TENNESSEE ENERGY STATISTICS QUARTERLY

SECOND QUARTER 1982

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Second Quarter 1982

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PREFACE

The Tennessee Energy Statistics Quarterly, Second Quarter 1982 presents the most current energy statistics available which are specific to the State of Tennessee. In every instance possible, county-level energy data are also shown.

The report covers three substantive areas of the energy flow -- production, consumption, and pricing. The specific energy types for which data are included are coal, petroleum, natural gas and electricity.

The Tennessee Energy Statistics Quarterly has been developed by the Tennessee Energy Data Base Program to serve as a supplement to the Tennessee Energy Authority publication - The Tennessee Energy Profiles: 1960-1980. Historical data reported in this volume cover the production and utilization of major energy supplies by fuel type and economic sectors, as well as other energy data such as prices and fuel distribution. The Profiles volume is referenced in most major libraries in the State or may be obtained directly from the Tennessee Energy Authority.

EXECUTIVE SUMMARY

PRODUCTION

Coal

Tennessee coal production for the second quarter of 1982 was 2.0 million tons, a decrease from the second quarter of 1981 of 22 percent. Year to date production for the two quarters of 1982 was 4.1 million tons, a decrease from the first two quarters of 1981 of 20 percent.

Campbell County was Tennessee's largest coal producing county for the second quarter of 1982, accounting for 24 percent of the State's total production for that quarter.

Crude Oil

Tennessee crude production for the second quarter of 1982 was 307 thousand barrels, an increase over the second quarter of 1981 of 38 percent. Year to date production for the first two quarters of 1982 was 516 thousand barrels, an increase from the first two quarters of 1981 of 17 percent. The current increase in oil production over 1981 levels is particularly significant when it is noted that 1981 was a record year for Tennessee oil production.

Scott County was the State's largest oil producing county in the second quarter of 1982, accounting for 52 percent of the State's total production for that quarter.

Natural Gas

Tennessee natural gas production for the first quarter of 1982 (second quarter data are preliminary) was 729 million cubic feet, an increase over the first quarter of 1981 of 66 percent. As in the case of crude oil, this increase is particularly significant because 1981 was a record year for natural gas production in the State.

Morgan County was the State's largest natural gas producing county for the first quarter of 1982, accounting for 73 percent of the State's total natural gas production.

Electricity

Net generation of electricity at electric utility plants in Tennessee for the second quarter of 1982 was 13 billion kilowatt-hours, a decrease from the second quarter of 1981 of 10 percent. Year to date production for the first two quarters of 1982 was 28 billion kilowatthours, a decrease from the first two quarters of 1981 of two percent.

Conventional steam and gas turbine prime movers accounted for 61 percent of the electricity generated in Tennessee during the

second quarter of 1982. However, a significant trend in Tennessee electricity generation is the increase in electricity generated from nuclear power. In the second quarter of 1982, 3.6 billion kilowatthours of electricity were generated from nuclear power, an increase over the second quarter of 1981 of 156 percent. Nuclear power accounted for 28 percent of the electricity generated at Tennessee electric utility plants in the second quarter of 1982.

CONSUMPTION

Coal

Tennessee coal consumption for the first quarter of 1982 (complete second quarter data are not available) was 5.3 million tons, a decrease from coal consumption for the first quarter of 1981 of 14 percent.

TVA electric utility plants in Tennessee used 85 percent of the coal consumed in Tennessee during the first quarter of 1982.

Coal consumption at Tennessee electric utilities for the second quarter of 1982 was 3.3 million tons, a decrease from the second quarter of 1981 of 35 percent.

Motor Fuel

Total motor fuel consumption for the second quarter of 1982 was 747 million gallons, an increase over the second quarter of 1981 of four percent. Year to date motor fuel consumption for the first two quarters of 1982 was 1,369 million gallons, a decrease from the first two quarters of 1981 of 0.6 percent. It is important to note that 1981 motor fuel consumption was the lowest annual consumption in Tennessee since 1976.

Gasoline consumption accounted for 85 percent of the motor fuel consumption during the second quarter of 1982.

Natural Gas

Current natural gas quarterly consumption data are not presently available. The Authority, however, has initiated a system to collect these kinds of data. Statistics which are derived from this system will be reported in the next issue of the Quarterly.

Electricity

Tennessee electricity consumption for the second quarter of 1982 was 15.1 billion kilowatthours, a decrease from the second quarter of 1981 of five percent. Year to date consumption of electricity in Tennessee for the first two quarters of 1982 was 33.5 billion kilowatthours, a decrease of six percent from consumption for the first two quarters of 1981. It is important to note that 1981 electricity consumption was the lowest annual Tennessee consumption since 1975.

The industrial sector is the largest consuming sector of electricity in Tennessee, accounting for 59 percent of the total consumption for the second quarter of 1982.

PRICES

Coal

The cost of coal to electric utility plants in Tennessee for the first quarter of 1982 (second quarter data not available) was $42.20 per ton, an increase of 11 percent over the cost in the first quarter of 1981. The cost of coal to industrial users for the first quarter of 1982 was $40.54 per ton, an increase over the first quarter of 1981 of 13 percent.

Gasoline

The average price of full-service gasoline for the second quarter of 1982 was $1.39 per gallon, a decrease from prices during the second quarter of 1981 of two percent.

The average price for a gallon of unleaded gasoline during the second quarter of 1982 was $1.42 per gallon.

Natural Gas

Current natural gas quarterly price data are not presently available. The Authority, however, has initiated a system to collect these kinds of data. Statistics which are derived from this system will be reported in the next issue of the Quarterly.

Electricity

The average cost of electricity to Tennessee consumers for the second quarter of 1982 was $45.71 per thousand kilowatthours, a 13 percent increase over the cost for the second quarter of 1981.

As for the major consuming sectors, the cost of electricity to Tennessee industrial users was the lowest with an average cost of $44.24 per thousand kilowatthours. The residential sector had an average cost of $45.93 per thousand kilowatthours or 4.59¢ per kwh. The commercial sector had the highest average cost of $55.02 per thousand kwh.

Table 1

Tennessee Coal Production by County
(Thousand Tons)

	Anderson	Campbell	Scott	Other*	Total
1976 Total	1,951	1,740	1,056	4,716	9,463
1977 Total	2,070	2,437	1,311	4,266	10,084
1978 Total	2,112	2,383	879	4,459	9,833
1979 Total	2,195	2,073	1,479	3,930	9,677
1980 Total	2,203	1,959	1,537	4,001	9,700
1981 1st Qtr.	567	528	459	1,036	2,590
2nd Qtr.	504	625	442	958	2,529
3rd Qtr.	499	725	453	1,120	2,797
4th Qtr.	420	570	485	1,155	2,630
Total	1,990	2,448	1,839	4,269	10,546
1982 1st Qtr.	359	421	317	1,017	2,114
2nd Qtr.	336	469	211	945	1,961

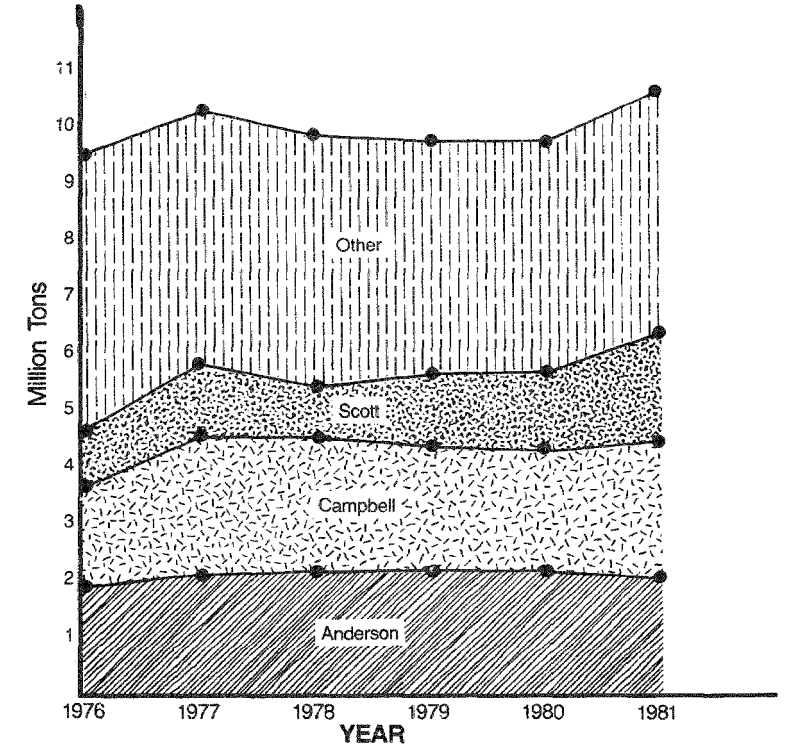
*Includes Bledsoe, Claiborne, Cumberland, Fentress, Grundy, Hamilton, Marion, Morgan, Overton, Rhea, Sequatchie, Van Buren and White Counties

NOTE: Totals may not equal sum of components because of independent rounding.

SOURCE:

1976-1982: Tennessee Department of Revenue -- Figures disclosed pursuant to Tennessee Code Annotated, 67-137. Numbers reflect tons taxed in a particular quarter and may not necessarily represent tons mined during that quarter.

Figure 1. Tennessee Coal Production by County



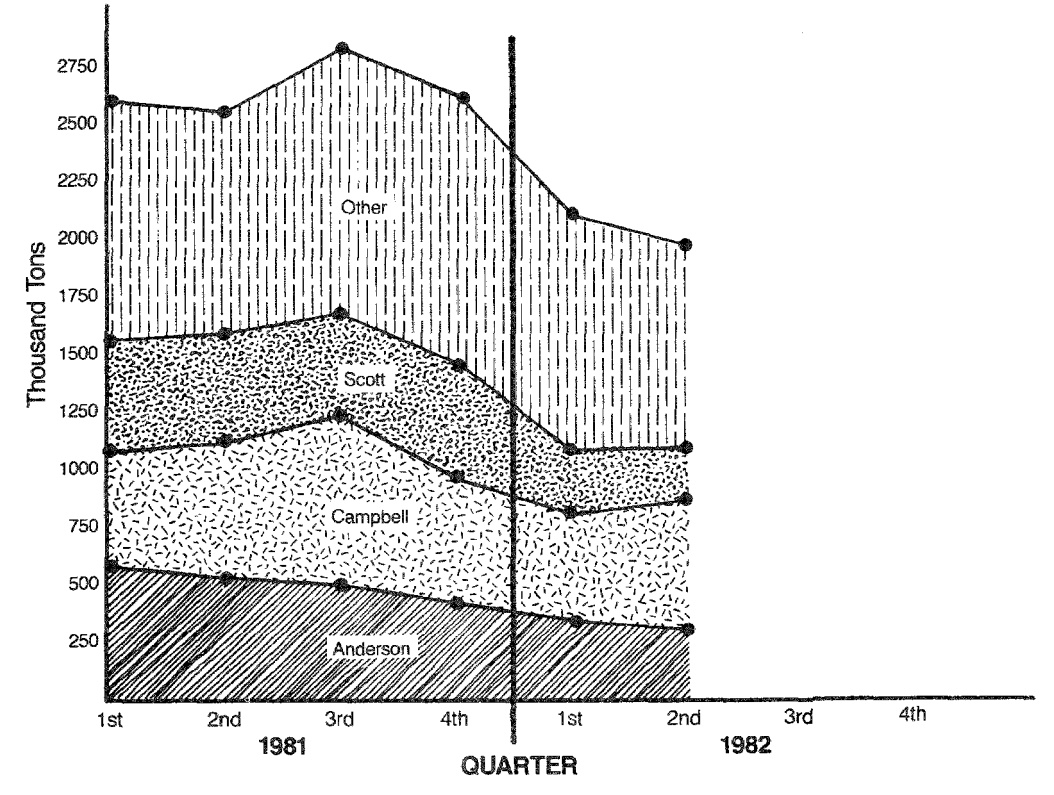


Table 2

Tennessee Crude Oil Production by County
(Barrels)

	Fentress	Morgan	Overton	Scott	Other*	Total
1976 Total	3,071	358,907	5,762	228,264	2,423	598,427
1977 Total	5,238	247,864	4,543	558,664	3,438	819,747
1978 Total	7,857	175,768	4,978	395,255	9,272	593,130
1979 Total	24,292	167,404	23,372	369,485	29,118	613,671
1980 Total	40,804	173,689	65,671	449,108	13,252	742,523
1981 1st Qtr.	14,749	65,953	14,012	117,668	7,674	220,057
2nd Qtr.	22,724	70,840	11,546	106,594	9,883	221,588
3rd Qtr.	33,117	81,576	8,965	100,441	8,184	232,282
4th Qtr.	39,961	73,073	26,203	94,105	10,139	243,479
Total	110,550	291,443	60,726	418,808	35,880	917,407
1982 1st Qtr.	28,411	66,594	18,908	84,218	10,957	209,089
2nd Qtr.	32,148	65,848	22,870	159,828	26,014	306,708

Barrel = 42 gallons

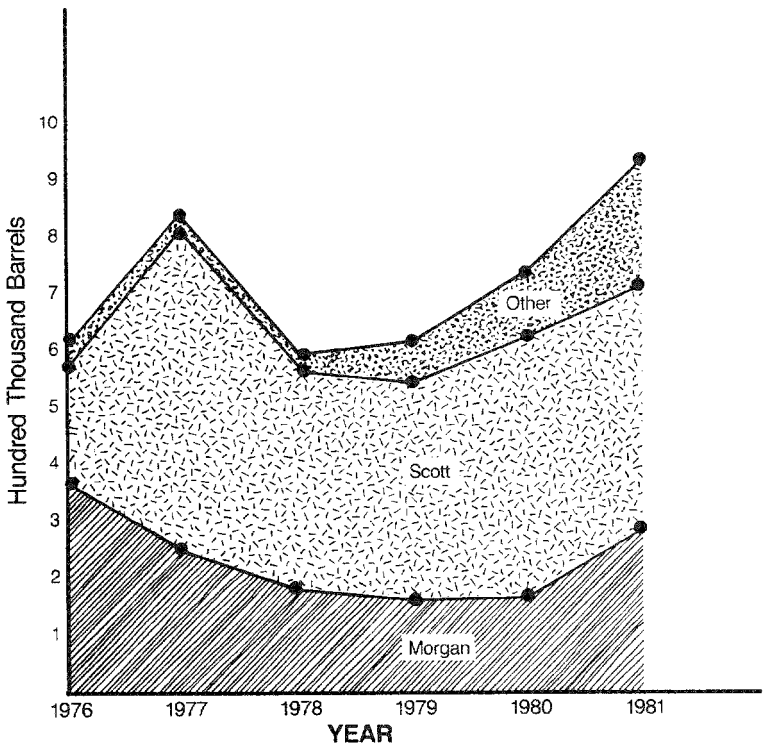
*Includes Anderson, Campbell, Claiborne, Clay, Cumberland, Jackson, Pickett, Putnam, Rhea, Robertson, and Smith counties.

NOTE: Totals may not equal sum of components because of independent rounding.

SOURCE:

1976-1982: Tennessee Division of Geology, Monthly Purchaser's Reports (Form R-MP-2).

Figure 2. Tennessee Crude Oil Production by County



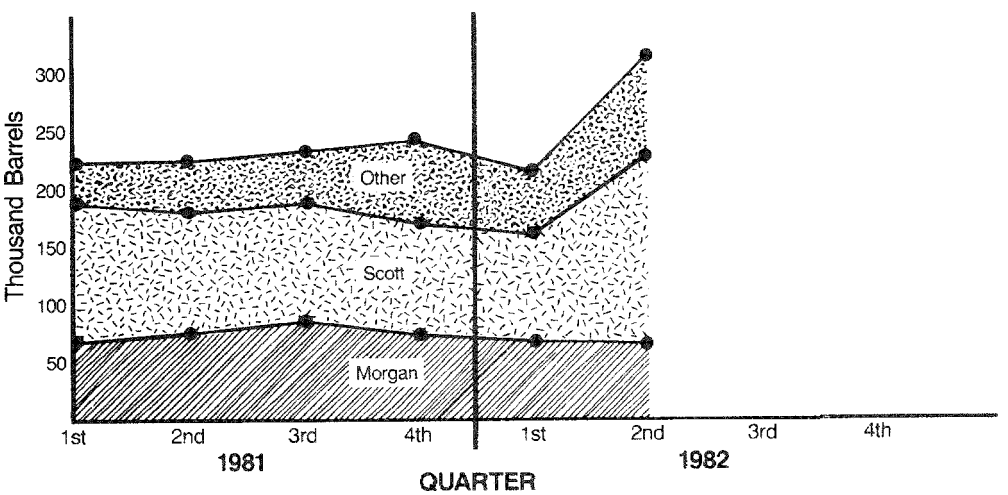


Table 3

Tennessee Natural Gas Production by County
(mcf)

	Morgan	Scott	Other*	Total
1976 Total	15,953	7,480	23,531	46,964
1977 Total	67,624	70,026	124,810	262,460
1978 Total	132,790	113,856	221,116	467,762
1979 Total	385,504	302,870	252,675	941,049
1980 Total	855,250	213,666	179,178	1,248,094
1981 1st Qtr.	341,598	77,696	19,941	439,235
2nd Qtr.	305,000	91,917	18,224	415,141
3rd Qtr.	187,185	97,291	6,907	291,383
4th Qtr.	436,020	135,316	1,820	573,156
Total	1,269,803	402,220	46,892	1,718,915
1982 1st Qtr.	535,071	127,113	67,141	729,325
2nd Qtr.**	352,395	75,064	65,877	493,336

mcf = 1,000 cubic feet.

*Includes Anderson, Campbell, Fentress, Grundy, and Warren Counties.

**Second quarter 1982 data are preliminary and subject to revision.

SOURCE:

1976-1982: Tennessee Division of Geology, Monthly Purchaser's Report (Form R-MP-5).

Figure 3. Tennessee Natural Gas Production by County

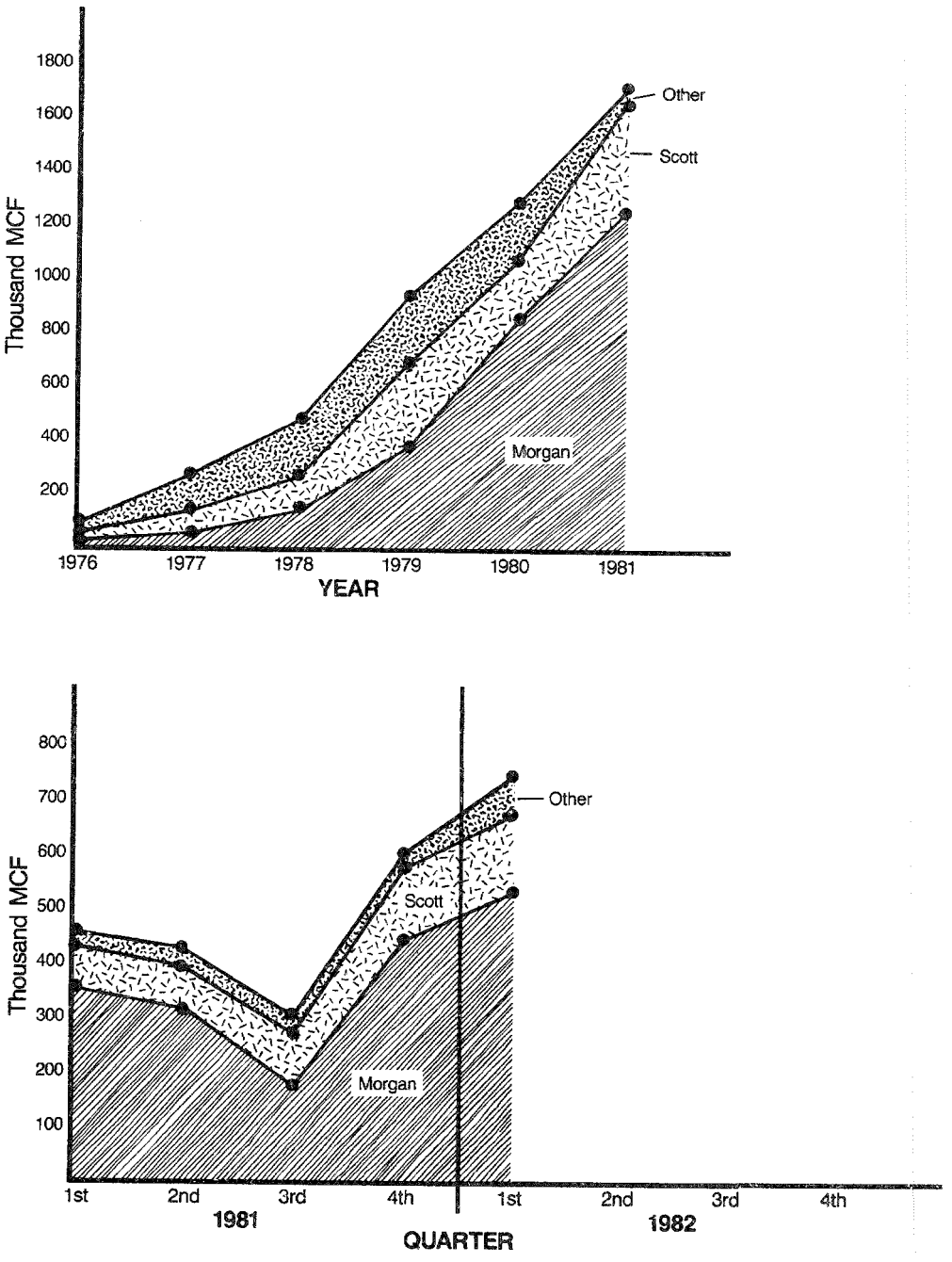


Table 4

Net Generation of Electricity by Prime Mover
at Electric Utility Plants in Tennessee
(Million Kilowatthours)

	Conventional Steam & Gas Turbine	Hydroelectric*	Nuclear	Total
1976 Total	50,988	9,475	0	60,463
1977 Total	49,201	10,394	0	59,595
1978 Total	50,156	8,785	0	58,941
1979 Total	46,404	12,306	0	58,710
1980 Total	50,928	8,764	519	60,211
1981 1st Qtr.	12,352	1,183	824	14,359
2nd Qtr.	11,848	1,300	1,418	14,566
3rd Qtr.	13,083	1,876	1,269	16,229
4th Qtr.	11,055	1,556	1,194	13,805
Total	48,338	5,915	4,705	58,959
1982 1st Qtr.	10,682	3,338	1,271	15,291
2nd Qtr.	7,985	1,476	3,635	13,096

*Includes pumped-storage generation.

NOTE: Totals may not equal sum of components due to independent rounding.

SOURCES:

1976-1980: Tennessee Energy Authority, The Tennessee Energy Profiles: 1960-1980, May 1982.

1981: U.S. Department of Energy, Energy Information Administration, Electric Power Monthly (DOE/EIA-0226).

1982: Data collected by the Tennessee Energy Authority from Tennessee electric utilities.

Figure 4. Net Generation of Electricity by Prime Mover at Electric Utility Plants in Tennessee

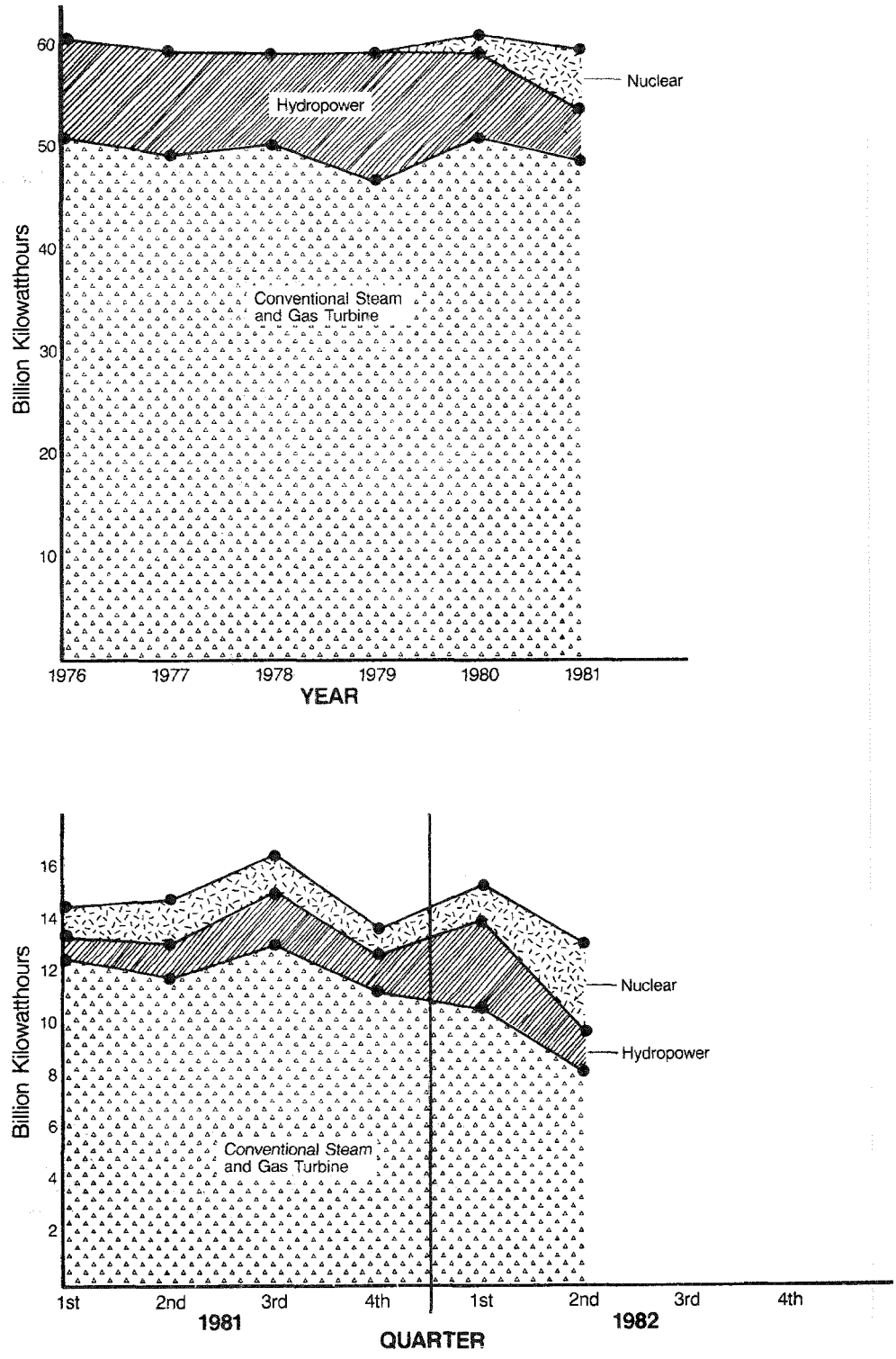


Table 5

Tennessee Coal Consumption by Sector
(Thousand Tons)

	Electric Utilities	Industrial*	Residential & Commercial	Total
1976 Total	22,362	2,021	244	24,627
1977 Total	21,694	2,691	236	24,622
1978 Total	21,621	2,998	214	24,833
1979 Total	20,173	3,043	204	23,420
1980 Total	21,679	2,702	242	24,623
1981 1st Qtr.	5,178	931	27	6,136
2nd Qtr.	5,104	900	13	6,018
3rd Qtr.	5,612	779	31	6,422
4th Qtr.	4,602	925	48	5,575
Total	20,496	3,535	119	24,151
1982 1st Qtr.	4,487	748	35	5,270
2nd Qtr.	3,326	NA	NA	NA

*Includes coal consumed at coke plants.

NOTE: Totals may not equal sum of components due to independent rounding.

NA = Not available.

SOURCE:

1976-1982: U.S. Department of Energy, Energy Information Administration, State Energy Data Report, 1960-1980, Electric Power Monthly, 1981, data collected by Tennessee Energy Authority from Tennessee electric utilities and unpublished data from DOE/EIA.

Figure 5. Tennessee Coal Consumption by Sector

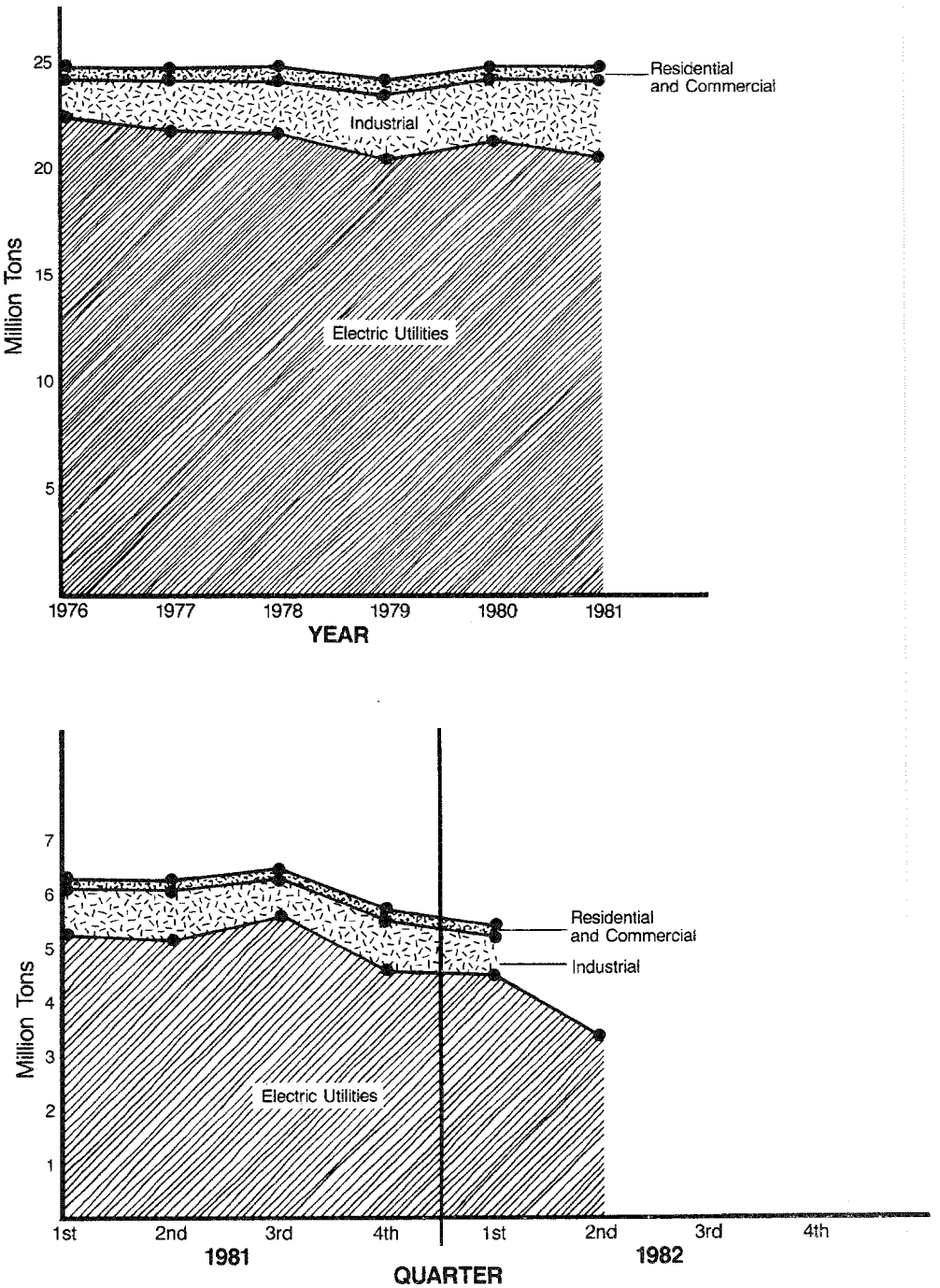


Table 6

Tennessee Motor Fuel Consumption by Type
(Thousand Gallons)

	Gasoline*	Highway Diesel	Highway LPG**	Total
1976 Total	2,479,795	303,405	1,587	2,784,787
1977 Total	2,554,607	342,756	1,738	2,899,101
1978 Total	2,664,296	379,463	1,934	3,045,694
1979 Total	2,527,837	392,749	1,719	2,922,305
1980 Total	2,417,938	391,393	2,570	2,811,901
1981 1st Qtr.	561,065	95,032	1,104	657,201
2nd Qtr.	615,235	103,960	978	720,173
3rd Qtr.	624,044	107,027	1,280	732,352
4th Qtr.	588,122	104,847	1,461	694,430
Total	2,388,466	410,866	4,823	2,804,155
1982 1st Qtr.	531,399	89,303	1,855	622,557
2nd Qtr.	635,280	109,789	1,807	746,876

*Includes aviation gasoline and losses.
**Includes butane, etc.

NOTE: Totals may not equal sum of components because of independent rounding.

SOURCES:

1976-1980: Tennessee Energy Authority, The Tennessee Energy Profiles: 1960-1980, May 1982.

1981-1982: Tennessee Department of Transportation, Monthly Motor-Fuel Consumption (Form PR-551M).

Figure 6. Tennessee Motor Fuel Consumption by Fuel Type

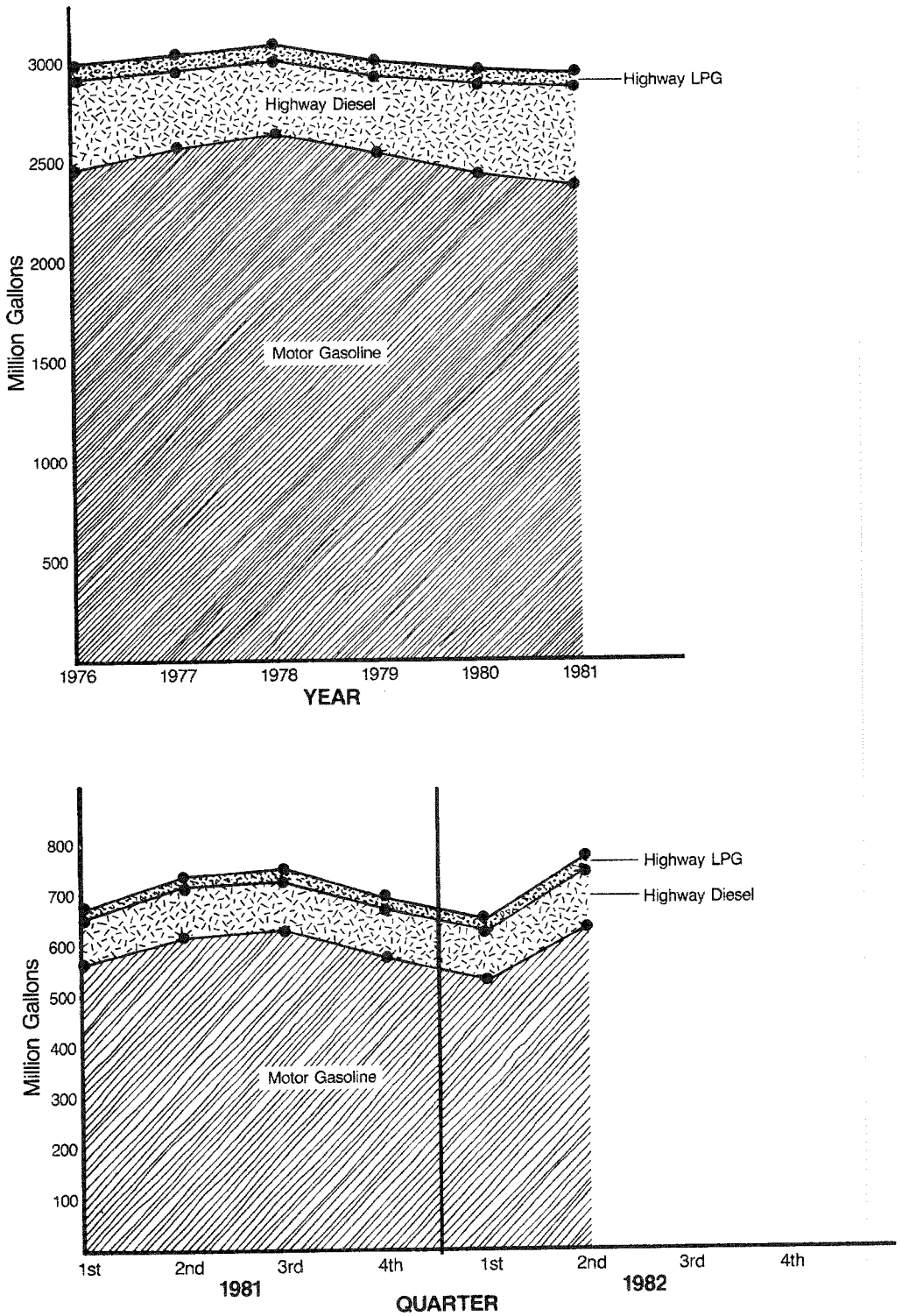


Table 7

Tennessee Natural Gas Consumption by Sector
(Million Cubic Feet)

	Residential	Commercial	Industrial	Other*	Total
1976 Total	43,749	35,042	114,526	3,378	196,695
1977 Total	43,530	31,986	109,120	3,141	187,777
1978 Total	39,807	28,743	98,393	2,174	169,117
1979 Total	45,136	40,031	117,825	2,683	205,675
1980 Total	44,894	39,722	123,122	5,431	213,169
1981 1st Qtr.	NA	NA	NA	NA	NA
2nd Qtr.	NA	NA	NA	NA	NA
3rd Qtr.	NA	NA	NA	NA	NA
4th Qtr.	NA	NA	NA	NA	NA
Total	41,857	41,336	121,120	1,666	205,979
1982 1st Qtr.	NA	NA	NA	NA	NA
2nd Qtr.	NA	NA	NA	NA	NA

*Includes consumption by municipalities and government agencies for use in schools, institutions, street lighting, etc., and by electric utilities.

NA = Not available.

NOTE: Totals may not equal sum of components because of independent rounding.

SOURCES:

1976-1981: U.S. Department of Energy, Energy Information Administration, Natural Gas Production and Distribution, 1976-1979; Natural Gas Annual, 1980; and unpublished data from Energy Information Administration.

Figure 7. Tennessee Natural Gas Consumption by Sector

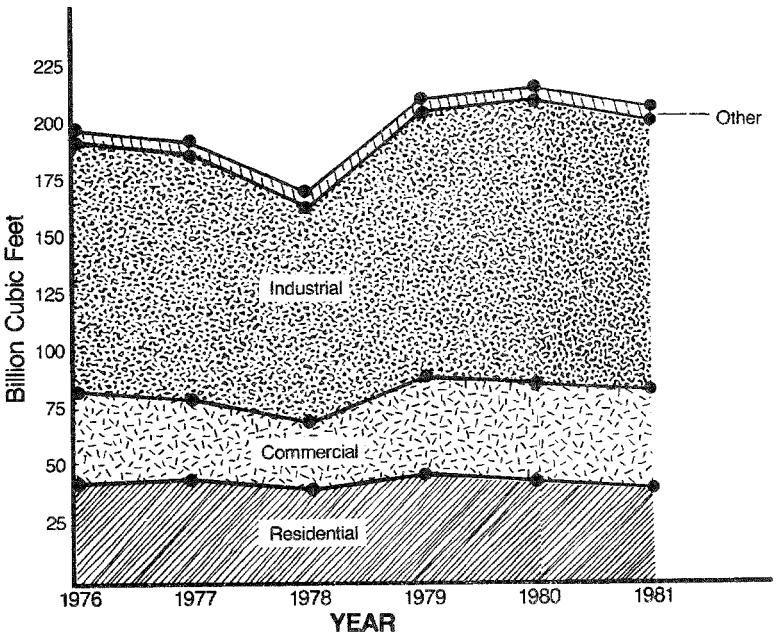


Table 8

Tennessee Electricity Consumption
by Sector

(Million Kilowatthours)

	Residential	Commercial	Industrial	Other*	Total
1976 Total	23,359	3,825	42,082	741	70,006
1977 Total	25,974	4,410	42,304	807	73,496
1978 Total	26,341	4,449	40,003	925	71,717
1979 Total	24,957	4,329	41,386	1,058	71,729
1980 Total	26,238	4,588	40,785	1,019	72,631
1981 1st Qtr.	8,253	1,202	9,889	281	19,624
2nd Qtr.	4,745	1,049	9,840	236	15,870
3rd Qtr.	6,278	1,305	10,513	231	18,326
4th Qtr.	5,392	1,048	9,332	241	16,012
Total	24,667	4,603	39,573	989	69,832
1982 1st Qtr.	7,983	1,166	8,991	246	18,386
2nd Qtr.	4,930	1,084	8,854	225	15,093

*Includes consumption by municipalities and government agencies for use in schools, street lighting, etc., and by TVA for internal use.

NOTE: Totals may not equal sum of components because of independent rounding.

SOURCE:

1976-1982: Data collected by the Tennessee Energy Authority from Tennessee electric utilities.

Figure 8. Tennessee Electricity Consumption by Sector

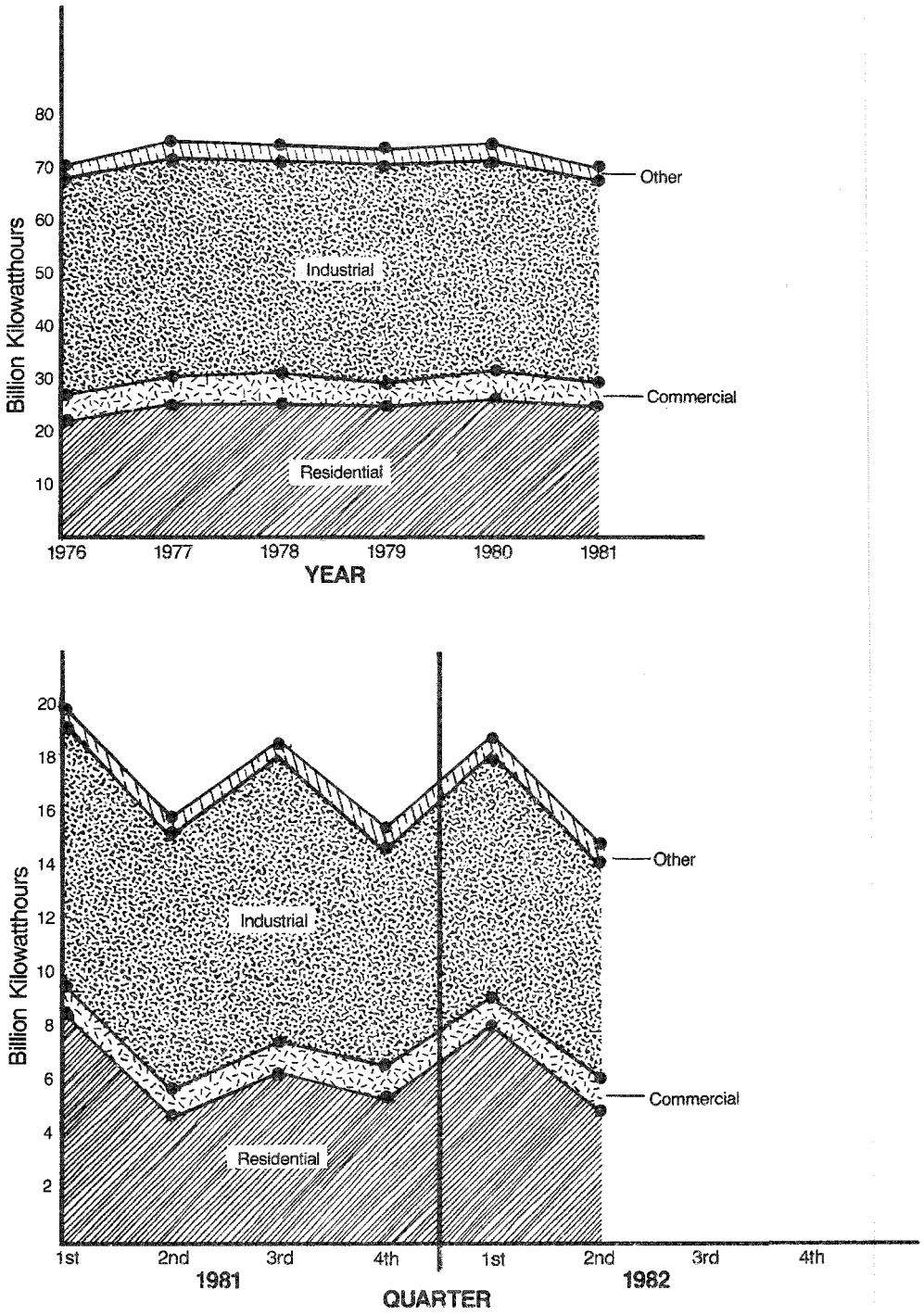


Table 9

Average Price of Coal Receipts by
End-Use Sectors in Tennessee

(Dollars Per Ton)

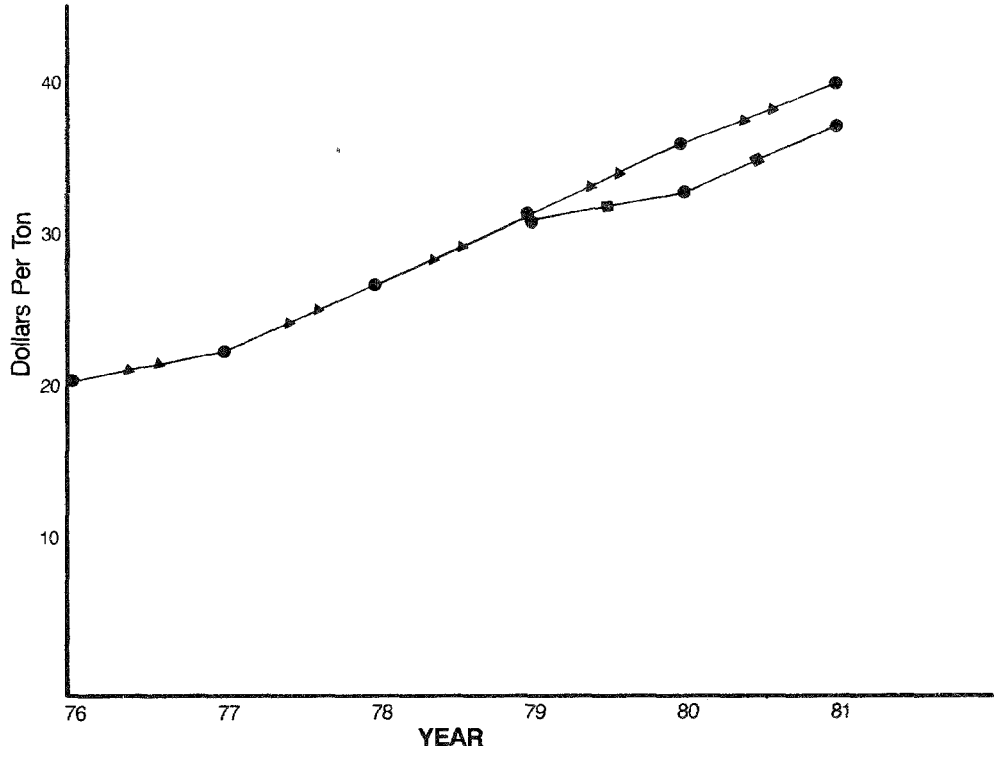
	Electric Utilities	Industrial
1976 Average	20.51	NA
1977 Average	22.88	NA
1978 Average	26.99	NA
1979 Average	31.25	31.15
1980 Average	36.21	33.53
1981 1st Qtr.	38.16	35.72
2nd Qtr.	40.13	37.80
3rd Qtr.	41.37	38.18
4th Qtr.	41.59	39.35
Average	40.29	37.83
1982 1st Qtr.	42.20	40.54
2nd Qtr.	NA	NA

NA = Not available.

SOURCES:

1976-1982: U.S. Department of Energy, Energy Information, Cost and Quality of Fuel at Electric Utilities, 1978-1980, Electric Power Monthly, 1981-1982, and unpublished data from DOE/EIA.

Figure 9. Average Price of Coal Receipts by End Use Sectors in Tennessee



Electrical Utilities— ▲ ▲
Industrial— ■ (Data prior to 1979 not available)

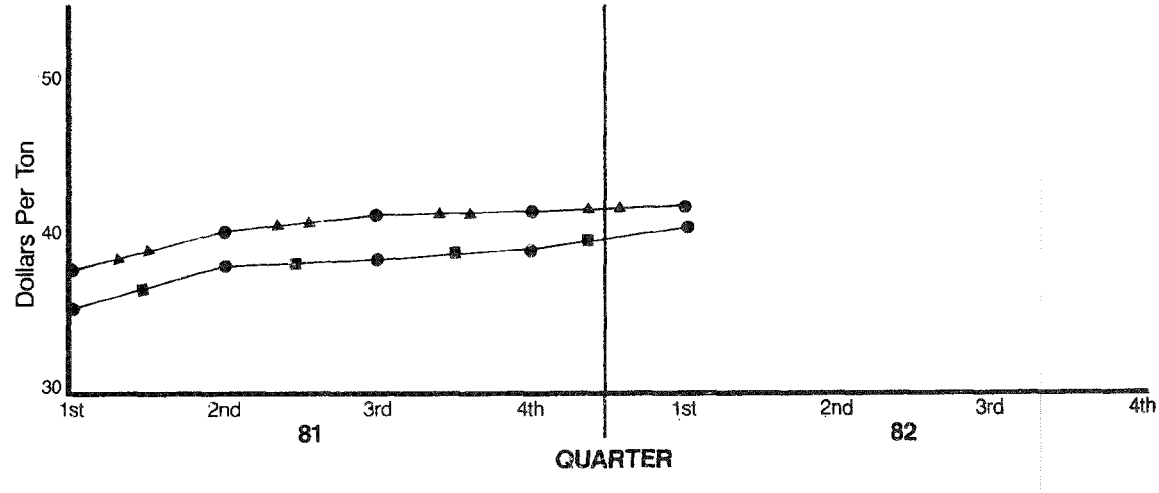


Table 10

Average Motor Gasoline Prices to Tennessee Consumers by Type*

(Cents Per Gallon)

	Regular	Unleaded	Average
1977 Average	62.5	65.6	64.1
1978 Average	63.2	67.5	65.4
1979 Average	88.5	92.3	90.4
1980 Average	123.5	127.4	125.5
1981 1st Qtr.	139.6	143.9	141.8
2nd Qtr.	139.4	144.1	141.8
3rd Qtr.	138.4	143.7	141.1
4th Qtr.	136.3	141.7	139.0
Average	138.4	143.4	140.9
1982 1st Qtr.	127.0	133.4	130.2
2nd Qtr.	135.6	141.8	138.7

*Numbers are based on four surveys conducted by the AAA around major holidays. The figures denote full-service prices.

SOURCE: Data obtained from the American Automobile Association.

Figure 10. Average Motor Gasoline Prices to Tennessee Consumers by Type

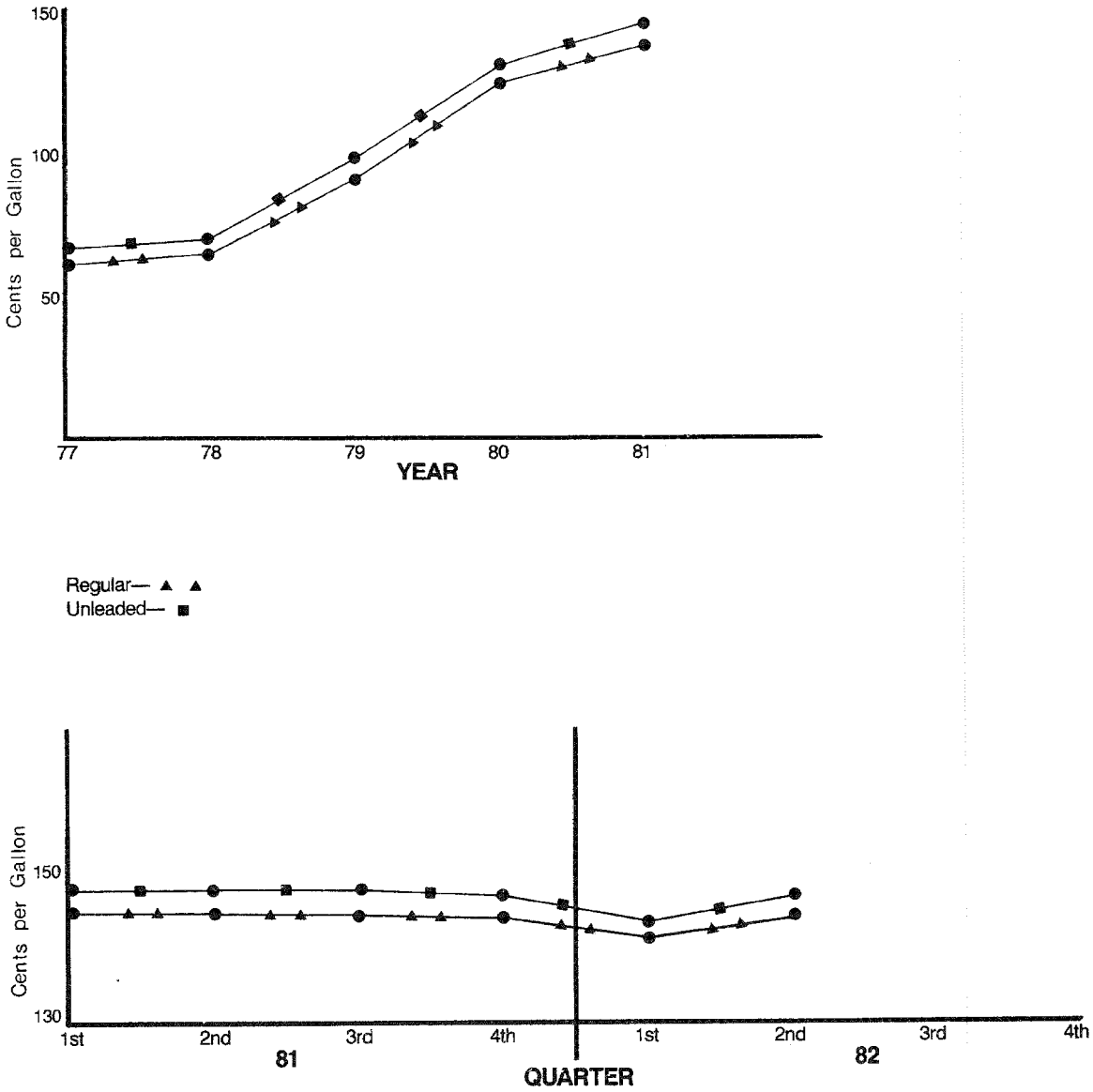


Table 11

Average Natural Gas Prices to
Tennessee Consumers by Sector

(Dollars per mcf)

	Residential	Commercial	Industrial	Other*	Total**
1976 Average	1.61	1.45	1.17	1.19	1.32
1977 Average	2.09	2.09	1.50	1.90	1.74
1978 Average	2.14	2.04	1.61	2.00	1.82
1979 Average	2.37	2.51	2.11	1.85	2.24
1980 Average	2.89	3.01	2.57	2.77	2.73
1981 1st Qtr.	NA	NA	NA	NA	NA
2nd Qtr.	NA	NA	NA	NA	NA
3rd Qtr.	NA	NA	NA	NA	NA
4th Qtr.	NA	NA	NA	NA	NA
Average	3.44	3.54	3.15	3.39	3.29
1982 1st Qtr.	NA	NA	NA	NA	NA
2nd Qtr.	NA	NA	NA	NA	NA

*Includes consumption by municipalities and government agencies for use in schools, institutions, street lighting, etc., and by electric utilities.

**Average price of total sales to ultimate consumers.

NA = Not available

mcf = 1,000 cubic feet

SOURCES:

1976-1981: U.S. Department of Energy, Energy Information Administration, Natural Gas Production and Consumption, 1976-1979; Natural Gas Annual, 1980; and unpublished data from Energy Information Administration.

Figure 11. Average Natural Gas Price to Tennessee Consumers by Sector

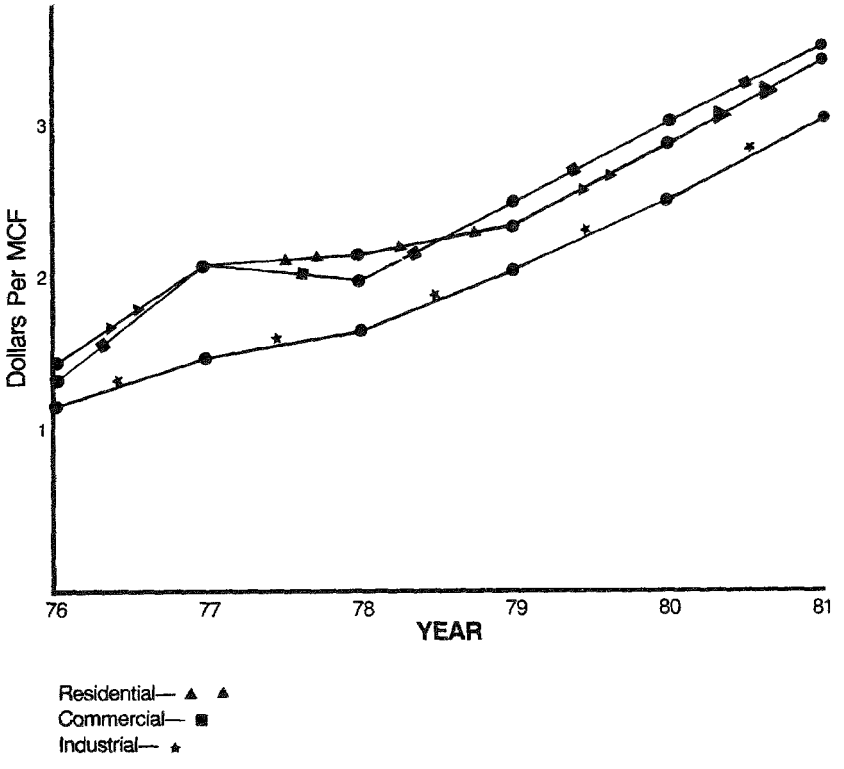


Table 12

Average Electricity Prices to
Tennessee Consumers by Sector
(Dollars per Thousand Kilowatthours)

	Residential	Commercial	Industrial	Other*	Total**
1976 Average	23.02	27.22	17.17	32.78	19.84
1977 Average	23.51	28.87	18.17	35.25	20.89
1978 Average	27.40	34.37	23.50	36.92	25.78
1979 Average	31.02	38.98	27.67	38.68	29.68
1980 Average	34.25	42.78	31.02	42.76	33.10
1981 1st Qtr.	38.81	47.67	34.61	44.41	37.32
2nd Qtr.	42.12	48.58	38.79	49.20	40.59
3rd Qtr.	42.06	47.70	37.49	49.97	39.94
4th Qtr.	45.68	55.43	43.02	52.24	44.87
Average	41.78	49.66	38.40	48.76	40.48
1982 1st Qtr.	45.68	55.97	44.36	52.09	45.77
2nd Qtr.	45.93	55.02	44.24	53.76	45.71

*Includes consumption by municipalities and government agencies for use in schools, street lighting, etc., and by TVA for internal use.

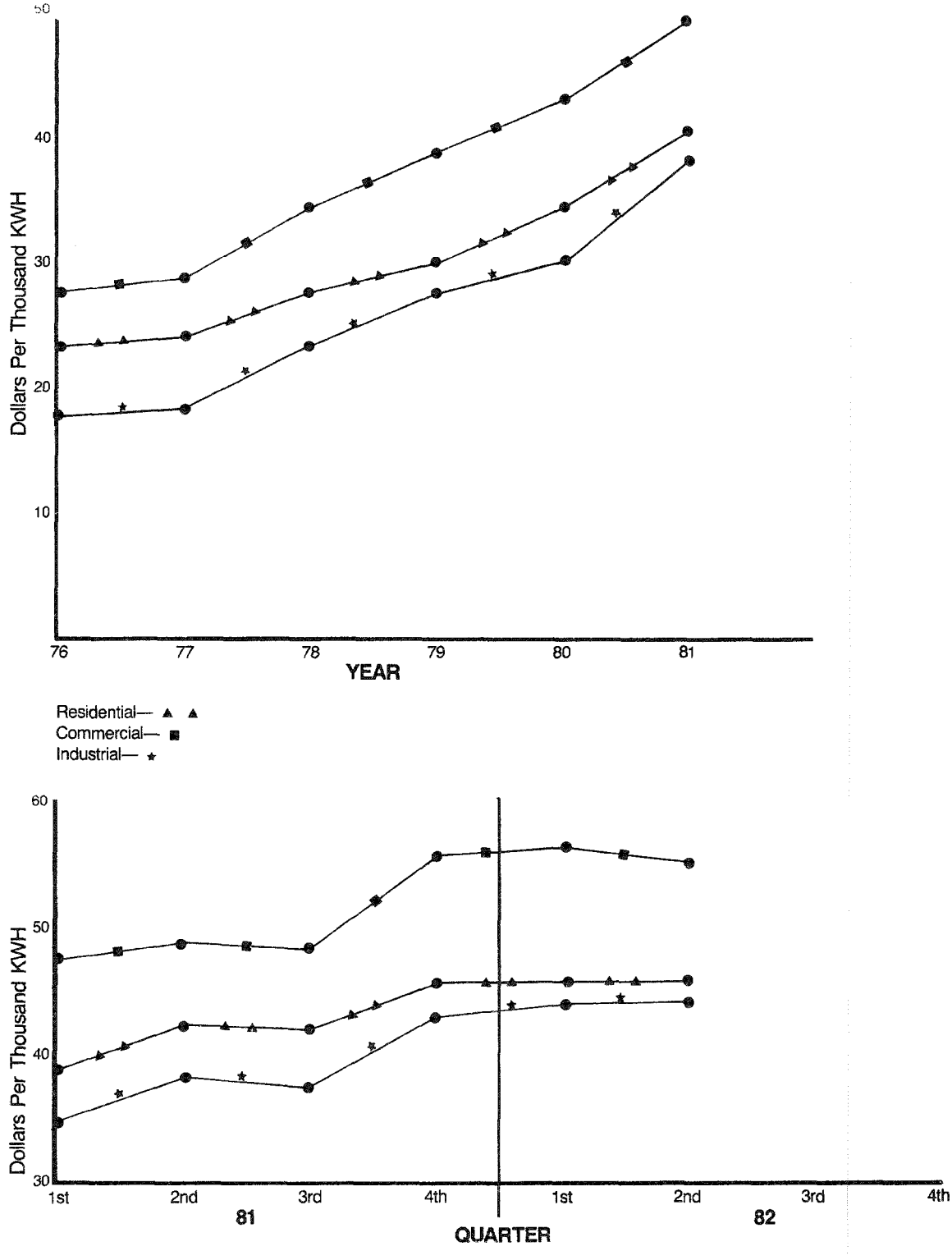
**Average price of total sales to ultimate consumers.

SOURCES:

1976-1980: U.S. Department of Energy, Energy Information Administration, Statistics of Privately Owned Electric Utilities in the United States, 1976-1980; and Tennessee Valley Authority.

1981-1982: Data collected by the Tennessee Energy Authority from Tennessee electric utilities.

Figure 12. Average Electricity Prices to Tennessee Consumers by Sector



ENERGY DEFINITIONS AND CONVERSION FACTORS

ENERGY DEFINITIONS

Barrel - A liquid measure of oil, usually crude, equal to 42 U.S. gallons 280-380 pounds, depending upon API GRAVITY and equal to 35 British Imperial gallons.

British Thermal Unit (BTU) - The quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

Cubic Foot - The most common unit of measurement of gas volume, equal to the amount of gas required to fill a volume of one cubic foot under stated conditions of temperature, pressures, and water vapor.

Coke - A porous, solid residue resulting from the incomplete combustion of coal heated in a closed chamber; or oven, with a limited supply of air. Coke is largely carbon and is a desirable fuel in certain metallurgical industries.

Energy - The capacity for doing work. Electric energy is measured in watthours (wh) and heat energy is generally measured in British thermal units (BTU). One form of energy may be changed to another such as burning coal to produce steam to drive a turbine which produces electricity.

Energy Flow - The series of steps involved in supplying fuels for use, including exploration, mining, transformation, distribution, and consumption.

Kilowatthour - The amount of energy equal to one kilowatt in one hour; equivalent to 3,412 BTU's.

Liquefied Petroleum Gas - A gas containing certain specific hydrocarbons that are gaseous under normal atmosphere conditions, but can be liquefied under moderate pressure at normal temperatures.

Prime Mover - The engine, turbine, water wheel or similar machine which drives an electric generator.

Pumped-Storage - A hydroelectric plant which generates electricity during peak load periods by usually using water previously pumped into a storage reservoir during off-peak periods.

Ton/Short Ton - A unit of weight equal to 2,000 pounds.

Turbine - A fluid acceleration machine for generating rotary mechanical power from the energy in a stream of fluid.

CONVERSION FACTORS*

Coal (Bituminous) Production	23.15 million Btu per ton
Coal (Bituminous) Consumption	22.00 million Btu per ton
Crude Oil	5.8 million Btu per barrel
Diesel Fuel	138,690 Btu per gallon
Electricity Consumption	3,412 Btu per kilowatthour
Hydropower	10,353 Btu per kilowatthour
LPG	95,475 Btu per gallon
Motor Gasoline	125,071 Btu per gallon
Natural Gas Production and Consumption	1,026 Btu per cubic foot
Nuclear Power	10,640 Btu per kilowatthour

*Preliminary U.S. averages for 1981.