique installed in a similar situation are available for use in estimating procedure.

Crude oil potentially available from these sources is reported as "indicated additional reserves." The economic recoverability of these reserves is not considered to be established with sufficient conclusiveness to allow them to be included in proved reserves; however, if and when improved recovery techniques are successfully applied to known reservoirs, the corresponding indicated additional reserves will be reclassified and added to the inventory of "proved" reserves.

CRUDE OIL - PROVED RESERVES

Proved reserves of crude oil as of December 31 of any given year are the estimated quantities of all liquids statistically reported as crude oil, which geological and engineering data demonstrate with reasonable certainty to be recoverable in the future from known reservoirs under existing economic and operating conditions.

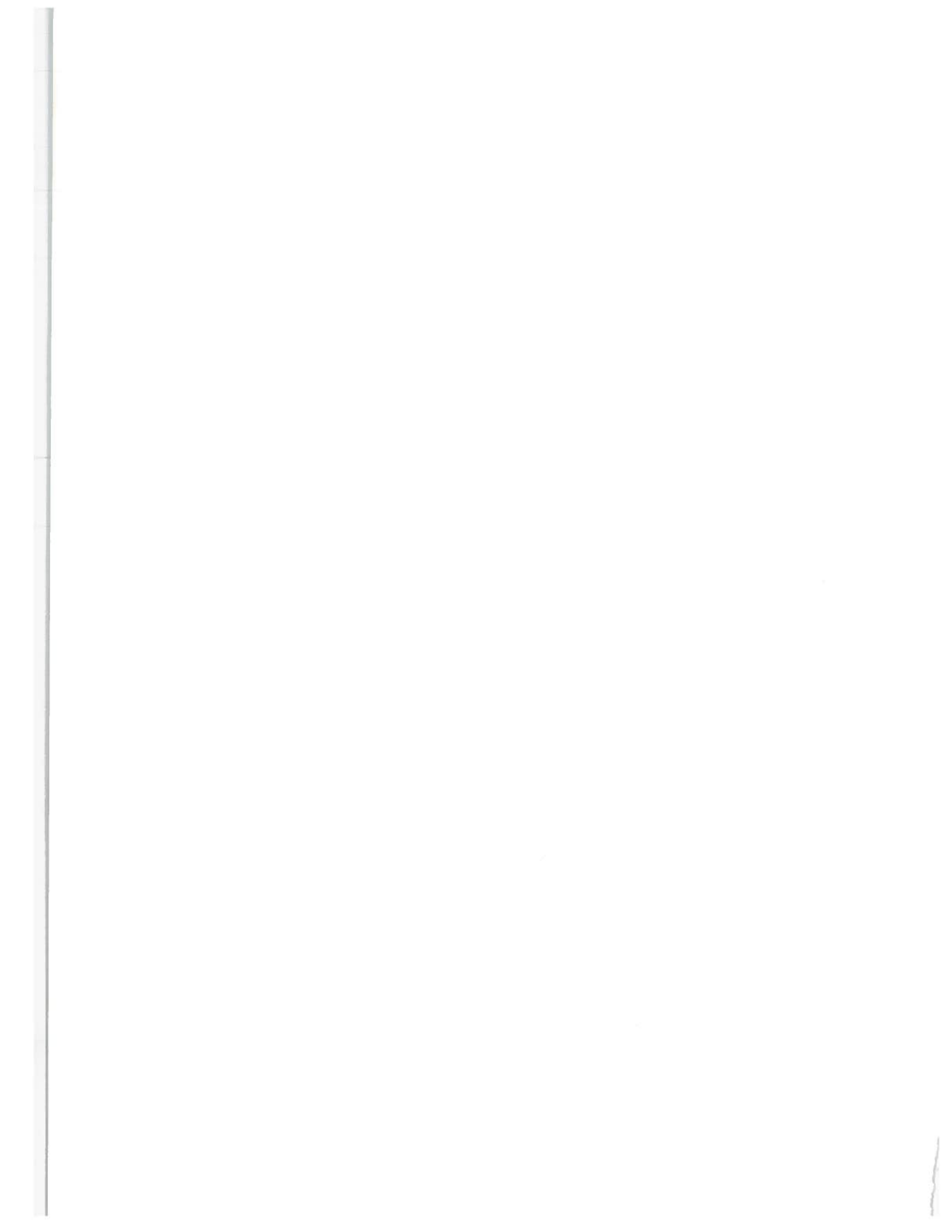
Reservoirs are considered proved if economic producibility is supported by either actual production or conclusive formation tests. The area of an oil reservoir considered proved includes: (1) that portion delineated by drilling and defined by gas-oil or oil-water contacts, if any; and (2) the immediately adjoining portions not yet drilled but which can be reasonably judged as economically productive on the basis of available geological and engineering data. In the absence of information on fluid contacts, the lowest known structural occurrence of hydrocarbons controls the lower proved limit of the reservoir.

Reserves of crude oil which can be produced economically through application of improved recovery techniques such as fluid injection are included in the "proved" classification if successful testing by a pilot project, or the operation of an installed program in the reservoir, provide support for the engineering analysis on which the project or program was based.

CRUDE OIL - PRODUCTION

Crude oil production is the volume of liquids statistically reported as crude oil, which is produced from oil reservoirs during given periods of time. The amount of such production for a given period is generally established by measurement of volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BS&W).

Source: American Petroleum Institute, *Standard Definitions for Petroleum Statistics*, July 1, 1969



APPENDIX B

**New Definitions of Refinery Operable Capacity as Announced by the
American Petroleum Institute, July 12, 1973**



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Under the old definitions, developed more than 25 years ago and used by both the Bureau of Mines and API, refinery capacity was determined by the amount of crude oil which could be processed in crude distillation units. The new definitions state that in addition to crude oil, other liquid hydrocarbons which are processed in crude distillation units must also be counted as input when figuring the utilization of refinery capacity.

A key provision of the new definitions reads as follows:

“For statistical reporting related to the utilization of operable refinery capacity, input to crude oil processing units includes all crude oil run through crude oil distillation units, and crude oil charged to other processing units. In addition to crude oil, such input includes lease condensate, natural gas plant liquids, unfinished oils, and other liquid hydrocarbons (such as shale oil, tar sands oils, gilsonite, etc.) that are processed through crude oil distillation units.”

The definition continues:

“Any oils not specifically identified above, and components blended by mechanical means to finished products, are not classified as input to crude oil processing units.”

Another key provision deals with environmental constraints:

“Operable capacity is limited by the environmental constraints expected to be applicable to refinery operations.” Thus, if a refinery has a potential capacity of 100,000 barrels a day, but in order to be in compliance with local environmental regulations can process no more than 95,000 bpd, its operable capacity would be rated as 95,000 bpd.

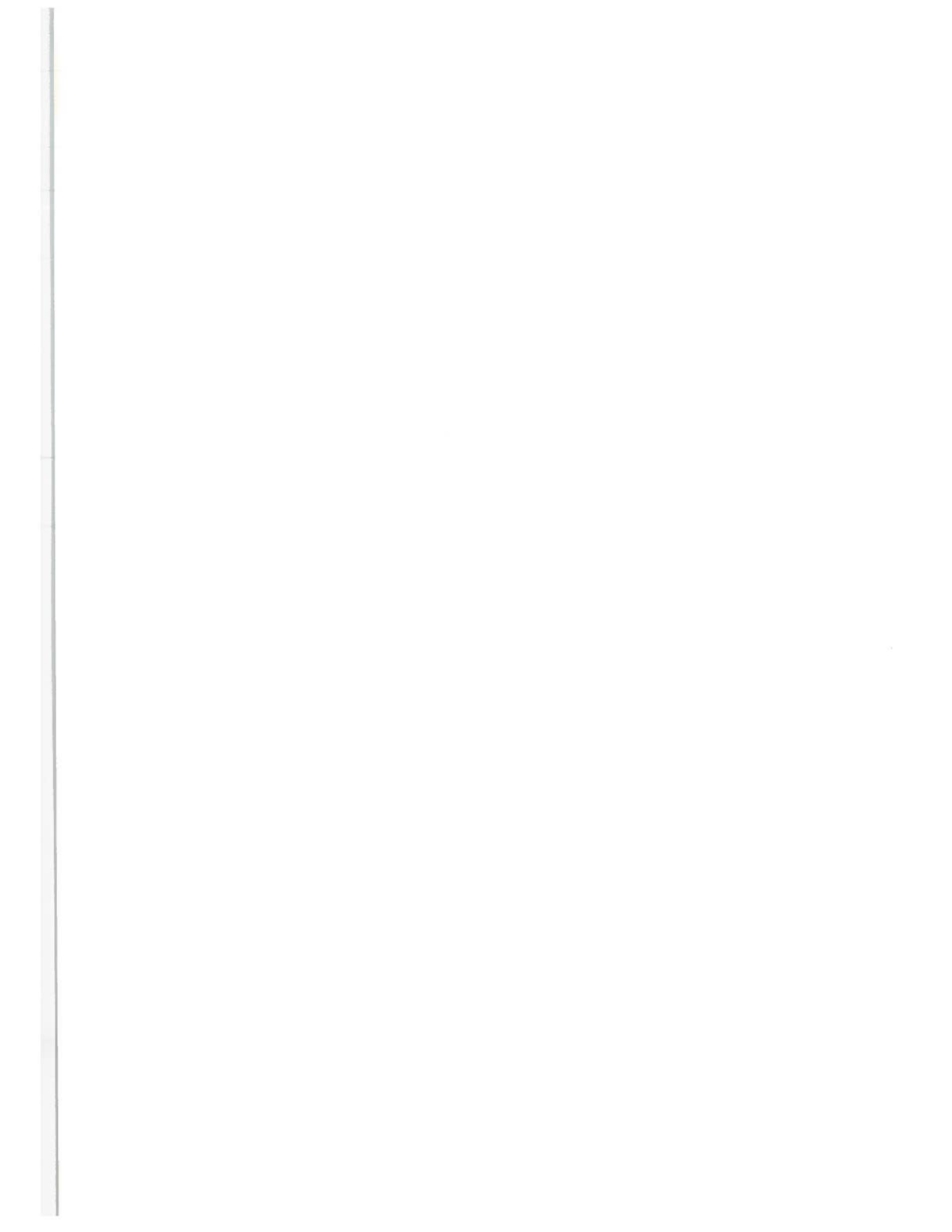
The new definition of operable capacity includes (a) capacity that is in operation; (b) capacity not in operation or not under active repairs but capable of being placed in operation within approximately 30 days; and (c) capacity not in operation but under active repairs which can be completed within approximately 90 days.

Source: American Petroleum Institute, *News Release*, July 12, 1973



APPENDIX C

Automobile Operating Costs - Bases for Estimates in Tables III-1, III-2, and III-3



APPENDIX C

Automobile Operating Costs - Bases for Estimates in Tables III-1, III-2, and III-3

Item	Standard Size Automobile	Compact Size Automobile	Subcompact Size Automobile
Automobile Description	1972 model 4-door sedan Equipped with: V-8 engine, automatic transmission, power steering and brakes, air conditioning, tinted glass, radio, clock, whitewall tires, and body protective molding.	1972 model 2-door sedan Equipped with: 6-cylinder engine, automatic transmission, power steering, radio, and body protective molding.	1972 model 2-door sedan Equipped with: standard equipment plus radio and body protective molding.
Repairs and Maintenance	Includes routine maintenance such as lubrications, repacking wheel bearings, flushing cooling system, and aiming headlamps, replacement of minor parts such as spark plugs, fan belts, radiator hoses, distributor cap, fuel filter, and pollution control filters; minor repairs such as brake jobs, water pump, carburetor overhaul and universal joints; and major repairs such as a complete "valve job."		
Replacement Tires	Purchase of 7 new regular tires and 4 new snow tires during the lives of the cars was assumed.		
Accessories	Purchase of floor mats the first year, seat covers the sixth year, and miscellaneous items totaling \$2.00 per year was assumed.		
Gasoline	Consumption rate of 13.60 miles per gallon was used.	Consumption rate of 15.97 miles per gallon was used.	Consumption rate of 21.43 miles per gallon was used.
Oil	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 186 gallons of gasoline.	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 166 gallons of gasoline.	Consumption was associated with gasoline consumption at a rate of 1 gallon of oil for every 135 gallons of gasoline.
Insurance	Coverage includes \$50,000 combined public liability (\$15,000/\$30,000 bodily injury, and \$5,000 property damage), \$1,000 medical payments, uninsured motorist coverage, and full comprehensive coverage for the 10-year period. Deductible collision insurance was assumed for the first 5 years (\$100 deductible)		
Garaging, Parking, and Tolls	Includes monthly charges of \$10.00 for garage rental or indirect cost of the owners garaging facility; plus parking fee average of \$54.00 per year, and toll average of \$6.94 per year, both of which were assigned in proportion to annual travel.		
Taxes	Includes Federal excise taxes on tires (10 cents per pound), lubricating oil (6 cents per gallon), and gasoline (4 cents per gallon); plus the Maryland tax on gasoline (7 cents per gallon), titling tax (4 percent of retail price), and registration fee (\$20.00 for 3,700 pounds or less shipping weight, or \$30.00 for vehicles over 3,700 pounds).		

Source: Federal Highway Administration, *Cost of Operating an Automobile*, April 1972



APPENDIX D

Some Facts About Prudhoe Bay and the Trans-Alaska Pipeline



APPENDIX D

Some Facts About Prudhoe Bay and the Trans-Alaska Pipeline

Oil industry investment in North Slope exploration
and preliminary development, to date \$2 billion

Anticipated future investment \$3 billion

Estimated proved crude oil reserves at the end of 1972

Prudhoe Bay area	9.6 billion barrels
All Alaska	10.1 billion barrels
Total United States	36.3 billion barrels

Estimated proved natural gas reserves at the end of 1972

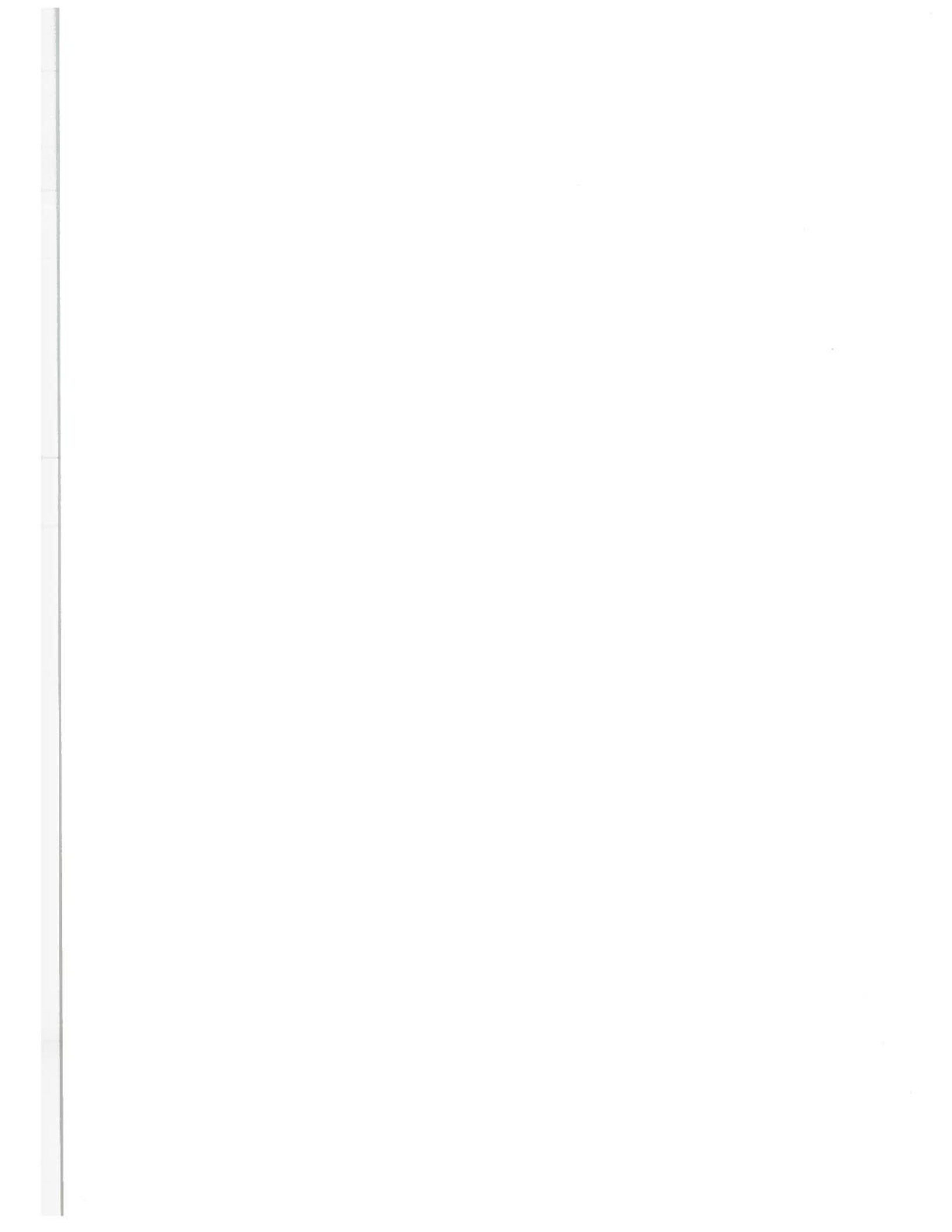
Prudhoe Bay area	25 trillion cu. ft.
All Alaska	31.5 trillion cu. ft.
Total United States	266.1 trillion cu. ft.

Characteristics of the proposed Trans-Alaska Pipeline System (T.A.P.S.)

- 789 miles long, running north and south between Prudhoe Bay and Valdez
- 4 feet in diameter
- In geological fault areas, the pipe is designed with flexibility to move 3 feet vertically and 20 feet horizontally without rupture. Can bend 6 feet in a 100-foot span without a wrinkle.
- Oil pressure would be regulated by a series of pump stations and temporary storage tanks.
- Power-operated, remote-control, cut-off valves would be spaced at 15-mile intervals.
- Estimated cost of construction is \$2.8 billion, or approximately \$3.5 million per mile.
- Approximate time of construction is 3 years.
- Expected initial oil flow is 600,000 barrels per day at 2 miles per hour.
- Anticipated peak oil flow is 2,000,000 barrels per day at 7 miles per hour.



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