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New York State Energy Profiles: 1980-1994

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The New York State Energy Research and Development Authority (NYSERDA) is a public benefit corporation created in 1975 by the New York State Legislature. F. William Valentino is President and Chief Operating Officer.

NYSERDA's primary mission is to carry out a broad program of energy research, development and demonstration projects designed to develop and apply efficient technologies to help ensure that New York has secure and economical future supplies of energy, while protecting environmental values and promoting economic growth.

NYSERDA derives its basic research revenues from an assessment levied on the intrastate sales of New York State's investor-owned electric and gas utilities. Additional research dollars come from limited corporate funds and a voluntary annual contribution by the New York Power Authority.

In its research program, NYSERDA stresses consultation and collaboration with other organizations, including utilities, universities, industries, private engineering and scientific research firms, local governments, and State and federal agencies. These efforts stretch NYSERDA's limited research funds and ensure the involvement of those who can use the results of the research.

In its federally funded Energy Services program, NYSERDA provides technical assistance to improve the energy and environmental performance of businesses and institutions, helps secure energy-project funding from private and public sources, and converts fleet vehicles to alternative fuels. The Energy Analysis program focuses on using energy, regulatory, and environmental policies to help New York State businesses grow and to meet the needs of New York State's energy consumers.

NYSERDA also has responsibility for:

- Managing the 3,300-acre Western New York Nuclear Service Center at West Valley 35 miles south of Buffalo, the site of a former commercial nuclear fuel reprocessing plant and a low-level radioactive waste disposal area. These responsibilities include:
 - Participating in the West Valley Demonstration Project, a joint federal/State effort to solidify the high-level radioactive wastes left over from the reprocessing operation and to clean up the facilities used.
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- Constructing and operating facilities for disposal of low-level radioactive wastes produced in New York State, once the State makes disposal method and site decisions and approvals have been issued by State regulatory agencies.
- Managing a 365-acre portion of a Superfund clean-up site in Malta, 20 miles north of Albany. Part of the site was once owned by the federal government. Portions of it have been used by the federal government and its contractors since the 1940s for activities that have included rocket engine and fuel testing, weapons testing, and space research.

For more information, contact the Technical Communications unit, NYSERDA, 2 Empire State Plaza, Suite 1901, Albany, New York 12223-1253, (518) 465-6251, ext. 250.

State of New York
George E. Pataki,
Governor

Energy Research and Development Authority
F. William Valentino,
President

MESSAGE FROM THE PRESIDENT

New York State Energy Profiles: 1980-1994 is the first annual comprehensive energy overview published by the New York State Energy Research and Development Authority (NYSERDA). It is intended to provide energy analysts, policymakers, and consumers with information about energy-use trends in New York State.

This publication documents basic energy consumption, sources of supply, and price and expenditure data for New York State.

In attempting to present the data in a manner readily understandable to a broad audience, we have used summaries, graphs, and tables not only in physical units, such as barrels and tons, but also in British thermal units to allow easier comparisons among fuels.

One of NYSERDA's missions is to help the citizens of New York State make sound decisions for a secure, affordable, and environmentally acceptable energy future. We hope **New York State Energy Profiles** will help further that goal.

F. William Valentino
President
New York State Energy Research and
Development Authority

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PATTERNS AND TRENDS

New York State Energy Profiles: 1980-1994

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New York State Energy Profiles: 1980-1994 presents an overview of energy statistics for the State. It is intended to be an objective and reliable source of energy-related information for use by the general public, business, and government analysts. This report was prepared by using the most recent comprehensive data available covering the 1994 calendar year.

Questions should be directed to Tom Collins, NYSERDA's Manager of Technical Communications, at (518) 465-6251, ext. 250.

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INTRODUCTION

The New York State Energy Research and Development Authority's Energy Analysis Program provides public and private sector stakeholders with useful independent and objective energy information.

This report provides an overview of one-year and 10-year, energy use trends in New York State. The information presented reflects energy consumption, supply, prices, and expenditures.

Section 1 is a 1994 overview of the United States and New York State energy profiles. The national energy consumption data used for comparison are compatible with New York State's data.

Section 2 provides current and historic data for primary and net consumption of energy by fuel type and sector. "Primary" represents total consumption of fuels by the residential, commercial, industrial, and transportation sectors including fuels used for generating electricity. "Net" is the end-use consumption by the residential, commercial, industrial, and transportation sectors, including electricity sales to each of these sectors but excluding energy losses incurred during electricity generation and distribution.

Section 3 presents energy price data at the retail level from 1980 to 1994. Retail energy prices are provided by fuel type for the residential, commercial, industrial, and transportation sectors in nominal dollars cost per physical unit and per million Btu.

Section 4 presents the estimated cost of net energy consumption by sector and fuel type in nominal dollars and in 1994 constant dollars. Estimated costs were derived by multiplying quantities of consumption by their respective prices.

Section 5 details sources of New York State energy supplies.

SUMMARY OF NEW YORK STATE ENERGY TRENDS

This section provides an overview of one-year and 10-year trends in energy consumption, supply, price, and expenditure by fuel type and sector for New York State.

OVERVIEW

- 1984-1994**
- Total primary energy consumption in 1994 was 3,880 trillion British thermal units (TBtu), 10% above the 1984 consumption figure of 3,533 TBtu.
 - Petroleum represented 41% of total primary energy consumption in 1994, compared to 50% in 1984; natural gas usage increased from 23% to 30% over this 10-year period.
 - New York State's energy bill in nominal dollars totaled \$32.4 billion in 1994, an increase of 18% over the \$27.5 billion spent in 1984.
 - While New York State is the fourth largest energy consumer among all states, only an estimated 7.9% of total energy requirements are met from resources provided within the State.
- 1993-1994**
- Total primary consumption of energy in New York State decreased 1% from 1993 to 1994.
 - Consumption of coal, petroleum products, hydropower, and net imports of electricity all decreased; natural gas consumption and nuclear electricity generation increased.
 - New York State's energy bill in nominal dollars of \$32.4 billion in 1994 was slightly higher than the \$32.2 billion spent in 1993.
 - New York State ranks sixth among all states for the highest average price paid for energy.

REVIEW BY FUEL TYPE

PETROLEUM

- 1984-1994**
- Total annual demand for petroleum products in 1994 was 1,595 TBtu, 8%, or 25 million barrels, below that of 1984, despite annual increases from 1986 to 1989.
 - From 1984 to 1994, demand for residual fuel oil declined by 44%; motor gasoline demand declined 1%. Conversely, demand for distillate, kerosene, and aviation fuel increased by 16%, 7%, and 7%, respectively.
 - New York State's foreign oil dependence increased from 60% of the State's total petroleum consumption in 1984 to 79% in 1994.
- 1993-1994**
- Consumption of total petroleum products decreased by 17 million barrels, or 6%, from 1993 to 1994.
 - Consumption of residual fuel oil, distillate oil, kerosene, and motor gasoline decreased by 17%, 7%, 6%, and 3%, respectively, between 1993 and 1994; aviation fuel consumption increased by 1%.

- Petroleum products accounted for 41% of the State's total energy requirements in 1994, down from 43% in 1993.
- The State's reliance on foreign oil as a proportion of total petroleum consumption increased from 78% in 1993 to 79% in 1994. OPEC's share of total oil consumption decreased slightly from 46% in 1993 to 45% in 1994.

NATURAL GAS

- 1984-1994 • Sales of natural gas during 1994 (1,142 billion cubic feet) were 47% greater than in 1984 (774 billion cubic feet).
- Natural gas sales to commercial customers increased by 41% in 1994 from 163 billion cubic feet in 1984.
- 1993-1994 • Natural gas accounted for 30% of New York State's total primary energy consumption in 1994, compared to 27% in 1993.
- Between 1993 and 1994, sales of natural gas increased 9%.

COAL

- 1984-1994 • Coal use increased by 5% between 1984 and 1994.
- 1993-1994 • Coal consumption in 1994 was 3% below the 1993 level.

HYDRO

- 1984-1994 • Hydroelectricity generation in 1994 was about the same as it was in 1984.
- 1993-1994 • Hydroelectricity generation in 1994 was 6% below the 1993 level.

NUCLEAR

- 1984-1994 • Electricity generated by nuclear power plants was 38% higher in 1994 than in 1984.
- 1993-1994 • Nuclear electricity generation increased by 9% from 1993 to 1994.

NET IMPORTED ELECTRICITY

- 1984-1994 • Net imported electricity in 1994 was 6% above the 1984 level.
- 1993-1994 • Net imported electricity decreased by 19% from 1993 to 1994.

SECTOR REVIEW

RESIDENTIAL SECTOR

- 1984-1994**
- Total residential energy demand was 709 TBtu in 1994, 8% above the 1984 figure.
 - Demand for home heating oil declined 12% over the 1984-1994 period.
 - 1994 natural gas sales were 44 billion cubic feet, 13% higher than in 1984.
 - Sales of electricity in 1994 were 23% greater than in 1984.
 - The share of total residential energy use represented by petroleum products decreased from 30% in 1984 to 25% in 1994; natural gas consumption increased from 52% to 55% and electricity use increased from 17% to 19%.
 - New Yorkers spent in nominal dollars \$10.4 billion for the energy used in their homes during 1994, or 32% of the total end-use energy bill. The 1994 figure was 32% higher than the \$7.9 billion spent in 1984.
 - Between 1984 and 1994, average home-heating oil prices declined from \$1.15 to \$1.00/gallon; natural gas prices increased 14%, from \$7.67 to \$8.73/thousand cubic feet; and electricity prices increased 27%, from 11.05 cents to 13.98 cents/kilowatt-hour.
- 1993-1994**
- In 1994, the residential sector represented 26% of total end-use energy consumption.
 - Total residential energy consumption declined by 2% between 1993 and 1994. During 1994, Statewide heating degree-days were 1% below the 1993 level; Statewide cooling degree-days were 2% lower than the 1993 level.
 - The demand for distillate fuel oil declined 7% from 1993 to 1994, although sales of electricity and natural gas to residential customers each rose by 1%.
 - New Yorkers' expenditures in nominal dollars for energy used in their homes rose 3%, from \$10.1 billion in 1993 to \$10.4 billion in 1994.
 - Between 1993 and 1994 the nominal price of home heating oil decreased by 2%, natural gas rose by 7%, and electricity increased by 3%.

COMMERCIAL SECTOR

- 1984-1994**
- Total consumption in the commercial sector was 651 TBtu in 1994, or 31% greater than the 1984 level of 499 TBtu.
 - Sales of natural gas in 1994 were 41% above the 1984 level; consumption of petroleum products and electricity sales were 27% and 26% above 1984 levels, respectively.
 - Natural gas, which accounted for 34% of total commercial energy demand in 1984, increased to 37% in 1994. The share represented by petroleum products decreased from 31% to 30%; electricity's share decreased from 34% to 33%.
 - The energy bill in nominal dollars paid by commercial customers rose from \$7.3 billion in 1984 to \$9.6 billion in 1994, an increase of 31%.

- The commercial sector's share of the total end-use energy bill was 27% in 1984 and 30% in 1994.
- From 1984 to 1994, the nominal prices of distillate and residual fuel oil decreased by 25% and 40%, respectively, while the nominal cost of electricity increased 8%.

- 1993-1994**
- In 1994, the commercial sector represented 24% of total end-use energy consumption.
 - Commercial customers' demand for energy increased by 3% between 1993 and 1994.
 - The commercial sector's demand for petroleum products decreased by 7%, sales of electricity increased by 1%, and natural gas sales rose 16%.
 - The total energy bill in nominal dollars paid by commercial customers in 1994 was 3% higher than in 1993.
 - Between 1993 and 1994, the nominal cost of natural gas for commercial customers rose by 1%.

INDUSTRIAL SECTOR

- 1984-1994**
- Industrial energy demand was 335 TBtu in 1994, 13% below the 1984 level.
 - Coal consumption in the industrial sector fell by 40% from 1984 to 1994, with coal's share of total energy consumption declining from 27% to 19% for the same period.
 - Petroleum products, which constituted 19% of total industrial demand in 1984, accounted for 13% in 1994; however, natural gas increased from 29% to 42%, and electricity from 24% to 26%.
 - In nominal dollars industrial customers paid \$2.8 billion for energy in 1994, roughly the same as in 1984.
 - In 1994, industrial energy expenditures in nominal dollars were 9% of New York's total end-use energy bill, compared to 10% in 1984.
 - The nominal price of distillate fuel oil decreased by 29%, while the residual fuel oil price decreased by 40%.
 - The nominal price of electricity increased by 17% over the 10-year period.

- 1993-1994**
- In 1994, industrial customers accounted for 12% of total end-use energy consumption.
 - Industrial customers used 3% less energy in 1994 than in 1993.
 - From 1993 to 1994, consumption of petroleum products decreased 21%, sales of natural gas increased 2%, electricity sales fell by 1%, and coal consumption declined by 2%.
 - The energy bill in nominal dollars paid by industrial customers in 1994 decreased by 3% from 1993.
 - Between 1993 and 1994, the nominal prices of natural gas and distillate fuel oil declined by 7% and 5%, respectively. The nominal price of residual fuel oil showed a 5% increase; electricity increased by 1%.

TRANSPORTATION SECTOR

- 1984-1994**
- Transportation sector energy demand was 1,072 TBtu in 1994, or 4% above 1984.
 - Consumption of motor gasoline in 1994 was 4% below that of 1984.
 - The annual energy bill in nominal dollars for transportation reached \$9.6 billion in 1994, 30% of total end-use energy expenditures.
 - From 1984 to 1994, average nominal retail gasoline prices (for all grades of gasoline) increased 2% from 124.9 cents to 127.6 cents per gallon; diesel fuels increased 2% from 133.6 cents to 136.8 cents per gallon. The price of residual fuels for bunkering decreased by 46% and jet fuel fell 33%.
- 1993-1994**
- In 1994, transportation accounted for 39% of total end-use energy consumption.
 - Between 1993 and 1994, energy consumption in the transportation sector declined 2%.
 - Consumption of diesel fuel and motor gasoline declined by 6% and 2%, respectively, while aviation fuel consumption increased by 1%.
 - Energy expenditures in nominal dollars for the transportation sector decreased from \$9.9 billion in 1993 to \$9.6 billion in 1994, or 3%.
 - Between 1993 and 1994, the nominal prices of motor gasoline and jet fuel decreased by 1% and 7%, respectively. Vessel bunkering residual fuel and diesel fuel prices rose by 5% and 2%, respectively.

ELECTRICITY GENERATION

- 1984-1994**
- Consumption of energy for electricity generation represented 38% of primary consumption in 1984 and 40% in 1994.
 - Consumption of energy for electricity generation rose by 16% between 1984 and 1994.
 - Petroleum product consumption decreased by 31 million barrels, or 62%; natural gas use increased by 229 billion cubic feet, or 135% over the 1984 to 1994 period.
 - Petroleum products share of fuel mix used to generate electricity decreased from 23% in 1984 to 7% in 1994.
 - Natural gas share of fuel mix used to generate electricity increased from 13% in 1984 to 26% in 1994.
 - Nuclear's share of fuel mix to generate electricity increased from 17% in 1984 to 20% in 1994; hydro's share declined from 21% to 18% for the same period.
- 1993-1994**
- From 1993 to 1994, consumption of energy for electricity generation remained stable.
 - Consumption of petroleum for electricity generation decreased by 5 million barrels, or 22%, while natural gas use rose by 63 billion cubic feet, or 19%.
 - Nuclear generation increased by 9% between 1993 and 1994.
 - Hydropower decreased by 6% from 1993 to 1994.

Section 1

**ENERGY PROFILES FOR THE UNITED STATES
AND NEW YORK STATE**

This section presents an overview of the energy profiles for the United States and New York State in 1994.

United States Consumption of Energy by Fuel Type and Sector, 1994

Figure 1-1

Table 1-1 (Trillion Btu)

	<u>Residential</u> TBtu	<u>Commercial</u> TBtu	<u>Industrial</u> TBtu	<u>Transportation</u> TBtu	<u>Net</u> <u>Consumption</u> TBtu	<u>Electric</u> <u>Utilities</u> ¹ TBtu	<u>Primary</u> <u>Consumption</u> TBtu
Coal	47	95	2,510	0	2,652	16,910	19,562
Natural Gas	4,980	3,093	7,590	0	15,663	3,056	18,719
Petroleum	1,480	748	1,900	22,676	26,804	951	27,756
Distillate	941	485	1,130	4,081	6,636	87	6,723
Residual	0	163	420	887	1,471	864	2,335
Kerosene	75	18	8	0	101	0	101
LPG	464	82	342	28	916	0	916
Gasoline	0	0	0	14,574	14,574	0	14,574
Jet Fuel	0	0	0	3,105	3,105	0	3,105
Electric Sales	3,432	3,135	3,386	13	9,966	20,733	N/A
Net Consumption	9,938	7,071	15,386	22,689	55,085	N/A	N/A
Hydro Electricity ²						2,941	2,941
Nuclear Electricity						6,841	6,841
Primary Consumption						30,699	75,819

¹ Includes utility generators only.

² Includes net imports of electricity.

New York State Consumption of Energy by Fuel Type and Sector, 1994

Figure 1-2

Table 1-2 (Trillion Btu)

	<u>Residential</u> TBtu	<u>Commercial</u> TBtu	<u>Industrial</u> TBtu	<u>Transportation</u> TBtu	<u>Net</u> <u>Consumption</u> TBtu	<u>Electric</u> <u>Generation</u> ¹ TBtu	<u>Primary</u> <u>Consumption</u> TBtu
Coal	2.1	2.4	63.9	0.0	68.4	299.4	367.8
Natural Gas	388.4	237.8	139.7	0.0	765.9	411.0	1,176.9
Petroleum	180.0	193.7	42.9	1,061.8	1,478.4	117.0	1,595.4
Distillate	156.7	84.9	17.8	136.8	396.2	4.4	400.6
Residual	0.0	103.0	20.2	20.0	143.2	112.6	255.8
Kerosene	7.9	3.1	2.0	0.0	13.0	0.0	13.0
LPG	15.4	2.7	2.9	0.5	21.5	0.0	21.5
Gasoline	0.0	0.0	0.0	693.3	693.3	0.0	693.3
Jet Fuel	0.0	0.0	0.0	211.2	211.2	0.0	211.2
Electric Sales	138.6	217.0	88.9	9.9	454.4	1,112.7	N/A
Net Consumption	709.1	650.9	335.4	1,071.7	2,767.1	N/A	N/A
Hydro Electricity ²						407.6	407.6
Nuclear Electricity						311.0	311.0
Other ³						21.0	21.0
Primary Consumption						1,567.0	3,879.7

¹ Includes utility and non-utility generators.

² Includes net imports of electricity.

³ Includes renewable and indigenous fuels used by non-utility generators.

Section 2

NEW YORK STATE ENERGY CONSUMPTION

This section presents data on primary and net consumption of energy in New York State by sector and fuel type for the period 1980 to 1994. The 1994 data are preliminary estimates.

Primary consumption of energy is shown by fuel type in physical units and in British thermal units (Btu). Total primary consumption of energy by sector (residential, commercial, industrial, transportation, and electric generation) is presented for the 15-year period.

Electricity generation data are net of station use. Utility losses are primary inputs less the sales of electricity at 3,412 Btu per kWh, and include generation and distribution losses, and statistical differences.

Hydro and nuclear electricity, as well as net electricity trade, have been converted to heat by application of an average annual heat rate (Btu per kWh generated) for coal-, oil-, and gas-fired power plants. This rate represents the replacement cost, in heat, of the electricity produced by these thermal plants.

All data relating to coal-fired generation include New York State Electric & Gas Corporation's half-share of the Homer City Plant in Pennsylvania.

All end-use energy consumption by apartment buildings is included in the commercial sector.

Electricity sales are combined with the end-use consumption of coal, petroleum products, and natural gas to derive total net energy consumption in the residential, commercial, industrial, and transportation sectors. Total net energy consumption is provided in trillion Btu (TBtu) and in physical units such as tons, cubic feet, and barrels.

New York State Primary Consumption by Fuel Type, 1980-1994

Figure 2-1

Table 2-1a (Physical Units)

Year	Coal MTons	Natural Gas ¹ MMcf	Petroleum Products Mbbbl	Hydro GWh	Nuclear GWh	Net Imported Electricity GWh	Other ² GWh
1980	14,952	719,146	364,105	26,241	19,276	5,575	0
1981	14,183	748,807	339,520	25,658	17,444	7,137	0
1982	13,521	758,716	328,958	25,329	14,438	10,196	0
1983	12,782	707,988	324,770	26,162	16,376	11,888	0
1984	14,109	774,486	311,165	26,586	21,187	10,812	0
1985	13,948	753,777	305,950	26,956	24,092	10,155	0
1986	12,202	715,909	323,270	29,480	22,084	13,204	0
1987	13,795	757,211	334,252	27,546	22,926	11,373	0
1988	15,076	774,455	353,850	23,994	24,176	9,994	0
1989	15,857	821,436	360,310	23,918	22,846	5,539	0
1990	15,572	851,590	331,193	27,560	23,624	1,352	1,502
1991	15,658	860,739	314,723	26,257	28,477	6,323	1,622
1992	16,272	1,015,693	301,322	27,193	24,155	10,167	1,806
1993	14,825	1,043,198	303,666	28,479	26,889	14,280	1,980
1994	14,378	1,141,545	286,572	26,800	29,225	11,504	1,972

Table 2-1b (Trillion Btu)

Year	Coal TBtu	Natural Gas ¹ TBtu	Petroleum Products TBtu	Hydro TBtu	Nuclear TBtu	Net Imported Electricity TBtu	Other ² TBtu	Total ³ TBtu
1980	369.2	737.9	2,081.2	288.2	211.7	61.2	0.0	3,749.4
1981	347.4	768.3	1,935.7	280.9	191.0	78.1	0.0	3,601.4
1982	333.4	779.1	1,869.2	274.0	156.2	110.3	0.0	3,522.1
1983	314.9	729.9	1,838.6	280.4	175.5	127.4	0.0	3,466.7
1984	349.0	798.1	1,751.8	287.6	229.2	117.0	0.0	3,532.6
1985	344.6	778.2	1,714.0	287.3	256.7	108.2	0.0	3,489.1
1986	305.5	737.6	1,819.1	311.3	233.2	139.4	0.0	3,546.0
1987	348.5	780.2	1,878.7	288.2	239.9	119.0	0.0	3,654.5
1988	382.5	796.9	1,998.7	247.6	249.4	103.1	0.0	3,778.2
1989	401.5	846.4	2,037.1	250.0	238.8	57.9	0.0	3,831.5
1990	394.8	877.8	1,865.9	288.0	246.9	14.1	15.7	3,703.3
1991	398.6	887.7	1,766.8	274.2	297.4	66.0	16.9	3,707.7
1992	416.4	1,046.2	1,682.2	287.9	255.7	107.6	19.1	3,815.2
1993	377.6	1,075.5	1,695.9	303.6	286.6	152.2	21.1	3,912.6
1994	367.8	1,176.9	1,595.4	285.2	311.0	122.4	21.0	3,879.7

¹ Excludes lease, plant and pipeline fuels.

² Includes renewable and indigenous energy.

³ Excludes non-fuel uses and steam.

New York State Primary Consumption of Refined Petroleum Products, 1980-1994

Figure 2-2

Table 2-2a (Thousand Barrels)

Year	Distillate Mbbl	Residual Mbbl	Kerosene Mbbl	LPG ¹ Mbbl	Motor Gasoline Mbbl	Aviation Fuels ² Mbbl	Total Petroleum Products Mbbl
1980	72,340	115,735	2,309	5,631	133,282	34,808	364,105
1981	64,112	105,212	2,072	5,215	131,037	31,872	339,520
1982	62,154	94,732	2,561	4,877	132,218	32,416	328,958
1983	57,136	88,438	3,007	4,906	137,445	33,838	324,770
1984	59,217	72,312	2,149	5,055	136,788	35,644	311,165
1985	60,399	61,395	2,411	4,923	141,249	35,573	305,950
1986	67,090	70,961	1,552	4,878	141,699	37,090	323,270
1987	69,846	71,183	2,382	5,476	146,758	38,607	334,252
1988	75,350	83,656	2,431	5,238	147,000	40,175	353,850
1989	76,545	87,682	2,344	5,579	147,800	40,360	360,310
1990	66,719	75,784	1,504	5,606	140,900	40,680	331,193
1991	65,277	68,076	1,753	7,207	135,660	36,750	314,723
1992	68,903	52,011	1,861	7,077	134,600	36,870	301,322
1993	73,511	49,295	2,421	6,139	135,350	36,950	303,666
1994	68,766	40,697	2,289	5,582	131,988	37,250	286,572

Table 2-2b (Trillion Btu)

Year	Distillate TBtu	Residual TBtu	Kerosene TBtu	LPG ¹ TBtu	Motor Gasoline TBtu	Aviation Fuels ² TBtu	Total Petroleum Products TBtu
1980	421.4	727.6	13.1	21.6	700.1	197.4	2,081.2
1981	373.5	661.5	11.7	20.0	688.3	180.7	1,935.7
1982	362.0	595.6	14.5	18.7	694.5	183.8	1,869.2
1983	332.8	556.0	17.0	18.8	722.0	191.9	1,838.6
1984	344.9	454.6	12.2	19.4	718.5	202.1	1,751.8
1985	351.8	386.0	13.7	18.9	742.0	201.7	1,714.0
1986	390.8	446.1	8.8	18.7	744.3	210.3	1,819.1
1987	406.9	447.5	13.5	21.0	770.9	218.9	1,878.7
1988	438.9	525.9	13.8	20.1	772.2	227.8	1,998.7
1989	445.9	551.3	13.3	21.4	776.4	228.8	2,037.1
1990	388.6	476.5	8.5	21.5	740.1	230.7	1,865.9
1991	380.2	428.0	9.9	27.6	712.6	208.4	1,766.8
1992	401.4	327.0	10.6	27.1	707.1	209.1	1,682.2
1993	428.2	309.9	13.7	23.5	711.0	209.5	1,695.9
1994	400.6	255.9	13.0	21.4	693.3	211.2	1,595.4

¹ Excludes non-fuel uses.

² Kerosene-type jet fuel and aviation gasoline.

New York State Primary Consumption by Sector, 1980-1994

Figure 2-3

Table 2-3 (Trillion Btu)

<u>Year</u>	<u>Residential</u> TBtu	<u>Commercial</u> TBtu	<u>Industrial</u> TBtu	<u>Transportation</u> TBtu	<u>Electric</u> <u>Generation</u> TBtu	<u>Total</u> TBtu
1980	594.6	398.3	418.1	1,027.8	1,310.7	3,749.4
1981	584.9	360.1	364.4	998.0	1,294.0	3,601.4
1982	568.2	373.6	314.3	993.1	1,272.8	3,522.1
1983	528.6	319.5	283.3	1,028.0	1,307.2	3,466.7
1984	544.5	326.9	291.7	1,019.8	1,349.7	3,532.6
1985	537.9	316.0	253.1	1,024.6	1,357.5	3,489.1
1986	564.9	346.5	222.4	1,040.0	1,372.2	3,546.0
1987	581.8	344.0	229.9	1,087.0	1,411.7	3,654.5
1988	605.5	368.9	222.6	1,129.2	1,452.0	3,778.2
1989	600.0	385.8	237.3	1,128.4	1,480.2	3,831.5
1990	521.7	363.8	234.9	1,109.0	1,473.9	3,703.3
1991	516.1	370.6	226.9	1,079.0	1,515.1	3,707.7
1992	577.9	395.9	247.0	1,074.7	1,519.7	3,815.2
1993	582.8	417.4	255.8	1,088.4	1,568.2	3,912.6
1994	570.5	433.9	246.4	1,061.8	1,567.1	3,879.7

New York State Primary Consumption for Electric Generation 1980-1994

Figure 2-4

Table 2-4a (Physical Units)

Year	Coal ¹ MTons	Natural Gas MMcf	Distillate ² Mbbl	Residual Mbbl	Total Petroleum Mbbl	Hydro GWh	Nuclear GWh	Net Imported Electricity GWh	Other ³ GWh
1980	8,709	124,391	585	64,062	64,647	26,241	19,276	5,575	0
1981	8,706	130,507	746	62,419	63,165	25,658	17,444	7,137	0
1982	8,946	152,577	500	55,686	56,186	25,329	14,438	10,196	0
1983	8,802	135,811	433	57,531	57,964	26,162	16,376	11,888	0
1984	9,247	169,620	617	48,548	49,165	26,586	21,187	10,812	0
1985	9,905	172,631	623	43,418	44,041	26,956	24,092	10,155	0
1986	8,430	133,532	1,166	52,288	53,454	29,480	22,084	13,204	0
1987	10,039	173,328	1,262	51,276	52,538	27,546	22,926	11,373	0
1988	11,380	148,186	2,019	62,983	65,002	23,994	24,176	9,994	0
1989	12,432	182,002	3,525	64,747	68,272	23,918	22,846	5,539	0
1990	12,400	235,909	1,369	53,903	55,272	27,560	23,624	1,352	1,502
1991	12,532	241,478	1,241	44,578	45,819	26,257	28,477	6,323	1,622
1992	13,184	312,516	651	28,963	29,614	27,193	24,155	10,167	1,806
1993	11,907	336,052	432	23,566	23,998	28,479	26,889	14,280	1,980
1994	11,552	398,674	747	17,917	18,664	26,800	29,225	11,504	1,972

Table 2-4b (Trillion Btu)

Year	Coal ¹ TBtu	Natural Gas TBtu	Distillate ² TBtu	Residual TBtu	Total Petroleum TBtu	Hydro TBtu	Nuclear TBtu	Net Imported Electricity TBtu	Other ³ TBtu	Total ⁴ TBtu
1980	214.5	128.9	3.4	402.8	406.2	288.2	211.7	61.2	0.0	1,310.7
1981	212.7	134.6	4.3	392.4	396.8	280.9	191.0	78.1	0.0	1,294.0
1982	222.2	157.2	2.9	350.1	353.0	274.0	156.2	110.3	0.0	1,272.8
1983	219.8	140.0	2.5	361.7	364.2	280.4	175.5	127.4	0.0	1,307.2
1984	232.1	175.0	3.6	305.2	308.8	287.6	229.2	117.0	0.0	1,349.7
1985	249.6	179.0	3.6	273.0	276.6	287.3	256.7	108.2	0.0	1,357.5
1986	214.5	138.3	6.8	328.7	335.5	311.3	233.2	139.4	0.0	1,372.2
1987	256.7	178.2	7.4	322.4	329.7	288.2	239.9	119.0	0.0	1,411.7
1988	291.7	152.5	11.8	396.0	407.7	247.6	249.4	103.1	0.0	1,452.0
1989	318.9	187.1	20.5	407.1	427.6	250.0	238.8	57.9	0.0	1,480.2
1990	318.6	243.7	8.0	338.9	346.9	288.0	246.9	14.1	15.7	1,473.9
1991	323.8	249.2	7.2	280.3	287.5	274.2	297.4	66.0	16.9	1,515.1
1992	342.2	321.3	3.8	182.1	185.9	287.9	255.7	107.6	19.1	1,519.7
1993	307.4	346.5	2.5	148.2	150.7	303.6	286.6	152.2	21.1	1,568.2
1994	299.4	411.0	4.4	112.6	117.0	285.2	311.0	122.4	21.0	1,567.1

¹ Bituminous coal only.

² Includes small quantities of kerosene-type jet fuel.

³ Includes renewable and indigenous fuels used by non-utility generators.

⁴ Excludes utility consumption of fuels used in the production of steam which is distributed for space heating.

New York State Electric Generation by Fuel Type, 1980-1994

Figure 2-5

Table 2-5 (Gigawatthours)

Year	Coal GWh	Natural Gas GWh	Petroleum Products GWh	Hydro GWh	Nuclear GWh	Net Imported Electricity GWh	Other ¹ GWh	Total ^{2,3} GWh
1980	19,643	10,766	37,834	26,241	19,276	5,575	0	119,335
1981	19,632	11,566	36,760	25,658	17,444	7,137	0	118,197
1982	20,807	13,974	32,932	25,329	14,438	10,196	0	117,676
1983	20,753	12,428	34,380	26,162	16,376	11,888	0	121,987
1984	21,902	15,395	28,891	26,586	21,187	10,812	0	124,773
1985	24,255	15,995	25,927	26,956	24,092	10,155	0	127,380
1986	20,815	12,471	31,911	29,480	22,084	13,204	0	129,965
1987	25,304	16,385	31,389	27,546	22,926	11,373	0	134,923
1988	28,698	13,936	39,931	23,994	24,176	9,994	0	140,729
1989	31,228	17,141	40,963	23,918	22,846	5,539	0	141,635
1990	30,928	22,483	33,583	27,560	23,624	1,352	1,502	141,032
1991	31,584	22,881	27,935	26,257	28,477	6,323	1,622	145,079
1992	32,614	29,686	17,928	27,193	24,155	10,167	1,806	143,549
1993	29,277	31,761	14,439	28,479	26,889	14,280	1,980	147,105
1994	28,399	38,347	10,998	26,800	29,225	11,504	1,972	147,245

¹ Includes renewable and indigenous fuels used by non-utility generators.

² Electricity generated by industrial establishments is excluded.

³ Generation data are net of station use.

New York State Sales of Electricity by Sector, 1980-1994

Figure 2-6

Table 2-6a (Gigawatthours)

Year	Residential GWh	Commercial GWh	Industrial GWh	Transportation GWh	Total GWh
1980	31,303	46,372	27,745	2,351	107,771
1981	31,222	46,813	27,930	2,348	108,313
1982	31,157	46,923	26,218	2,350	106,648
1983	32,375	48,758	26,662	2,400	110,195
1984	33,156	50,286	27,455	2,640	113,537
1985	33,032	51,354	27,121	2,655	114,162
1986	34,080	53,204	26,511	2,737	116,532
1987	35,696	55,980	26,728	2,855	121,259
1988	37,801	58,366	28,087	2,929	127,183
1989	38,678	60,166	28,518	3,055	130,417
1990	38,887	61,177	28,350	2,747	131,161
1991	39,551	61,665	27,426	2,721	131,363
1992	38,962	61,230	27,220	2,679	130,091
1993	40,366	62,724	26,341	2,725	132,156
1994	40,623	63,594	26,063	2,908	133,188

Table 2-6b (Trillion Btu)

Year	Residential TBtu	Commercial TBtu	Industrial TBtu	Transportation TBtu	Total TBtu
1980	106.8	158.2	94.7	8.0	367.7
1981	106.5	159.7	95.3	8.0	369.6
1982	106.3	160.1	89.5	8.0	363.9
1983	110.5	166.4	91.0	8.2	376.0
1984	113.1	171.6	93.7	9.0	387.4
1985	112.7	175.2	92.5	9.1	389.5
1986	116.3	181.5	90.5	9.3	397.6
1987	121.8	191.0	91.2	9.7	413.7
1988	129.0	199.1	95.8	10.0	433.9
1989	132.0	205.3	97.3	10.4	445.0
1990	132.7	208.7	96.7	9.4	447.5
1991	134.9	210.4	93.6	9.3	448.2
1992	132.9	208.9	92.9	9.1	443.9
1993	137.7	214.0	89.9	9.3	450.9
1994	138.6	217.0	88.9	9.9	454.4

New York State Net Consumption by Sector, 1980-1994

Figure 2-7

Table 2-7 (Trillion Btu)

Year	Residential TBtu	Commercial TBtu	Industrial TBtu	Transportation TBtu	Net Consumption TBtu	Electric Generation Losses ¹ TBtu	Primary Consumption TBtu
1980	701.4	556.5	512.7	1,035.8	2,806.4	943.0	3,749.4
1981	691.4	519.9	459.7	1,006.0	2,677.0	924.4	3,601.4
1982	674.5	533.7	403.8	1,001.2	2,613.2	908.9	3,522.1
1983	639.1	485.8	374.3	1,036.2	2,535.4	931.2	3,466.7
1984	657.6	498.5	385.3	1,028.8	2,570.2	962.3	3,532.6
1985	650.6	491.2	345.7	1,033.6	2,521.1	968.0	3,489.1
1986	681.2	528.1	312.8	1,049.4	2,571.4	974.6	3,546.0
1987	703.6	535.0	321.1	1,096.8	2,656.5	998.0	3,654.5
1988	734.5	568.0	318.4	1,139.2	2,760.2	1,018.0	3,778.2
1989	731.9	591.0	334.6	1,138.8	2,796.4	1,035.2	3,831.5
1990	654.4	572.5	331.6	1,118.4	2,676.9	1,026.4	3,703.3
1991	651.0	581.0	320.5	1,088.3	2,640.8	1,066.9	3,707.7
1992	710.8	604.8	339.9	1,083.8	2,739.4	1,075.8	3,815.2
1993	720.6	631.4	345.7	1,097.7	2,795.3	1,117.2	3,912.6
1994	709.1	650.9	335.4	1,071.7	2,767.1	1,112.7	3,879.7

¹ Transmission and conversion losses.

New York State Net Residential Consumption by Fuel Type, 1980-1994

Figure 2-8

Table 2-8a (Physical Units)

Year	Coal ¹ MTons	Natural Gas MMcf	Distillate Mbbl	Kerosene Mbbl	LPG Mbbl	Total Petroleum Mbbl	Electricity GWh
1980	181	333,382	39,397	1,755	2,511	43,663	31,303
1981	235	337,479	36,851	1,528	2,668	41,047	31,222
1982	286	338,112	33,383	1,859	2,501	37,743	31,157
1983	180	318,309	29,926	1,849	2,974	34,749	32,375
1984	224	332,991	30,503	1,253	2,963	34,719	33,156
1985	208	320,385	31,280	1,459	3,227	35,966	33,032
1986	206	332,584	34,140	1,120	3,282	38,542	34,080
1987	173	330,508	36,319	1,840	3,834	41,993	35,696
1988	139	352,829	36,717	1,923	3,718	42,358	37,801
1989	137	358,561	35,030	1,354	3,931	40,315	38,678
1990	123	331,157	26,679	1,164	4,079	31,922	38,887
1991	128	326,974	25,512	1,389	5,051	31,952	39,551
1992	135	372,862	28,165	1,252	4,965	34,382	38,962
1993	116	375,093	28,846	1,565	4,293	34,704	40,366
1994	85	376,738	26,905	1,396	4,005	32,306	40,623

Table 2-8b (Trillion Btu)

Year	Coal ¹ TBtu	Natural Gas TBtu	Distillate TBtu	Kerosene TBtu	LPG TBtu	Total Petroleum TBtu	Electricity TBtu	Total TBtu
1980	4.1	341.4	229.5	10.0	9.6	249.1	106.8	701.4
1981	5.4	345.9	214.7	8.7	10.2	233.6	106.5	691.4
1982	6.7	346.9	194.5	10.5	9.6	214.6	106.3	674.5
1983	4.3	328.2	174.3	10.5	11.4	196.2	110.5	639.1
1984	5.4	343.0	177.7	7.1	11.4	196.2	113.1	657.6
1985	4.8	330.3	182.2	8.3	12.4	202.9	112.7	650.6
1986	4.8	342.2	198.9	6.4	12.6	217.8	116.3	681.2
1987	4.3	340.8	211.6	10.4	14.7	236.7	121.8	703.6
1988	3.4	363.1	213.9	10.9	14.3	239.0	129.0	734.5
1989	3.5	369.7	204.0	7.7	15.1	226.8	132.0	731.9
1990	2.9	341.1	155.4	6.6	15.6	177.7	132.7	654.4
1991	3.1	337.1	148.6	7.9	19.4	175.9	134.9	651.0
1992	3.2	384.4	164.1	7.1	19.0	190.2	132.9	710.8
1993	2.8	386.7	168.0	8.9	16.5	193.4	137.7	720.6
1994	2.1	388.4	156.7	7.9	15.4	180.0	138.6	709.1

¹ Anthracite and bituminous.

New York State Net Commercial Consumption by Fuel Type, 1980-1994

Figure 2-9

Table 2-9a (Physical Units)

Year	Coal ¹ MTons	Natural Gas MMcf	Distillate Mbbl	Residual Mbbl	Kerosene Mbbl	LPG Mbbl	Total Petroleum Mbbl	Electricity GWh
1980	176	143,494	14,518	25,470	169	443	40,600	46,372
1981	249	151,363	12,628	19,577	158	471	32,834	46,813
1982	335	157,064	13,638	19,482	199	441	33,760	46,923
1983	210	149,782	12,119	13,507	469	525	26,620	48,758
1984	265	163,125	12,352	12,185	374	523	25,434	50,286
1985	226	156,457	11,891	12,073	391	569	24,924	51,354
1986	258	157,370	16,492	12,672	116	579	29,859	53,204
1987	198	159,626	14,784	13,509	182	677	29,152	55,980
1988	170	185,939	14,719	13,471	96	656	28,942	58,366
1989	161	179,759	15,470	16,271	254	694	32,689	60,166
1990	150	173,560	12,942	16,276	177	720	30,115	61,177
1991	151	175,372	12,753	17,132	141	891	30,917	61,665
1992	141	198,189	13,904	16,156	408	876	31,344	61,230
1993	116	199,232	15,112	18,262	616	758	34,748	62,724
1994	101	230,664	14,571	16,376	538	731	32,216	63,594

Table 2-9b (Trillion Btu)

Year	Coal ¹ TBtu	Natural Gas TBtu	Distillate TBtu	Residual TBtu	Kerosene TBtu	LPG TBtu	Total Petroleum TBtu	Electricity TBtu	Total TBtu
1980	4.0	146.9	84.6	160.1	1.0	1.7	247.4	158.2	556.5
1981	5.7	155.1	73.6	123.1	0.9	1.8	199.3	159.7	519.9
1982	7.7	161.1	79.4	122.5	1.1	1.7	204.7	160.1	533.7
1983	4.9	154.4	70.6	84.9	2.7	2.0	160.2	166.4	485.8
1984	6.2	168.0	72.0	76.6	2.1	2.0	152.7	171.6	498.5
1985	5.1	161.3	69.3	75.9	2.2	2.2	149.6	175.2	491.2
1986	6.0	161.9	96.1	79.7	0.7	2.2	178.6	181.5	528.1
1987	4.8	164.6	86.1	84.9	1.0	2.6	174.7	191.0	535.0
1988	4.1	191.3	85.7	84.7	0.5	2.5	173.5	199.1	568.0
1989	3.9	185.3	90.1	102.3	1.4	2.7	196.5	205.3	591.0
1990	3.5	178.8	75.4	102.3	1.0	2.8	181.5	208.7	572.5
1991	3.5	180.8	74.3	107.7	0.8	3.4	186.2	210.4	581.0
1992	3.3	204.3	81.0	101.6	2.3	3.4	188.2	208.9	604.8
1993	2.7	205.4	88.0	114.8	3.5	2.9	209.2	214.0	631.4
1994	2.4	237.8	84.9	103.0	3.1	2.8	193.7	217.0	650.9

¹ Anthracite and bituminous.

New York State Net Industrial Consumption by Fuel Type, 1980-1994

Figure 2-10

Table 2-10a (Physical Units)

Year	Coal ^{1,2} MTons	Natural Gas ³ MMcf	Distillate Mbbl	Residual Mbbl	Kerosene Mbbl	LPG Mbbl	Total Petroleum Mbbl	Electricity GWh
1980	5,886	117,879	7,790	14,836	385	2,598	25,609	27,745
1981	4,993	129,458	4,650	11,362	386	1,917	18,315	27,930
1982	3,954	110,963	4,726	10,567	503	1,795	17,591	26,218
1983	3,590	104,086	4,451	8,800	689	1,240	15,180	26,662
1984	4,373	108,750	4,537	6,316	522	1,359	12,734	27,455
1985	3,609	104,304	4,723	4,138	561	980	10,402	27,121
1986	3,308	92,423	3,070	3,810	316	909	8,105	26,511
1987	3,385	93,749	3,855	3,615	360	878	8,708	26,728
1988	3,387	87,501	3,698	3,581	412	742	8,433	28,087
1989	3,127	101,114	3,845	4,474	736	801	9,856	28,518
1990	2,899	110,964	3,419	4,381	163	655	8,618	28,350
1991	2,847	116,915	3,042	2,387	223	1,107	6,759	27,426
1992	2,813	132,126	3,117	3,125	201	1,092	7,535	27,220
1993	2,686	132,821	4,045	4,073	240	962	9,320	26,341
1994	2,641	135,469	3,062	3,220	355	728	7,365	26,063

Table 2-10b (Trillion Btu)

Year	Coal ^{1,2} TBtu	Natural Gas ³ TBtu	Distillate TBtu	Residual TBtu	Kerosene TBtu	LPG TBtu	Total Petroleum TBtu	Electricity TBtu	Total ^{4,5} TBtu
1980	146.5	120.7	45.4	93.3	2.2	10.0	150.8	94.7	512.7
1981	123.6	132.7	27.1	71.4	2.2	7.4	108.1	95.3	459.7
1982	96.8	113.8	27.5	66.4	2.9	6.9	103.7	89.5	403.8
1983	86.1	107.3	25.9	55.3	3.9	4.8	89.9	91.0	374.3
1984	105.3	112.0	26.4	39.7	3.0	5.2	74.3	93.7	385.3
1985	85.1	107.5	27.5	26.0	3.2	3.8	60.5	92.5	345.7
1986	80.2	95.1	17.9	24.0	1.8	3.5	47.1	90.5	312.8
1987	82.7	96.7	22.5	22.7	2.0	3.4	50.6	91.2	321.1
1988	83.3	90.0	21.5	22.5	2.3	2.8	49.2	95.8	318.4
1989	75.3	104.2	22.4	28.1	4.2	3.1	57.8	97.3	334.6
1990	69.7	114.3	19.9	27.5	0.9	2.5	50.9	96.7	331.6
1991	68.2	120.5	17.7	15.0	1.3	4.2	38.2	93.6	320.5
1992	67.7	136.2	18.2	19.6	1.1	4.2	43.1	92.9	339.9
1993	64.6	136.9	23.6	25.6	1.4	3.7	54.2	89.9	345.7
1994	63.9	139.7	17.8	20.2	2.0	2.8	42.9	88.9	335.4

¹ Anthracite and bituminous.

² Includes deliveries to cokeres.

³ Excludes lease and plant fuels.

⁴ Excludes non-fuel uses, e.g., feedstock.

⁵ Includes those fuels used by industry to generate electricity and process steam.

New York State Net Transportation Consumption by Fuel Type, 1980-1994

Figure 2-11

Table 2-11a (Physical Units)

Year	Distillate Mbbl	Residual Mbbl	Motor Gasoline Mbbl	Aviation Fuels ¹ Mbbl	LPG Mbbl	Total Petroleum Mbbl	Electricity GWh
1980	10,050	11,367	133,282	34,808	79	189,586	2,351
1981	9,237	11,854	131,037	31,872	159	184,159	2,348
1982	9,907	8,997	132,218	32,416	140	183,678	2,350
1983	10,207	8,600	137,445	33,838	167	190,257	2,400
1984	11,208	5,263	136,788	35,644	210	189,113	2,640
1985	11,882	1,766	141,249	35,573	147	190,617	2,655
1986	12,222	2,191	141,699	37,090	108	193,310	2,737
1987	13,626	2,783	146,758	38,607	87	201,861	2,855
1988	18,197	3,621	147,000	40,175	122	209,115	2,929
1989	18,675	2,190	147,800	40,360	153	209,178	3,055
1990	22,310	1,224	140,900	40,680	152	205,266	2,747
1991	22,729	3,979	135,660	36,750	158	199,276	2,721
1992	23,066	3,767	134,600	36,870	144	198,447	2,679
1993	25,076	3,394	135,350	36,950	126	200,896	2,725
1994	23,481	3,184	131,988	37,250	118	196,021	2,908

Table 2-11b (Trillion Btu)

Year	Distillate TBtu	Residual TBtu	Motor Gasoline TBtu	Aviation Fuels ¹ TBtu	LPG TBtu	Total Petroleum TBtu	Electricity TBtu	Total ² TBtu
1980	58.5	71.5	700.1	197.4	0.3	1,027.8	8.0	1,035.8
1981	53.8	74.5	688.3	180.7	0.6	998.0	8.0	1,006.0
1982	57.7	56.6	694.5	183.8	0.5	993.1	8.0	1,001.2
1983	59.5	54.1	722.0	191.9	0.6	1,028.0	8.2	1,036.2
1984	65.3	33.1	718.5	202.1	0.8	1,019.8	9.0	1,028.8
1985	69.2	11.1	742.0	201.7	0.6	1,024.6	9.1	1,033.6
1986	71.2	13.8	744.3	210.3	0.4	1,040.0	9.3	1,049.4
1987	79.4	17.5	770.9	218.9	0.3	1,087.0	9.7	1,096.8
1988	106.0	22.8	772.2	227.8	0.5	1,129.2	10.0	1,139.2
1989	108.8	13.8	776.4	228.8	0.6	1,128.4	10.4	1,138.8
1990	130.0	7.7	740.1	230.7	0.6	1,109.0	9.4	1,118.4
1991	132.4	25.0	712.6	208.4	0.6	1,079.0	9.3	1,088.3
1992	134.4	23.7	707.1	209.1	0.6	1,074.7	9.1	1,083.8
1993	146.1	21.3	711.0	209.5	0.5	1,088.4	9.3	1,097.7
1994	136.8	20.0	693.3	211.2	0.5	1,061.8	9.9	1,071.7

¹ Aviation gasoline and kerosene-type jet fuel.

² Excludes pipeline fuels.

Section 3

NEW YORK STATE ENERGY PRICES

This section presents data on energy prices at the retail level for the period 1980 through 1994. Retail energy prices are provided by fuel type for the residential, commercial, industrial, and transportation sectors in nominal dollars cost per physical unit and per million Btu.

Historical petroleum prices have been compiled from U.S. DOE/EIA's **State Energy Price and Expenditure Report**. For those years in which the former New York State Energy Office conducted surveys of various fuels, their results are provided.

Historical coal and natural gas data also have been compiled from U.S. DOE/EIA's **State Energy Price and Expenditure Report**. In the case of electricity, however, prices for all sectors were developed from data provided on U.S. DOE/EIA FORM-826, **Monthly Electric Utility Sales and Revenue Report with State Distributions**.

New York State Residential Energy Prices, 1980-1994

Figure 3-1

Table 3-1a (Physical Units)

Year	Coal ¹ \$/Ton	Distillate ² Cents/Gal	Kerosene Cents/Gal	LPG ³ Cents/Gal	Natural Gas \$/Mcf	Electricity Cents/kWh
1980	98.00	97.80	103.25	83.30	4.96	7.72
1981	117.00	122.83	133.00	89.99	5.54	9.56
1982	132.00	121.12	130.75	93.46	6.55	10.02
1983	128.00	112.65	124.25	96.36	7.91	10.65
1984	129.00	114.53	125.25	91.61	7.67	11.05
1985	134.00	110.03	119.50	101.55	7.77	11.15
1986	138.00	87.64	103.25	90.94	7.47	10.83
1987	138.00	88.00	96.25	88.05	6.89	10.79
1988	142.00	88.39	100.25	87.06	6.50	10.73
1989	145.00	93.94	102.50	105.40	7.23	11.08
1990	146.00	114.82	131.75	124.53	7.41	11.71
1991	144.00	109.18	123.50	133.26	7.38	12.31
1992	142.00	102.90	113.50	131.83	7.60	12.82
1993	144.00	101.72	112.75	135.13	8.15	13.55
1994	148.00	99.85	112.00	133.37	8.73	13.98

Table 3-1b (\$/Million Btu)

Year	Coal ¹ \$/MMBtu	Distillate ² \$/MMBtu	Kerosene \$/MMBtu	LPG ³ \$/MMBtu	Natural Gas \$/MMBtu	Electricity \$/MMBtu
1980	4.31	7.05	7.65	9.12	4.85	22.63
1981	4.93	8.86	9.85	9.85	5.41	28.02
1982	5.37	8.73	9.69	10.23	6.38	29.37
1983	5.22	8.12	9.20	10.55	7.67	31.21
1984	5.13	8.26	9.28	10.03	7.45	32.39
1985	5.82	7.93	8.85	11.12	7.54	32.68
1986	5.66	6.32	7.65	9.96	7.26	31.74
1987	5.25	6.35	7.13	9.64	6.68	31.62
1988	5.46	6.37	7.43	9.53	6.32	31.45
1989	5.33	6.77	7.59	11.54	7.02	32.47
1990	5.79	8.28	9.76	13.64	7.19	34.32
1991	5.70	7.87	9.15	14.59	7.16	36.08
1992	5.77	7.42	8.41	14.43	7.37	37.57
1993	5.98	7.33	8.35	14.79	7.92	39.71
1994	5.63	7.20	8.30	14.60	8.49	40.97

¹ Anthracite only.

² Home heating oil.

³ Propane.

New York State Commercial Energy Prices, 1980-1994

Figure 3-2

Table 3-2a (Physical Units)

<u>Year</u>	<u>Coal</u> \$/Ton	<u>Distillate</u> Cents/Gal	<u>Residual</u> Cents/Gal	<u>Kerosene</u> Cents/Gal	<u>Natural Gas</u> \$/Mcf	<u>Electricity</u> Cents/kWh
1980	37.98	89.83	26.27	92.30	4.27	7.76
1981	42.68	113.73	31.77	116.87	4.77	9.43
1982	49.65	110.29	28.92	116.13	5.51	10.06
1983	48.78	100.68	28.23	102.91	6.51	10.50
1984	46.19	103.48	31.62	110.41	6.28	10.65
1985	47.62	97.44	29.18	104.00	6.13	10.51
1986	43.85	74.05	18.39	78.44	5.78	9.99
1987	44.10	72.70	20.23	77.34	5.17	9.71
1988	42.76	71.04	16.82	75.70	5.39	9.46
1989	43.91	76.75	19.61	81.78	5.63	9.79
1990	44.10	92.87	23.59	99.50	5.60	10.18
1991	43.84	89.03	17.78	94.65	5.49	10.67
1992	43.98	79.87	18.17	85.25	5.76	11.01
1993	42.04	78.99	18.22	84.68	6.16	11.45
1994	42.38	77.54	19.04	77.49	6.23	11.53

Table 3-2b (\$/Million Btu)

<u>Year</u>	<u>Coal</u> \$/MMBtu	<u>Distillate</u> \$/MMBtu	<u>Residual</u> \$/MMBtu	<u>Kerosene</u> \$/MMBtu	<u>Natural Gas</u> \$/MMBtu	<u>Electricity</u> \$/MMBtu
1980	1.67	6.48	4.18	6.84	4.17	22.74
1981	1.89	8.20	5.05	8.66	4.65	27.64
1982	2.19	7.95	4.60	8.60	5.37	29.48
1983	2.15	7.26	4.49	7.62	6.31	30.77
1984	2.05	7.46	5.03	8.18	6.10	31.21
1985	2.16	7.03	4.64	7.70	5.95	30.80
1986	1.98	5.34	2.93	5.81	5.61	29.28
1987	1.97	5.24	3.22	5.73	5.02	28.46
1988	1.91	5.12	2.68	5.61	5.24	27.73
1989	1.97	5.53	3.12	6.06	5.46	28.69
1990	1.96	6.70	3.75	7.37	5.43	29.84
1991	1.95	6.42	2.83	7.01	5.33	31.27
1992	1.98	5.76	2.89	6.31	5.59	32.27
1993	1.90	5.70	2.90	6.27	5.99	33.56
1994	1.92	5.59	3.03	5.74	6.06	33.79

New York State Industrial Energy Prices, 1980-1994

Figure 3-3

Table 3-3a (Physical Units)

Year	Coal \$/Ton	Distillate Cents/Gal	Residual \$/bbl	Kerosene Cents/Gal	LPG Cents/Gal	Natural Gas \$/Mcf	Electricity Cents/kWh
1980	51.37	74.27	23.76	76.73	52.85	3.51	4.00
1981	55.74	91.29	30.33	94.43	55.26	3.99	5.18
1982	57.93	95.47	29.22	101.32	66.50	4.99	5.46
1983	53.06	95.57	27.65	97.81	68.99	5.71	5.62
1984	50.84	89.95	31.62	96.89	73.96	5.37	5.87
1985	50.22	85.07	29.18	91.62	109.13	5.29	5.16
1986	47.54	57.10	18.39	61.49	106.12	4.91	5.20
1987	45.68	60.11	20.23	64.75	103.16	4.28	5.13
1988	45.44	60.52	16.82	65.19	102.41	4.69	5.02
1989	46.13	65.21	19.61	70.24	88.84	4.84	5.34
1990	46.50	86.00	23.59	92.64	94.34	4.86	5.86
1991	46.56	73.12	17.78	78.75	101.26	4.74	6.27
1992	46.91	69.79	18.17	75.17	86.76	4.94	6.62
1993	45.79	67.00	18.22	72.69	88.93	5.17	6.81
1994	45.81	63.65	19.04	63.60	87.78	4.80	6.85

Table 3-3b (\$/Million Btu)

Year	Coal \$/MMBtu	Distillate \$/MMBtu	Residual \$/MMBtu	Kerosene \$/MMBtu	LPG \$/MMBtu	Natural Gas \$/MMBtu	Electricity \$/MMBtu
1980	2.08	5.36	3.78	5.68	5.79	3.43	11.72
1981	2.26	6.58	4.83	7.00	6.05	3.89	15.18
1982	2.34	6.88	4.65	7.51	7.28	4.87	16.00
1983	2.14	6.89	4.40	7.25	7.55	5.54	16.47
1984	2.06	6.49	5.03	7.18	8.10	5.22	17.20
1985	2.06	6.13	4.64	6.79	11.95	5.13	15.12
1986	1.94	4.12	2.93	4.56	11.62	4.78	15.24
1987	1.86	4.33	3.22	4.80	11.30	4.16	15.04
1988	1.85	4.36	2.68	4.83	11.21	4.56	14.71
1989	1.88	4.70	3.12	5.20	9.73	4.69	15.65
1990	1.89	6.20	3.75	6.86	10.33	4.72	17.17
1991	1.89	5.27	2.83	5.83	11.09	4.60	18.38
1992	1.91	5.03	2.89	5.57	9.50	4.79	19.40
1993	1.87	4.83	2.90	5.38	9.74	5.03	19.96
1994	1.88	4.59	3.03	4.71	9.61	4.67	20.08

New York State Transportation Energy Prices, 1980-1994

Figure 3-4

Table 3-4a (Physical Units)

Year	Gasoline Cents/Gal	Distillate ¹ Cents/Gal	Jet Fuel ² Cents/Gal	Residual ³ Cents/Gal	Electricity ⁴ Cents/kWh
1980	128.29	118.00	84.69	22.19	5.50
1981	140.38	144.80	101.09	27.68	6.54
1982	130.71	135.60	94.74	26.26	7.18
1983	129.88	130.03	86.94	26.59	7.45
1984	124.94	133.59	87.21	28.63	6.77
1985	125.16	133.51	87.90	25.68	6.43
1986	95.30	109.66	59.70	14.25	5.62
1987	101.54	107.42	61.40	17.87	5.87
1988	103.85	108.68	56.00	13.74	5.64
1989	114.16	113.05	63.40	16.50	6.28
1990	131.09	140.33	81.41	19.70	5.88
1991	133.20	139.73	69.90	14.94	6.40
1992	131.46	135.26	65.30	14.69	7.00
1993	128.26	134.75	62.95	14.73	7.33
1994	127.58	136.81	58.23	15.40	8.13

Table 3-4b (\$/Million Btu)

Year	Gasoline \$/MMBtu	Distillate ¹ \$/MMBtu	Jet Fuel ² \$/MMBtu	Residual ³ \$/MMBtu	Electricity ⁴ \$/MMBtu
1980	10.26	8.51	6.27	3.53	16.12
1981	11.22	10.44	7.49	4.40	19.17
1982	10.45	9.78	7.02	4.18	21.04
1983	10.38	9.38	6.44	4.23	21.83
1984	9.99	9.63	6.46	4.55	19.84
1985	10.01	9.63	6.51	4.09	18.85
1986	7.62	7.91	4.42	2.27	16.47
1987	8.12	7.75	4.55	2.84	17.20
1988	8.30	7.84	4.15	2.19	16.53
1989	9.13	8.15	4.70	2.63	18.41
1990	10.48	10.12	6.03	3.13	17.23
1991	10.65	10.07	5.18	2.38	18.76
1992	10.51	9.75	4.84	2.34	20.52
1993	10.25	9.72	4.66	2.34	21.48
1994	10.20	9.86	4.31	2.45	23.83

¹ Diesel.

² Kerosene-based.

³ Bunker fuel.

⁴ Consumed by railroads.

Section 4

NEW YORK STATE ENERGY EXPENDITURES

This section presents the estimated cost of net energy consumption in nominal dollars and in constant 1994 dollars by sector and fuel type for the 1980, 1985, and 1990 to 1994 periods.

Estimated costs of net energy consumption were derived by multiplying quantities of consumption (TBtu) by their respective prices.

**New York State
Energy Expenditure Estimates
by Fuel Type and Sector
in Nominal Dollars
1980-1994**

Figure 4-1

Table 4-1 (Million Dollars)

	1980	1985	1990	1991	1992	1993	1994
RESIDENTIAL							
Coal	\$17.7	\$27.9	\$16.8	\$17.1	\$19.0	\$16.1	\$11.8
Petroleum	1,782.0	1,656.2	1,563.9	1,524.8	1,551.5	1,549.8	1,418.7
Distillate	1,618.0	1,444.8	1,286.7	1,169.5	1,217.6	1,231.4	1,128.2
Kerosene	76.5	73.5	64.4	72.3	59.7	74.3	65.6
LPG	87.6	137.9	212.8	283.0	274.2	244.0	224.8
Natural Gas	1,655.8	2,490.5	2,452.5	2,413.6	2,833.0	3,062.7	3,297.5
Electricity	2,416.9	3,683.0	4,554.3	4,867.2	4,993.1	5,468.1	5,678.4
Total	\$5,872.4	\$7,857.6	\$8,587.5	\$8,822.7	\$9,396.6	\$10,096.7	\$10,406.4
COMMERCIAL							
Coal	\$6.5	\$11.2	\$6.9	\$6.8	\$6.5	\$5.1	\$4.6
Petroleum	1,234.1	882.6	925.1	825.1	807.0	887.0	831.4
Distillate	548.2	487.2	505.2	477.0	466.6	501.6	474.6
Residual	669.2	352.2	383.6	304.8	293.6	335.2	312.1
Kerosene	6.8	16.9	7.4	5.6	14.5	21.9	17.8
LPG	9.8	26.3	28.9	37.7	32.3	28.2	26.9
Natural Gas	612.6	959.7	970.9	963.7	1,142.0	1,230.3	1,441.1
Electricity	3,597.5	5,396.2	6,227.6	6,579.2	6,741.2	7,181.8	7,332.4
Total	\$5,450.7	\$7,249.7	\$8,130.5	\$8,374.8	\$8,696.8	\$9,304.3	\$9,609.5
INDUSTRIAL							
Coal	\$304.7	\$175.3	\$131.7	\$128.7	\$129.3	\$120.8	\$120.1
Petroleum	666.4	356.4	258.5	189.9	194.2	231.8	179.2
Distillate	243.3	168.6	123.4	93.3	91.5	114.0	81.7
Residual	352.7	120.6	103.1	42.5	56.6	74.2	61.2
Kerosene	12.5	21.7	6.2	7.6	6.1	7.5	9.4
LPG	57.9	45.4	25.8	46.6	39.9	36.0	26.9
Natural Gas	414.0	551.5	539.5	554.3	652.4	707.8	670.6
Electricity	1,109.9	1,398.6	1,660.3	1,720.4	1,802.3	1,794.4	1,785.1
Total	\$2,495.0	\$2,481.7	\$2,590.1	\$2,593.3	\$2,778.2	\$2,854.8	\$2,755.0
TRANSPORTATION							
Petroleum	\$9,172.7	\$9,459.5	\$10,493.3	\$10,068.1	\$9,815.2	\$9,738.8	\$9,384.6
Distillate	497.8	666.4	1,315.6	1,333.3	1,310.4	1,420.1	1,348.8
Residual	252.4	45.4	24.1	59.5	55.5	49.8	49.0
Motor Gasoline	7,183.0	7,427.4	7,756.2	7,589.2	7,431.6	7,287.8	7,071.7
Aviation	1,237.7	1,313.1	1,391.1	1,079.5	1,012.0	976.3	910.3
LPG	1.7	7.2	6.2	6.7	5.7	4.9	4.8
Electricity	129.0	171.5	162.0	174.5	186.7	199.8	235.9
Total	\$9,301.7	\$9,631.0	\$10,655.2	\$10,242.6	\$10,002.0	\$9,938.6	\$9,620.5
TOTAL							
Coal	\$328.9	\$214.5	\$155.4	\$152.6	\$154.9	\$142.1	\$136.6
Petroleum	12,855.2	12,354.6	13,240.8	12,607.9	12,367.9	12,407.4	11,813.9
Distillate	2,907.4	2,767.0	3,230.9	3,073.0	3,086.1	3,267.1	3,033.4
Residual	1,274.3	518.2	510.9	406.7	405.7	459.3	422.3
Gasoline	7,183.0	7,427.4	7,756.2	7,589.2	7,431.6	7,287.8	7,071.7
Kerosene	95.8	112.1	78.0	85.5	80.4	103.8	92.8
Aviation	1,237.7	1,313.1	1,391.1	1,079.5	1,012.0	976.3	910.3
LPG	157.0	216.8	273.7	374.0	352.1	313.2	283.5
Natural Gas	2,682.4	4,001.7	3,962.9	3,931.6	4,627.5	5,000.8	5,409.1
Electricity	7,253.2	10,649.3	12,604.2	13,341.2	13,723.2	14,644.1	15,031.9
Total	\$23,119.7	\$27,220.1	\$29,963.2	\$30,033.4	\$30,873.5	\$32,194.4	\$32,391.5

**New York State
Energy Expenditure Estimates
by Fuel Type and Sector
in Constant '94 Dollars
1980-1994**

Figure 4-2

Table 4-2 (Million Dollars)

	1980	1985	1990	1991	1992	1993	1994
RESIDENTIAL							
Coal	\$30.9	\$37.2	\$18.6	\$18.3	\$19.8	\$16.4	\$11.8
Petroleum	3,120.9	2,208.3	1,735.8	1,630.8	1,614.5	1,578.2	1,418.7
Distillate	2,833.6	1,926.5	1,428.1	1,250.8	1,267.0	1,254.0	1,128.2
Kerosene	134.0	97.9	71.5	77.3	62.1	75.7	65.6
LPG	153.3	183.9	236.2	302.7	285.3	248.5	224.8
Natural Gas	2,899.8	3,320.6	2,722.0	2,581.4	2,948.0	3,118.8	3,297.5
Electricity	4,232.7	4,910.7	5,054.7	5,205.6	5,195.7	5,568.3	5,678.4
Total	\$10,284.4	\$10,476.8	\$9,531.0	\$9,436.1	\$9,778.0	\$10,281.7	\$10,406.4
COMMERCIAL							
Coal	\$11.4	\$15.0	\$7.6	\$7.3	\$6.8	\$5.2	\$4.6
Petroleum	2,161.3	1,176.8	1,026.7	882.5	839.7	903.3	831.4
Distillate	960.1	649.6	560.7	510.2	485.5	510.8	474.6
Residual	1,172.0	469.6	425.8	326.0	305.5	341.4	312.1
Kerosene	12.0	22.6	8.2	6.0	15.1	22.3	17.8
LPG	17.2	35.1	32.1	40.3	33.6	28.8	26.9
Natural Gas	1,072.8	1,279.6	1,077.6	1,030.7	1,188.4	1,252.9	1,441.1
Electricity	6,300.3	7,194.9	6,911.9	7,036.6	7,014.8	7,313.5	7,332.4
Total	\$9,545.8	\$9,666.3	\$9,023.8	\$8,957.0	\$9,049.7	\$9,474.9	\$9,609.5
INDUSTRIAL							
Coal	\$533.7	\$233.7	\$146.2	\$137.7	\$134.6	\$123.0	\$120.1
Petroleum	1,167.1	475.1	286.9	203.1	202.1	236.0	179.2
Distillate	426.2	224.8	136.9	99.8	95.3	116.1	81.7
Residual	617.6	160.9	114.5	45.4	58.9	75.6	61.2
Kerosene	21.9	29.0	6.9	8.1	6.4	7.7	9.4
LPG	101.4	60.5	28.7	49.8	41.5	36.7	26.9
Natural Gas	725.0	735.3	598.8	592.8	678.9	720.7	670.6
Electricity	1,943.8	1,864.8	1,842.8	1,840.0	1,875.4	1,827.3	1,785.1
Total	\$4,369.6	\$3,309.0	\$2,874.7	\$2,773.5	\$2,890.9	\$2,907.1	\$2,755.0
TRANSPORTATION							
Petroleum	\$16,064.3	\$12,612.6	\$11,646.2	\$10,768.0	\$10,213.6	\$9,917.3	\$9,384.6
Distillate	871.9	888.5	1,460.2	1,426.0	1,363.6	1,446.1	1,348.8
Residual	442.0	60.5	26.7	63.6	57.7	50.8	49.0
Motor Gasoline	12,579.7	9,903.2	8,608.5	8,116.8	7,733.2	7,421.3	7,071.7
Aviation	2,167.6	1,750.8	1,544.0	1,154.6	1,053.1	994.2	910.3
LPG	3.0	9.6	6.9	7.1	5.9	5.0	4.8
Electricity	225.8	228.7	179.8	186.6	194.3	203.4	235.9
Total	\$16,290.1	\$12,841.3	\$11,826.0	\$10,954.6	\$10,407.9	\$10,120.8	\$9,620.5
TOTAL							
Coal	\$576.0	\$286.0	\$172.5	\$163.2	\$161.2	\$144.7	\$136.6
Petroleum	22,513.6	16,472.8	14,695.7	13,484.4	12,869.9	12,634.8	11,813.9
Distillate	5,091.7	3,689.3	3,585.9	3,286.7	3,211.4	3,327.0	3,033.4
Residual	2,231.7	691.0	567.0	435.0	422.2	\$467.7	\$422.3
Gasoline	12,579.7	9,903.2	8,608.5	8,116.8	7,733.2	\$7,421.3	\$7,071.7
Kerosene	167.8	149.5	86.5	91.4	83.6	\$105.7	\$92.8
Aviation	2,167.6	1,750.8	1,544.0	1,154.6	1,053.1	\$994.2	\$910.3
LPG	275.0	289.0	303.8	400.0	366.4	\$318.9	\$283.5
Natural Gas	4,697.7	5,335.6	4,398.3	4,204.9	4,815.3	\$5,092.4	\$5,409.1
Electricity	12,702.6	14,199.1	13,989.1	14,268.7	14,280.2	\$14,912.5	\$15,031.9
Total	\$40,489.9	\$36,293.4	\$33,255.5	\$32,121.3	\$32,126.5	\$32,784.5	\$32,391.5

Section 5

SOURCES OF ENERGY SUPPLIES

While New York State is the fourth largest energy consumer among all states, only an estimated 7.9% of total energy requirements are met from resources produced within the State. Hydroelectric power is produced at various locations throughout the State. Oil and natural gas production, primarily located in the western region, amount to 0.1% and 1.8% of the State's use of these fuels, respectively.

Households, businesses, industry, and electric utilities in New York State rely on fuels that originate elsewhere in the United States or from abroad. Most of the natural gas used in the State is from Louisiana. Coal resources are from Kentucky, Pennsylvania, Virginia, and West Virginia.

Data on shipments from Petroleum Administration for Defense (PAD) Districts of domestic crude, refined oil, and final destination of imported oil are unavailable for specific state levels. Consequently, levels of oil dependence identified for New York State are estimated by applying PAD District I's dependency to the New York State petroleum-product mix.

New York State Primary Energy Production, 1980-1994

Figure 5-1

Table 5-1a (Physical Units)

Year	Hydro Electricity GWh	Natural Gas MMcf	Crude Oil Mbbbl
1980	26,241	15,650	824
1981	25,658	19,000	849
1982	25,329	18,760	831
1983	26,162	20,455	902
1984	26,586	27,414	952
1985	26,956	33,061	1071
1986	29,480	34,796	853
1987	27,546	29,549	710
1988	23,994	28,125	567
1989	23,918	25,673	496
1990	27,560	25,112	417
1991	26,257	23,438	426
1992	27,193	23,582	406
1993	28,479	22,145	341
1994	26,800	20,476	299

Table 5-1b (Trillion Btu)

Year	Hydro Electricity TBtu	Natural Gas TBtu	Crude Oil TBtu	Energy Production TBtu
1980	288.2	16.0	4.8	309.0
1981	280.9	19.5	4.9	305.3
1982	274.0	19.2	4.8	298.0
1983	280.4	21.1	5.2	306.7
1984	287.6	28.2	5.5	321.4
1985	287.3	34.1	6.2	327.6
1986	311.2	35.8	4.9	352.0
1987	288.2	30.5	4.1	322.8
1988	247.6	28.9	3.3	279.8
1989	249.9	26.5	2.9	279.3
1990	288.0	25.9	2.4	316.3
1991	274.2	24.2	2.5	300.8
1992	287.9	24.3	2.4	314.5
1993	303.6	22.8	2.0	328.4
1994	285.2	21.1	1.7	308.1

New York State and United States Sources of Petroleum Products, 1980-1994

Figure 5-2

Table 5-2a (New York State)

Year	Total Domestic	Total Foreign	OPEC	Non-OPEC
1980	36.0%	64.0%	47.7%	16.3%
1981	38.2%	61.8%	42.3%	19.5%
1982	43.9%	56.1%	32.3%	23.8%
1983	41.6%	58.4%	29.8%	28.6%
1984	39.9%	60.1%	31.0%	29.1%
1985	40.7%	59.3%	27.8%	31.5%
1986	36.8%	63.2%	32.5%	30.7%
1987	32.1%	67.9%	34.3%	33.6%
1988	28.7%	71.3%	37.4%	33.9%
1989	25.7%	74.3%	44.3%	30.0%
1990	26.1%	73.9%	47.1%	26.8%
1991	26.0%	74.0%	47.5%	26.5%
1992	25.7%	74.3%	45.4%	28.9%
1993	21.8%	78.2%	46.4%	31.8%
1994	21.1%	78.9%	45.0%	33.9%

Table 5-2b (United States)

Year	Total Domestic	Total Foreign	OPEC	Non-OPEC
1980	n.a.	n.a.	n.a.	n.a.
1981	62.7%	37.3%	23.4%	13.9%
1982	67.8%	32.2%	19.6%	12.6%
1983	67.4%	32.6%	14.6%	18.0%
1984	64.5%	35.5%	16.3%	19.2%
1985	67.9%	32.1%	13.0%	19.1%
1986	60.9%	39.1%	19.2%	19.8%
1987	59.0%	41.0%	20.2%	20.8%
1988	56.3%	43.7%	21.5%	22.2%
1989	52.3%	47.7%	26.1%	21.6%
1990	51.5%	48.5%	27.6%	20.9%
1991	53.1%	46.9%	26.6%	20.3%
1992	52.4%	47.6%	26.2%	21.4%
1993	48.1%	51.9%	27.8%	24.1%
1994	47.8%	52.2%	26.3%	25.9%

Appendix A

New York State Degree-Days

1980-1994

Table A-1 (Heating Degree-Days)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1980	1127	1111	915	481	174	67	4	4	66	428	742	1160	6279
1981	1381	846	862	436	197	28	4	15	115	467	661	1034	6046
1982	1384	998	890	583	165	73	4	32	97	364	576	836	6002
1983	1097	937	782	517	281	21	1	8	54	350	625	1090	5763
1984	1264	819	1045	528	286	20	8	7	131	266	657	828	5859
1985	1279	979	780	434	172	70	7	16	62	328	580	1101	5808
1986	1116	1052	789	444	145	44	5	23	108	368	722	939	5755
1987	1153	1056	775	444	189	16	1	20	92	463	634	922	5765
1988	1229	995	843	531	198	43	1	5	113	507	621	1048	6134
1989	1018	1024	880	571	221	23	3	16	84	342	699	1377	6258
1990	895	864	779	479	281	29	4	12	97	260	590	845	5135
1991	1115	856	764	404	100	14	3	7	104	307	627	924	5225
1992	1079	942	940	581	246	56	18	26	97	464	685	978	6112
1993	1037	1143	966	501	185	36	2	8	106	427	675	1027	6113
1994	1388	1135	915	448	269	15	1	21	101	375	532	869	6069
Normal	1158	1015	870	515	220	32	4	13	88	348	651	1018	5932

Table A-2 (Cooling Degree-Days)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1980	0	0	0	0	30	70	273	294	93	0	0	0	760
1981	0	0	0	0	22	130	269	193	43	0	0	0	657
1982	0	0	0	0	29	54	244	145	50	0	0	0	522
1983	0	0	0	0	6	139	302	246	105	4	0	0	802
1984	0	0	0	0	10	156	186	252	35	12	0	0	651
1985	0	0	0	0	29	59	227	201	87	6	0	0	609
1986	0	0	0	0	40	99	226	158	47	4	0	0	574
1987	0	0	0	0	21	143	283	168	57	0	0	0	672
1988	0	0	0	0	19	99	303	281	43	0	0	0	745
1989	0	0	0	0	15	132	220	195	64	4	0	0	630
1990	0	0	0	15	7	110	240	217	54	16	0	0	659
1991	0	0	0	0	71	164	260	258	50	13	0	0	816
1992	0	0	0	0	11	69	163	143	51	0	0	0	437
1993	0	0	0	0	23	113	295	231	51	0	0	0	713
1994	0	0	0	0	7	162	317	153	50	0	0	0	689
Normal	0	0	0	0	19	111	244	209	67	5	0	0	655

Appendix B

Equivalent Units and Conversion Factors

ABBREVIATIONS

M	thousand or 10 ³
MM	million or 10 ⁶
B	billion or 10 ⁹
T	trillion or 10 ¹²
bbl	barrel
Btu	British thermal unit
cf	cubic feet
gal	gallon
GWh	gigawatt-hour or million kWh
kWh	kilowatt-hour
LPG	liquefied petroleum gas
OPEC	Organization of Petroleum Exporting Countries
N/A	Not Applicable
n.a.	Not Available

CONVERSION FACTORS

Appropriate heat content of various fuels (1994)

Anthracite coal		
Non-utility	16,280,000	Btu/ton
Bituminous coal		
Electric utility	25,916,000	Btu/ton
Residential/commercial	23,004,000	Btu/ton
Industrial	22,036,000	Btu/ton
Metallurgical	26,800,000	Btu/ton
Natural gas		
Electric utility	1,029	Btu/cf
Non-utility	1,028	Btu/cf
Hydro	10,643	Btu/kWh
Nuclear	10,643	Btu/kWh
Electricity	3,412	Btu/kWh
Petroleum products		
Distillate fuel oil	5,825,000	Btu/barrel
Jet fuel, kerosene-type	5,670,000	Btu/barrel
Kerosene	5,670,000	Btu/barrel
Motor gasoline	5,253,000	Btu/barrel
LPG (propane)	3,836,000	Btu/barrel
Residual fuel oil	6,287,000	Btu/barrel

Appendix C

Glossary

GLOSSARY

anthracite - A hard, black lustrous coal often referred to as "hard coal" that does not burn easily. It has a heating value of 8,500 to 15,000 Btu per pound.

barrel (bbl) - Liquid volume measure equal to 42 gallons, commonly used in expressing quantities of petroleum or petroleum products.

bituminous coal - Often referred to as "soft coal," it is more volatile than anthracite and has a higher heat content than lignite. The most-used coal, it has a heating value of 11,450 to 13,010 Btu per pound.

British thermal unit (Btu) - The quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. Because different energy types use different standards of measurement, they often are converted into Btu to enable comparison. One Btu is equal to 252 calories of heat.

commercial sector - That sector of the state that engages primarily in the sale of services and goods. Included are apartment and office buildings, governmental units, schools, institutions, churches, restaurants, and retail stores.

crude oil - A mixture of hydrocarbons that exist in the liquid phase in natural underground reservoirs. Refined crude oil produces a number of different fuels, including residual fuel, motor gasoline, and distillate.

degree-days, cooling - This statistic is a measure of temperature as it affects energy demand for space cooling. It is similar to heating degree-days, although the relationship is not as precise. If the average of a day's high and low temperature extremes is below 65 degrees F, then the cooling degree-days for that day are zero; otherwise, they are equal to the difference between the average and 65 degrees F.

degree-days, heating - This statistic is a measure of temperature as it affects energy demand for space heating. It is based on the fact that most buildings require no heat to maintain an inside temperature of at least 70 degrees F when the daily mean is 65 degrees F or higher. If the average of a day's high and low temperature extremes is above 65 degrees F, the heating degree-days for that day are taken to be zero; otherwise, they are equal to the difference between the average and 65 degrees F. Note that a larger number of heating degree-days implies cooler temperatures.

distillate fuel - Usually means "home heating oil." Its products are actually Nos. 1 and 2 heating oils, diesel fuels, and No. 4 fuel oil. These products are used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel), and electric power generation.

electric utility - Includes both public and privately owned utilities located within New York State.

end-use - Any ultimate consumption of any type of fossil fuel (petroleum, coal, natural gas) or electricity, whether generated by fossil fuel or other energy sources. End-users are often classified by economic sector, such as residential, commercial, industrial, and transportation.

feedstock - The raw material furnished to a machine or process. Fossil fuels sometimes are used as feedstocks for their chemical properties, rather than their values as fuel (e.g., oil used to produce plastics and synthetic fabrics).

gallon (gal) - A unit of volume, the U.S. gallon contains 3.785 liters and is .083 times the imperial gallon. One U.S. gallon of water weighs 8.3 pounds.

gigawatt (GW) - 1,000,000 kilowatts, or 1 billion watts.

gigawatthour (GWh) - One billion watthours

hydro - A prefix used to identify a type of generating station, power, or energy output in which the prime mover is water.

industrial sector - That section of the economy involved in either mining, construction, or manufacturing.

jet fuel - Includes both naphtha- and kerosene-type jet fuel that meets the standards for use in aircraft turbine engines. Some jet fuel is used for generating electricity in gas turbines.

kerosene - A petroleum middle distillate with burning properties suitable for use as an illuminant when burned in wick lamps. Kerosene also is used in space heaters, cooking stoves, and water heaters.

kilowatt (kW) - One thousand watts.

kilowatthour (kWh) - The amount of electrical energy involved with a one-kilowatt demand over a period of one hour. One kilowatthour is equivalent to 3,412 Btu of heat energy.

liquefied petroleum gases (LPG) - Propane, propylene, butane, and propane-butane mixtures produced at a refinery or natural gas-processing plant, including plants that fractionate raw natural gas-processing plant liquids. These are derived by refining and processing natural gas, crude oil or unfinished oil.

megawatt (MW) - 1,000 kilowatts or 1 million watts.

megawatthour (MWh) - One million watthours.

motor gasoline - A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines. Included are leaded and unleaded products and refinery products.

natural gas - A mixture of hydrocarbon compounds and small quantities of various nonhydrocarbons existing in the gaseous phase ("gas well" gas) or in solution with crude oil ("oil well" gas) in natural underground reservoirs at reservoir conditions. It comes from the ground with or without accompanying crude oil and is generally much higher in heat content than manufactured gas. It is used as a raw material in the petrochemical industry for manufacturing fertilizer and cellophane.

nuclear - The energy liberated by fission, fusion, or radioactive decay.

Organization of Petroleum Exporting Countries (OPEC) - OPEC includes Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

petroleum - A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oil, refined nonhydrocarbon compounds blended into finished petroleum products.

propane - A colorless, highly volatile hydrocarbon that is readily recovered as a liquefied gas at natural gas-processing plants and refineries. It is used primarily for residential and commercial heating and cooling, and also as a fuel for transportation and industrial uses, including petrochemical feedstocks. Propane is the first product refined from crude petroleum.

refined petroleum - Products made from processing crude oil, unfinished oils, natural gas liquids and other miscellaneous hydrocarbon compounds. Includes aviation gasoline, motor gasoline, naphtha- and kerosene-type jet fuels, kerosene, distillate fuel oil, residual fuel oil, ethane, liquefied petroleum gases, petrochemical feedstocks, special naphthas, lubricants, paraffin wax, petroleum coke, asphalt, road oil, till gas, and miscellaneous products.

residential sector - Includes private households. Specifically included are the following end-uses: space heating and cooling, water heating, cooking, lighting, clothes drying, and refrigeration.

residual fuel - The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations. Included are products known as No. 5 and No. 6 fuel oil, heavy diesel oil, Navy Special Fuel Oil, Bunker C oil, and acid sludge and pitch used as refinery fuels. Residual fuel oil is used for production of electric power, space heating, vessel bunkering, and various industrial purposes.

trillion (T) - 1,000,000,000,000, or 10^{12} .

ton - In the United States, Canada, and Union of South Africa, a unit of weight equal to 2,000 pounds. The American ton is often called the short ton. The metric ton equals 2,204.62 pounds.

watt (W) - The unit of measure for electric power or rate of doing work. The rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt at unity power factor. It is analogous to horsepower or foot-pounds per minute of mechanical power. One horsepower is equivalent to approximately 746 watts.

watthour (Wh) - An electrical energy unit of measure equal to one watt of power supplied to, or taken from an electrical circuit steadily for one hour.

Appendix D

Data Sources

ANTHRACITE, BITUMINOUS, AND METALLURGICAL COAL

- Coal Distribution, U.S. Dept. of Energy, Energy Information Administration (U.S.DOE/EIA)
- Quarterly Coal Report (U.S.DOE/EIA)
- State Energy Price and Expenditure Report (U.S.DOE/EIA)

NATURAL GAS

- Natural Gas Annual (U.S.DOE/EIA)
- New York Gas Report, Long Range Plan (New York Gas Group)
- Central Hudson Gas & Electric Corp., Annual Reports to the State of New York Public Service Commission (PSC Reports)
- Consolidated Edison Co. of New York, Inc. (PSC Reports)
- Long Island Lighting Company (PSC Reports)
- New York State Electric & Gas Corp. (PSC Reports)
- Niagara Mohawk Power Corp. (PSC Reports)
- Orange and Rockland Utilities, Inc. (PSC Reports)
- Rochester Gas and Electric Corp. (PSC Reports)
- National Fuel Gas Corporation (PSC Reports)
- Brooklyn Union Gas Company (PSC Reports)
- Corning Natural Gas Corp. (PSC Reports)
- St. Lawrence Gas Company, Inc. (PSC Reports)
- Syracuse Suburban Gas Company, Inc. (PSC Reports)
- Financial Statistics of the Major Privately Owned Utilities in New York State (New York State Dept. of Public Service)
- State Energy Price and Expenditure Report (U.S.DOE/EIA)

CRUDE PETROLEUM AND PETROLEUM PRODUCTS

- Sales of Fuel Oil and Kerosene (U.S.DOE/EIA)
- Petroleum Supply Annual (U.S.DOE/EIA)
- Petroleum Marketing Monthly (U.S.DOE/EIA)
- Motor Fuel Monthly Gallonage & Revenue Report (New York State Dept. of Taxation and Finance)
- Monthly Motor Gasoline Reported by States (U.S. Dept. of Transportation, Federal Highway Administration)
- State Energy Price and Expenditure Report (U.S.DOE/EIA)

ELECTRICITY

- Report of the Member Systems of the New York Power Pool, Long Range Plan (New York Power Pool)
- Central Hudson Gas & Electric Corp. (PSC Reports)
- Consolidated Edison Co. of New York, Inc. (PSC Reports)
- Long Island Lighting Company (PSC Reports)
- New York State Electric & Gas Corp. (PSC Reports)
- Niagara Mohawk Power Corp. (PSC Reports)
- Orange and Rockland Utilities, Inc. (PSC Reports)
- Rochester Gas and Electric Corp. (PSC Reports)
- Annual Reports of the New York Power Authority to the Federal Energy Regulatory Commission
- Power System Statements made by the New York Power Authority to the Energy Information Administration, U.S. Dept. of Energy
- Electric Power Annual (U.S.DOE/EIA)
- Electric Power Quarterly (U.S.DOE/EIA)
- Electric Power Monthly (U.S.DOE/EIA)
- Cost and Quality of Fuels for Electric Utility Plants (U.S.DOE/EIA)
- Statistics of Privately Owned Electric Utilities in the United States (U.S.DOE/EIA)
- Statistics of Publicly Owned Electric Utilities in the United States (U.S.DOE/EIA)
- State Energy Price and Expenditure Report (U.S.DOE/EIA)

UNITED STATES ENERGY DATA

- Annual Energy Review (U.S.DOE/EIA)
- Monthly Energy Review (U.S.DOE/EIA)
- State Energy Data Review (U.S.DOE/EIA)