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SHARES OF HEATING FUELS IN
SINGLE AND MULTI-FAMILY HOMES

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I. New One-Family Home Completions

In 1975, electric heat was for the second consecutive year the fuel most frequently installed in privately owned single-family homes on a nationwide basis. However, the same data from the Department of Commerce also show that the shares of heating fuels installed in one-family homes completed in 1975 remained at their 1974 levels. This lack of change marks a departure from the 1971-1974 trend of declining gas and increasing electric shares. In 1971, gas heat held 60% of the new one-family home market, electric heat was installed in 31% of the homes, and oil heat in 8%. By 1974, the gas share had fallen to 41%, the electric share had risen to 49%, and oil remained relatively stable at 9%. Thus, the 1975 figures are significant in that the gas decline and electric increase virtually halted. (See Table I, page 5.)

Last year's stability of nationwide shares, however, contrasts sharply with major shifts in some regions. In the North East, for instance, which has traditionally been the strongest oil heat market, the oil heat share jumped from 32% in 1974 to 41% in 1975. At this level, it replaced electricity as the most common heating fuel in new homes, and rose to its highest share of the new homes market since 1971. The increase in oil heat share in the North East is to some extent a reflection of increased availability. After the Arab oil embargo and shortages of gasoline in 1973-74, a "shortage psychology" became a factor in shying away from oil heat. However, as we continue to live

with the altered energy situation, the fear of a heating fuel shortage has been largely allayed. The national impact of oil heat's regional increase was softened by the relatively weak home building activity in the North East where home completions declined by 14% (from 1974) compared to 7% for the nation as a whole.

Gas and electric heat both declined in market share in the North East. The region's gas utilities, heavily dependent on interstate gas shipments, were hampered by both curtailments and regulations from seeking new customers. In New York, for instance, new hook-ups of natural gas were prohibited in 1975. The share of new single-family homes installing electric heat fell by 5 percentage points in 1975, probably in part a reflection of the widening price differential between electric and oil heat. (See the Appendix table for changes in heating fuel costs.)

The figures for the North Central region are similar to those of the nation as a whole. The gas share declined by 2 percentage points (compared to a 10 percentage point drop in the previous year) and the electric share rose by 2 percentage points (after an 11 percentage point increase in the year before). Regional installations of oil heat, however, fell by 2 percentage points, to their 1972 level, while "other" miscellaneous, fuels jumped from 1% to 4% of the market.

In the Department of Commerce definition, the South and West cover not only wide geographic areas, but include states which vary

markedly with respect to industrialization and availability of natural resources. For instance, Texas, Louisiana, and Oklahoma, all in the "South", produced 81% of the marketed natural gas in the U.S. in 1975. Since over 40% of U.S. gas production is distributed intrastate on a nationwide basis, these producing states have relatively more gas than the pipeline-dependent states in the North East or West. This intrastate gas, sold at unregulated prices, allowed the gas heat share to rise slightly in the South in 1975, while the electric heat and oil heat shares fell fractionally. Electric heat, however, still maintains a dominant share of 68% of the regional market, the highest of any region. One reason is that in large areas of the South -- the so-called Sunbelt, for instance -- the operating cost of a heating system is relatively low. Coupled with the low capital cost of electric heat installation, this factor makes electric heat an attractive alternative to gas or oil heat.

The West, which has little oil heat and has been gas-short, has turned increasingly to electric heat over the five years since 1971. While the majority of new single-family homes continued to install gas heat in 1975, the electric share of the new home market increased by nearly 18% from 1974. However, as gas is used less and less as a utility under-boiler or an industrial fuel, relatively more will be available for residential heating. In the Pacific Northwest, for instance, this shift has already started and gas utilities are once again allowed to promote gas heat.

It should be noted that the Department of Commerce data reflect numbers of homes heated by the various fuels, not the Btu value of fuel consumed. Since oil's strongest home heat markets are in colder regions, on a Btu basis oil supplies a much higher percentage of the new homes than its 9% of the national new one-family home share. The principal oil fuel used in these markets is No. 2 distillate fuel oil.

TABLE I

SHARES OF HEATING FUELS IN ONE-FAMILY
HOMES COMPLETED, BY REGION

		Number of Homes Completed (000)	Gas %	Electric %	Oil %	Other %
U.S.	1971	1,014	59.6	30.7	8.1	1.5
	1972	1,143	54.3	36.4	8.1	1.1
	1973	1,174	46.7	41.6	10.5	1.3
	1974	932	41.0	48.7	9.1	1.2
	1975	866	39.6	49.0	9.3	2.1
North East*	1971	134	41.8	25.4	31.1	1.6
	1972	149	36.7	29.5	32.4	1.4
	1973	155	33.6	28.7	35.0	2.8
	1974	131	29.1	38.6	31.5	.8
	1975	113	23.9	32.7	40.7	2.7
North Central*	1971	208	78.2	12.4	8.8	.5
	1972	231	73.6	16.4	9.5	.5
	1973	255	60.5	25.5	13.2	.8
	1974	217	51.4	35.6	11.5	1.4
	1975	215	48.8	38.1	9.3	3.7
South*	1971	467	48.5	44.6	4.6	2.3
	1972	524	42.4	51.9	4.2	1.4
	1973	514	32.7	59.2	6.6	1.4
	1974	394	27.5	67.0	4.2	1.3
	1975	358	29.1	65.9	3.9	1.1
West*	1971	204	77.9	21.1	.5	.5
	1972	239	72.4	26.3	.4	.9
	1973	251	69.5	28.9	.8	.8
	1974	190	65.4	33.0	.5	1.1
	1975	181	59.4	38.9	-	1.7

Note: Percentages may not add to 100 due to rounding.

*North East: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.
North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.
South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.
West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii.

II. New Multi-Family Housing Units Started

In addition to one-family home completions, we also examined Department of Commerce data on starts of buildings containing two or more housing units. In Table II (page 8) we report dwelling unit (apartment) data. A consideration in studying these data is change in the absolute numbers. While the relative positions of oil, gas, and electric heat in the market are instructive, one cannot ignore the fact that starts of units in multi-family buildings in 1975 were less than 30% of their 1973 level. (One-family housing completions in 1975 on the other hand, fell only to 74% of the 1973 level.)

Since 1973, the shifts in market shares of heating fuels in new multi-home buildings have been somewhat different from those in one-family home construction. While in both types of structure electricity was the most frequently installed fuel last year, it accounted for 60% in the multi-home constructions, as against 49% in the single-family homes. Furthermore, while electricity's share moved up slightly in the single-family structures, it dropped slightly in the multi-family structures. Gas heating showed an increase in the multi-family units but a decrease in the single-family units. The share of oil heat in the multi-home units, while much smaller (5%) than in the single-home (9%), rose substantially more in the former than in the latter. The principal oil used in these markets is residual fuel oil.

One possible explanation for these differences in trend and share is commercial builder preference for electric heat because it has the lowest capital cost in installation. The stability of the gas heat share in the face of declining supplies is probably the result of commitments that gas utilities made to builders before the most recent gas curtailments.

The relative stability of nationwide fuels shares was not reflected in regional data. Gas heat did decline in regions lacking intrastate supplies (i.e., everywhere but the South), and electric heat filled the gap in the two regions where oil is relatively unimportant as a heating fuel, the West and North Central areas. In the North East, however, oil increased its share markedly, while the electric heat share (as well as the gas share) declined. The factors discussed earlier with respect to lessening fears of inadequate oil supplies, high regional electric rates, and unavailability of gas apply once again. In the South, however, where the gas heat share remained nearly constant, oil also increased its share while the electric heat share fell. This could be due to rising electric rates as gas is replaced by more expensive fuels as an electric utility boiler fuel.

TABLE II

SHARES OF HEATING FUELS IN HOUSING UNITS
IN BUILDINGS WITH TWO OR MORE HOUSING
UNITS, BY REGION

		Number of Units Started	Gas	Electric	Oil	Other
		(000)	%	%	%	%
U.S.	1973	913.2	34.0	62.0	3.6	.3
	1974	449.7	32.3	62.4	3.5	1.8*
	1975	268.3	34.3	60.3	5.0	.4
North East	1973	122.0	31.2	50.3	18.1	.4
	1974	63.7	30.9	38.9*	19.4	10.8*
	1975	37.0	23.8	48.8	26.6	.8
North Central	1973	170.5	55.8	42.7	1.1	.3
	1974	92.0	47.4	51.6	.1	.9
	1975	72.4	47.5	51.5	.6	.4
South	1973	421.9	17.9	79.5	2.5	.1
	1974	185.6	15.3	82.8	1.8	.1
	1975	76.2	17.7	77.4	4.1	.8
West	1973	198.9	49.8	49.4	.1	.6
	1974	108.3	49.3	50.6	-	.1
	1975	82.6	42.6	57.4	-	-

*These data appear to be aberrant, at the source.

Note: Percentages may not add to 100 due to rounding.
Refer to Table I for definitions of regions.

III. Existing Housing Units

The shares of heating fuels in existing occupied housing units differ markedly from the annual heating fuel shares we have reported for new single-family and multi-family homes. The data compiled in the 1974 Annual Housing Survey, summarized in the table below, show that electricity has a relatively small share of the existing home heating market, while oil and gas both have substantially larger shares than the figures on new housing would indicate. These existing shares reflect electricity's relative infancy as a popular home heating fuel, oil's historic preeminence among major heating fuels, and gas' soaring growth between 1950 and 1970.

Table III

SHARES OF HEATING FUELS IN EXISTING HOUSING UNITS: 1974

	<u>Total Units*</u> (000)	<u>Gas</u> %	<u>Electricity</u> %	<u>Oil</u> %	<u>Other</u> %
U.S.	70,346	62.0	12.0	23.9	2.1
North East	16,278	37.3	4.4	56.6	1.7
North Central	18,983	76.6	5.5	16.6	1.3
South	22,317	60.0	20.5	16.0	3.5
West	12,769	75.3	16.3	7.0	1.4

*Year-round occupied housing units, excluding those with no heat (.7% of total).

Source: Departments of Commerce and Housing and Urban Development, March 1976.

See Table I for definitions of regions.

INDEX OF THE PRICE OF FUELS IN SELECTED
CITIES, JANUARY 1971-1976
(100=1971)

ELECTRICITY	(\$/500kwh/month) 100=	Indexes				
		1972	1973	1974	1975	1976
North East						
Boston	14.58	105	104	128	163	170
New York- N.E. New Jersey	17.42	106	118	164	210	213
North Central						
Chicago-N.W. Indiana	14.00	108	110	116	133	149
Minneapolis-St. Paul	12.27	109	113	116	152	169
South						
Atlanta	9.24	112	114	113	170	191
Houston	11.12	107	109	116	129	160
West						
Los Angeles-Long Beach	10.93	114	123	154	180	197
San Francisco-Oakland	10.11	114	115	133	146	153
		(\$/100 gals)				
HEATING OIL (No. 2)	100=					
North East						
Boston	19.76	104	105	166	203	215
New York- N.E. New Jersey	19.73	103	106	187	203	221
North Central						
Chicago-N.W. Indiana	18.14	102	103	175	187	219
Minneapolis-St. Paul	17.84	101	102	195	200	223
South						
Washington, D.C.	19.61	100	101	170	195	214
West						
Seattle	21.98	101	101	152	186	204
		(\$/100 Therms)				
GAS ^{for} (Residential Heating)	100=					
North East						
Boston	15.68	115	116	134	162	201
New York-N.E. New Jersey	13.63	115	122	138	168	221
North Central						
Chicago-N.W. Indiana	10.21	108	111	118	140	159
Minneapolis-St. Paul	9.13	109	118	123	148	158
South						
Atlanta	8.24	122	134	136	148	171
West						
San Francisco-Oakland						
Seattle						

Source: Derived