

New York State Energy Research and Development Authority

Patterns and Trends New York State Energy Profiles: 1997–2011

Final Report
June 2013



nyserda
Energy. Innovation. Solutions.

NYSERDA's Promise to New Yorkers:

NYSERDA provides resources, expertise and objective information so New Yorkers can make confident, informed energy decisions.

Our Mission: Advance innovative energy solutions in ways that improve New York's economy and environment.

Our Vision: Serve as a catalyst—advancing energy innovation and technology, transforming New York's economy, empowering people to choose clean and efficient energy as part of their everyday lives.

Our Core Values: Objectivity, integrity, public service, partnership and innovation.

Our Portfolios

NYSERDA programs are organized into five portfolios, each representing a complementary group of offerings with common areas of energy-related focus and objectives.

Energy Efficiency and Renewable Energy Deployment

Helping New York to achieve its aggressive energy efficiency and renewable energy goals – including programs to motivate increased efficiency in energy consumption by consumers (residential, commercial, municipal, institutional, industrial, and transportation), to increase production by renewable power suppliers, to support market transformation and to provide financing.

Energy Technology Innovation and Business Development

Helping to stimulate a vibrant innovation ecosystem and a clean-energy economy in New York– including programs to support product research, development, and demonstrations; clean-energy business development; and the knowledge-based community at the Saratoga Technology + Energy Park®.

Energy Education and Workforce Development

Helping to build a generation of New Yorkers ready to lead and work in a clean energy economy – including consumer behavior, youth education, workforce development and training programs for existing and emerging technologies.

Energy and the Environment

Helping to assess and mitigate the environmental impacts of energy production and use – including environmental research and development, regional initiatives to improve environmental sustainability and West Valley Site Management.

Energy Data, Planning and Policy

Helping to ensure that policy-makers and consumers have objective and reliable information to make informed energy decisions – including State Energy Planning; policy analysis to support the Regional Greenhouse Gas Initiative, and other energy initiatives; emergency preparedness; and a range of energy data reporting, including *Patterns and Trends*.

**PATTERNS AND TRENDS
NEW YORK STATE ENERGY PROFILES: 1997-2011**

Final Report

Prepared by
**NEW YORK STATE
ENERGY RESEARCH AND
DEVELOPMENT AUTHORITY**

Albany, NY
nyserda.ny.gov

June 2013

MESSAGE FROM THE PRESIDENT

Knowledge is power. *Patterns and Trends* provides a 15-year overview of New York State energy related data compiled by the Energy Analysis Program of the New York State Energy Research and Development Authority (NYSERDA). This annual report is prepared to assist individuals, businesses, and institutions in making informed energy decisions that will promote sustainable economic growth.

The data in the report are collected and reported by sector and end use for: energy production and use; sources of energy supply; fuel prices; and total energy expenditures. Comparisons across states and to the U.S. average are also provided for some data sets.

Although 2011 continued a four-year trend of lower energy consumption in New York State, New Yorkers did experience increases in some energy prices and total expenditures. The energy industry in New York State continues to face many of the same challenges encountered in previous years from energy price volatility to economic upheaval. As part of our mission, NYSERDA is working to reduce New York's dependence on fossil fuels and to promote clean, renewable energy and energy efficiency measures. We are seeking new ways to make these solutions as affordable and environmentally friendly as possible. NYSERDA welcomes any feedback that users of this report would like to offer, especially suggestions on how *Patterns and Trends* may better meet the needs of the State's energy stakeholders.

Francis J. Murray, President and Chief Executive Officer
New York State Energy Research and Development Authority

PATTERNS AND TRENDS

New York State Energy Profiles: 1997–2011

Table of Contents

List of Tables and Figures.....	vii
New York State Energy Fast Facts	ix
2011 New York State Energy Flow (TBtu)	xi
Overview	xiii
Section 1 Energy Profiles and Comparisons for the United States and New York State	1
Section 2 New York State Energy Consumption.....	21
Section 3 New York State Energy Prices	35
Section 4 New York State Energy Expenditures	41
Section 5 New York State's Sources of Energy	45
Section 6 Appendices.....	49
Appendix A-1 New York State Greenhouse Gas Emissions from Fuel Combustion.....	A-1
Appendix A-2 New York State CO ₂ Emissions by Fuel Type from Fuel Combustion.....	A-2
Appendix B New York State Household Consumption and Expenditures by End Use	B-1
Appendix C Estimated Annual Gasoline Consumption by County in New York State	C-1
Appendix D-1 Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2007 – 2011, 5-Year Estimates	D-1
Appendix D-2 Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2011, 1-Year Estimates	D-2
Appendix D-3 New York State Population Estimates by County, 2000-2011.....	D-3
Appendix E New York State Heating and Cooling Degree-Days	E-1
Appendix F Abbreviations and Conversion Factors	F-1
Appendix G Glossary	G-1
Appendix H Data Sources	H-1

Patterns and Trends - New York State Energy Profiles: 1997–2011 presents a 15-year, historical overview of energy statistics for the State. It is an objective and reliable source of energy-related information for use by the general public, businesses and government analysts. This report was prepared using the most recent comprehensive data available through the 2011 calendar year. Historical data prior to 1997 are available by clicking on the selected table. The timing of the report's release is dependent on the timeliness of data availability from the Energy Information Administration and other sources.

For more information, contact Matthew Milford, NYSERDA, 17 Columbia Circle, Albany, New York 12203-6399; 518-862-1090 ext. 3416; or visit nyserda.ny.gov.

List of Tables and Figures

Section 1 Energy Profiles and Comparisons for the United States and New York State	
1-1 United States Primary Consumption of Energy by Fuel Type and Sector	3
1-2 New York State Primary Consumption of Energy by Fuel Type and Sector	4
1-3 Selected Energy Prices in Nominal Dollars.....	5
1-4 United States Sources of Petroleum Products.....	6
1-5 Factors Influencing Energy Demand and Expenditures	7
1-6 State Comparisons of Energy Consumption and Expenditure Indicators.....	8
1-7 State Comparisons for the Residential and Commercial Sectors.....	9
1-8 State Comparisons for the Industrial and Transportation Sectors	10
1-9 Primary Consumption by Fuel Type and by Sector.....	11
1-10 Primary Consumption by Electric Generation and Consumption of Petroleum Products	12
1-11 Petroleum and Natural Gas Consumption by Sector	13
1-12 Coal Consumption and Electricity Sales by Sector	14
1-13 Primary Consumption per GSP/GNP and per Capita	15
1-14 Residential Consumption per Household and per Capita	16
1-15 Commercial Consumption per Non-Manufacturing Employment and per Capita	17
1-16 Industrial Consumption per Manufacturing Employee and per Capita	18
1-17 Transportation Consumption per Vehicle Miles Traveled and per Registered Vehicle	19
Section 2 New York State Energy Consumption	
2-1 Primary Consumption of Energy by Fuel Type	23
2-2 Primary Consumption of Refined Petroleum Products.....	24
2-3 Primary Consumption of Energy by Sector	25
2-4 Primary Consumption of Energy for Electric Generation	26
2-5 Electric Generation by Fuel Type	27
2-6 Fossil Fuel for Electric Generation Trends	28
2-7 Sales of Electricity to Ultimate Consumers	29
2-8 Net Consumption of Energy by Sector	30
2-9 Net Residential Consumption of Energy by Fuel Type	31
2-10 Net Commercial Consumption of Energy by Fuel Type	32
2-11 Net Industrial Consumption of Energy by Fuel Type.....	33
2-12 Net Transportation Consumption of Energy by Fuel Type	34
Section 3 New York State Energy Prices (Nominal Dollars)	
3-1 Residential Energy Prices	37
3-2 Commercial Energy Prices	38
3-3 Industrial Energy Prices	39
3-4 Transportation Energy Prices.....	40
Section 4 New York State Energy Expenditures	
4-1 Energy Expenditure Estimates by Fuel Type and Sector in Nominal Dollars.....	43
4-2 Energy Expenditure Estimates by Fuel Type and Sector in Constant 2011 Dollars	44

Section 5 New York State's Sources of Energy

5-1 Primary Energy Production by Fuel Type	47
---	----

Section 6 Appendices

A-1 New York State Greenhouse Gas Emissions from Fuel Combustion.....	A-1
A-2 New York State CO ₂ Emissions by Fuel Type from Fuel Combustion.....	A-2
B New York State Household Consumption and Expenditures by End Use	B-1
C Estimated Annual Gasoline Consumption by County in New York State	C-1
D-1 Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2007 – 2011, 5-Year Estimates	D-1
D-2 Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2011, 1-Year Estimates	D-2
D-3 New York State Population Estimates by County, 2000-2011.....	D-3
E New York State Heating and Cooling Degree-Days	E-1
F Abbreviations and Conversion Factors	F-1
G Glossary	G-1
H Data Sources	H-1

2011
NEW YORK STATE
ENERGY FAST FACTS

<i>1.8% lower than 2010</i>	
Primary consumption (4.1% of U.S. total) (trillion Btu)	
By sector:	
Residential	(16.0%) 589.7
Commercial	(11.4%) 423.1
Industrial.....	(4.0%) 146.8
Transportation	(26.8%) 989.3
Electric Generation.....	(41.8%) 1,546.4
By fuel type:	
Petroleum.....	(32.5%) 1,202.1
Natural gas.....	(33.7%) 1,246.9
Nuclear.....	(12.1%) 446.2
Hydro	(7.1%) 260.8
Net Imported Electricity.....	(6.3%) 231.8
Other ¹	(4.9%) 182.2
Coal.....	(3.4%) 125.2
Primary consumption per capita (million Btu)	189.8

	Net Energy Consumption (trillion Btu)	Estimated Expenditures (billion dollars)
Total:.....	2,640.3.....	\$64.6
By sector:		
Residential	(29.0%) 764.5.....	(28.3%) \$18.3
Commercial	(25.9%) 683.8.....	(26.7%) \$17.2
Industrial.....	(7.3%) 192.6.....	(3.7%) \$2.4
Transportation ...	(37.8%) 999.4.....	(41.3%) \$26.7
By fuel type:		
Petroleum.....	(45.1%) ... 1,190.9.....	(50.9%) \$32.9
Natural gas.....	(30.4%) 803.4.....	(13.5%) \$8.7
Electricity.....	(18.6%) 491.5.....	(35.4%) \$22.9
Other ¹	(4.9%) 128.6	
Coal.....	(1.0%) 26.0.....	(0.2%) \$0.1
Estimated energy expenditures leaving the state (billions)	\$38.6	

	2011	2010
Gasoline - all grades (gallon).....	\$3.51.....	\$2.77
Heating oil (gallon)	\$3.55.....	\$3.01
Natural gas (thousand cubic feet)		
Residential	\$13.64.....	\$14.04
Commercial	\$9.28.....	\$10.87
Industrial.....	\$8.05.....	\$8.54
Electricity (kilowatt-hour)		
Residential	18.3¢.....	18.7¢
Commercial	15.8¢.....	16.3¢
Industrial.....	7.8¢.....	8.8¢

Total (million metric tons of CO ₂ equivalent).....	185.3
By sector:	
Residential	(16.9%) 31.4
Commercial	(13.1%) 24.3
Industrial.....	(8.1%) 14.9
Transportation	(39.0%) 72.2
Electric Generation.....	(22.9%) 42.5
By fuel type:	
Petroleum.....	(57.9%)
Natural gas.....	(35.8%)
Coal.....	(6.3%)
Greenhouse gas emissions per capita (metric tons of CO ₂ equivalent)	9.5

¹Ethanol (48.1 TBtu) is included in “Other” totals and also as a component of motor gasoline. Total consumption and percentages are based on ethanol only as “Other.”

ELECTRICITY

Sales decreased 0.4% from 2010

Sales to ultimate consumers (gigawatt-hours).....	144,047
By sector:	
Residential	(35.6%) 51,240
Commercial.....	(53.0%) 76,406
Industrial	(9.3%) 13,420
Transportation.....	(2.1%) 2,981

Generation (gigawatt-hours).....163,330

By fuel type:	
Nuclear	(26.1%) 42,695
Natural Gas.....	(31.1%) 50,805
Hydro	(17.4%) 28,355
Net Imported Electricity	(15.4%) 25,202
Coal	(5.8%) 9,426
Petroleum.....	(0.7%) 1,189
Other.....	(1.7%) 2,830
Wind.....	(1.7%) 2,828

PETROLEUM

Consumption decreased 5.3% from 2010

Consumption (4.2% of U.S. total) (million barrels)	216.4
By sector:	
Residential	(10.9%) 24.4
Commercial.....	(9.4%) 19.4
Industrial	(2.3%) 4.8
Transportation	(76.5%) 165.9
Electric generation	(0.9%) 1.8
In-State production (thousand barrels)	391.2

NATURAL GAS

Consumption increased 1.5% from 2010

Consumption (5.3% of U.S. total) (billion cubic feet)	1,216.5
By sector:	
Residential	(32.4%) 393.8
Commercial.....	(23.9%) 291.1
Industrial	(6.3%) 76.6
Transportation	(1.7%) 21.0
Electric generation	(35.7%) 434.0
In-State production (billion cubic feet)	31.1

ADDITIONAL 2011 STATISTICS

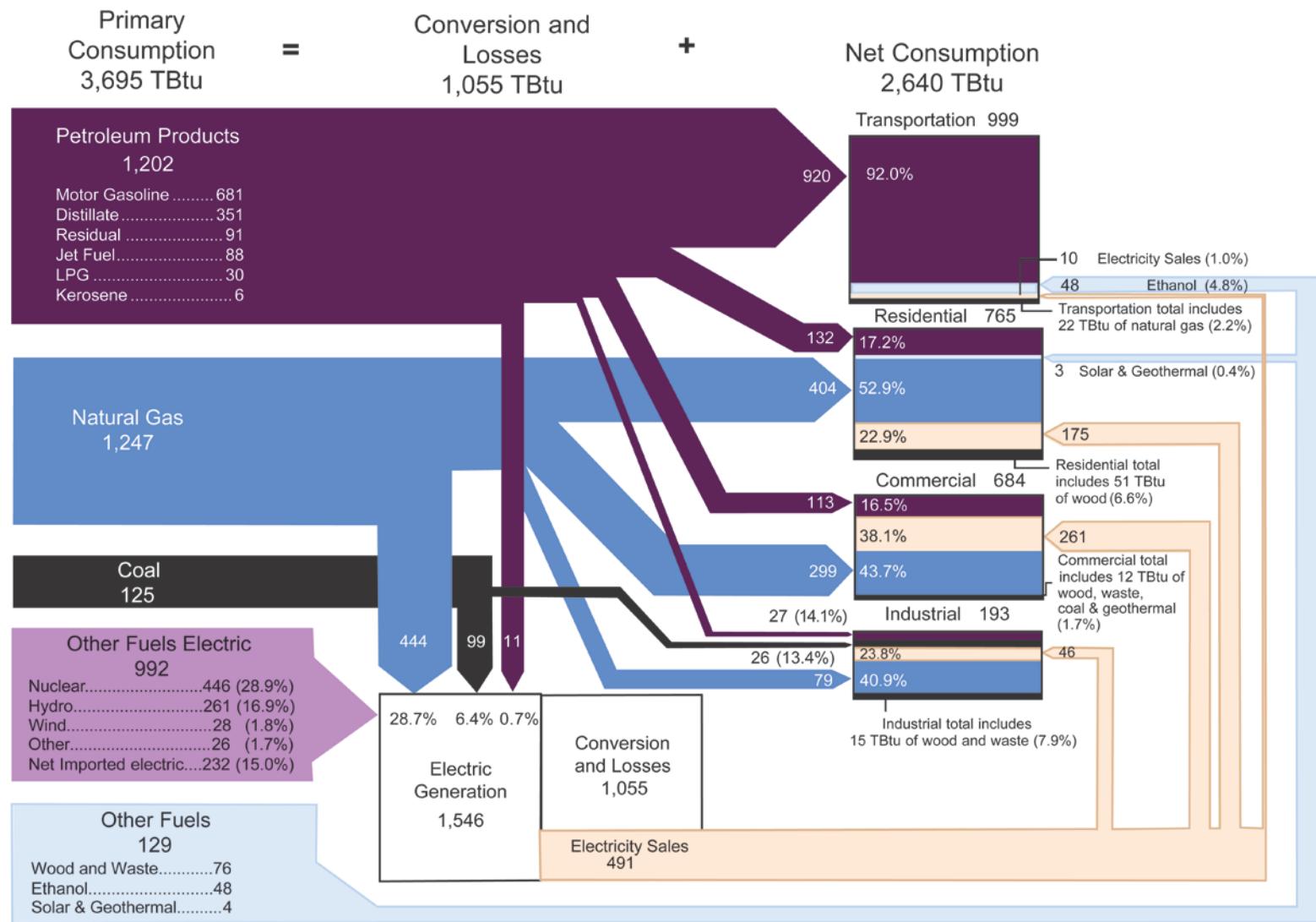
Population (6.2% of U.S. total) (million)	19.5
Number of housing units (million)	8.1
Gross State Product (billion 2011 dollars)	\$1,158.0
Motor vehicle registrations (million)	10.1
Vehicle miles of travel (billion miles).....	127.7
Heating degree-days (increased 1.3% from 2010).....	5,596
Cooling degree-days (decreased 12.4% from 2010).....	827

Note: Totals may not sum exactly due to rounding.

DATA SOURCE

**NEW YORK STATE
ENERGY RESEARCH AND
DEVELOPMENT AUTHORITY**
17 Columbia Circle
Albany, New York 12203-6399
nyserda.ny.gov • info@nyserda.ny.gov
local: 518-862-1090 • toll free: 1-866-NYSERDA

2011 NEW YORK STATE ENERGY FLOW (TBtu)



Overview

Patterns and Trends is organized into six sections:

Section 1: Energy Profiles and Comparisons for the United States and New York State compares energy consumption, selected energy prices, sources of petroleum products, and other factors influencing energy demand and expenditures in the United States and New York State. National petroleum statistics have been aggregated to represent the same six fuels included in the New York State data, specifically gasoline, distillate fuel, kerosene, aviation fuels, residual oil and liquefied petroleum gases.

Section 2: New York State Energy Consumption provides historical data for both primary and net energy consumption by fuel type and sector, including residential, commercial, industrial, and transportation. “Primary” represents total consumption of fuels by sector, including the electricity generation sector. “Net” is the end-use consumption by sector, including electricity sales, but excluding losses incurred during generation and distribution of electricity.

Section 3: New York State Energy Prices presents retail energy price data. Retail energy prices are provided by fuel type for each sector in nominal dollars per physical unit and per million Btu.

Section 4: New York State Energy Expenditures presents the estimated net energy expenditures by sector and fuel type in nominal dollars, as well as in 2011 constant (inflation adjusted prices) dollars. Estimated expenditures were derived by multiplying quantities consumed by their respective retail prices.

Section 5: New York State’s Sources of Energy provides information on sources of New York State energy supplies.

Section 6: Appendices provides data on greenhouse gas emissions from fuel combustion, household end-use energy consumption and expenditures, gasoline consumption by county, occupied housing units by type of space heating, degree-days, county population, conversion factors and a glossary of energy terms.

Section 1

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

This section compares energy consumption, selected energy prices, sources of petroleum, and factors influencing energy demand and expenditures for the United States and New York State. Additional statistics compare recent energy consumption and expenditure trends among all states. New York and national data are comparable and exclude petroleum products not used as a form of energy, including: propane used in the chemical industry, asphalt, road oil, lubricants and petrochemical feedstocks.

Selected state and national energy consumption and expenditure data series are presented to illustrate regional differences in energy demand and expenditures. This data are derived from the U.S. Department of Energy's Energy Information Administration *State Energy Data Report (SEDR)*, and the U.S. Department of Commerce's *Statistical Abstract of the United States*.

Key Observations about 2011 New York State Energy Data

- ✓ New York State is the second most energy-efficient state in the continental United States on a per-capita basis, accounting for 4.1% of the nation's total primary energy consumption. New York accounts for 6.2% of the nation's population.
- ✓ New York State is the eighth largest energy-consuming state.
- ✓ Renewable resources accounted for 12.0% of New York State's primary energy consumption compared to 10.1% for the United States in 2011.
- ✓ Coal consumption represents 3.4% of New York State energy use compared to 21.7% nationally.
- ✓ Net energy demand in New York State differs from national demand in several respects (as shown in Tables 1-1 and 1-2):
 - Residential net energy use accounts for 29.0% of total energy demand in New York State, compared to 17.7% nationally.
 - Commercial net energy use accounts for 25.9% of total energy demand in New York State, compared to 13.4% nationally.
 - Industrial net energy use accounts for 7.3% of total energy demand in New York State, compared to 26.9% nationally.
 - Transportation net energy use accounts for 37.9% of total energy demand in New York State, compared to 42.0% nationally.
- ✓ In 2011, the United States' reliance on foreign oil as a proportion of total petroleum consumption was 44.8%, a decrease from 49.2% in 2010.

United States
Primary Consumption of Energy
by Fuel Type and Sector,
2011

Figure 1-1a: United States Primary Consumption of Energy

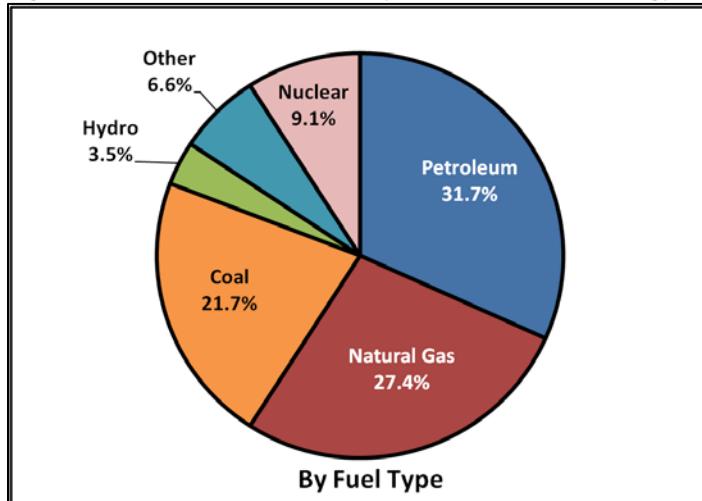


Figure 1-1b: United States Primary Consumption of Energy

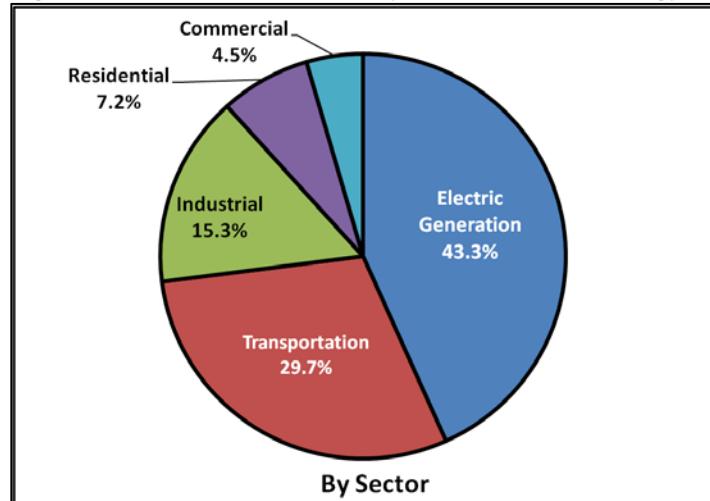


Table 1-1 (in trillion Btu)

	Residential TBtu	Commercial TBtu	Industrial Tbtu	Transportation ¹ TBtu	Net Consumption TBtu	Electric Generation ² TBtu	Primary Consumption ³ TBtu
Coal	6	51	1,599	0	1,656	17,986	19,642
Natural Gas	4,830	3,225	8,321	734	17,110	7,740	24,850
Petroleum Products:							
Distillate	1,051	666	1,651	25,033	28,400	293	28,693
Residual	526	417	1,243	6,040	8,225	64	8,289
Kerosene	0	54	135	776	965	93	1,058
LPG	19	3	4	0	25	0	25
Gasoline	506	147	270	34	957	0	957
Jet Fuel	0	45	0	16,363	16,409	0	16,409
Other ⁴	0	0	0	2,977	2,977	0	2,977
Other ⁴	610	131	2,295	1,158	4,194	624	4,818
Electric Sales	4,855	4,531	3,382	26	12,794		
Net Consumption	11,351	8,604	17,248	26,950	64,154		
Hydro Electricity					3,153		3,153
Nuclear Electricity					8,259		8,259
Wind Electricity					1,168		1,168
Primary Consumption					39,224		90,583

¹ Components of petroleum may not sum to petroleum total because ethanol and biodiesel values (other category in transportation sector) are embedded in motor gasoline and distillate, respectively.

² Hydro and wind are excluded from the “Other” category and listed separately.

³ Excludes petroleum products not used as a form of energy.

⁴ Other includes wood, waste, ethanol, landfill gas, solar, geothermal and biodiesel.

New York State Primary Consumption of Energy by Fuel Type and Sector, 2011

Figure 1-2a: New York State Primary Consumption of Energy

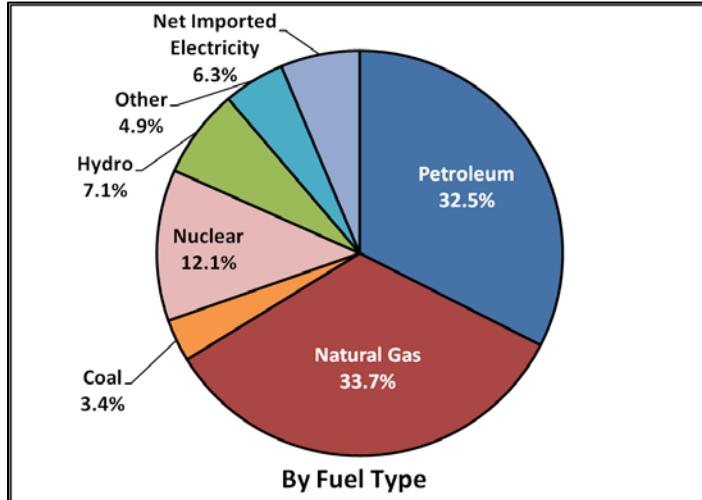


Figure 1-2b: New York State Primary Consumption of Energy

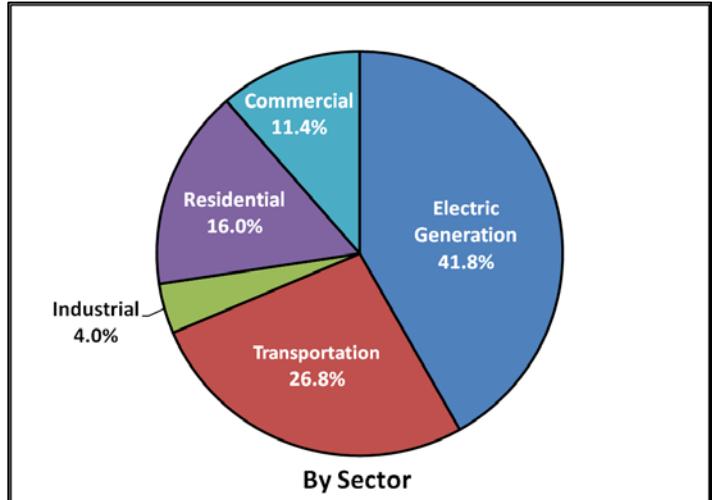


Table 1-2 (in trillion Btu)

	Residential TBtu	Commercial TBtu	Industrial TBtu	Transportation ¹ TBtu	Net Consumption TBtu	Electric Generation TBtu	Primary Consumption ^{1,2} TBtu
Coal	0.0	0.1	25.9	0.0	26.0	99.2	125.2
Natural Gas	404.3	298.9	78.7	21.5	803.4	443.6	1,246.9
Petroleum Products ³ :	131.6	112.5	27.1	919.7	1,190.9	11.2	1,202.1
Distillate	107.2	59.9	16.3	165.7	349.1	1.9	351.1
Residual	0.0	44.6	7.8	32.4	84.8	6.4	91.3
Kerosene	4.1	1.0	0.9	0.0	6.0	0.0	6.0
LPG	20.3	7.1	2.0	0.7	30.1	0.0	30.1
Gasoline	0.0	0.0	0.0	681.1	681.1	0.0	681.1
Jet Fuel	0.0	0.0	0.0	87.8	87.8	0.0	87.8
Other ⁴	53.8	11.6	15.1	48.1	128.6	26.0	154.6
Electric Sales	174.8	260.7	45.8	10.2	491.5		
Net Consumption	764.5	683.8	192.6	999.4	2,640.3		
					Hydro Electricity	260.8	260.8
					Nuclear Electricity	446.2	446.2
					Net Imported Electricity	231.8	231.8
					Wind Electricity	27.6	27.6
					Primary Consumption	1,546.4	3,695.3

¹ Components of petroleum may not sum to petroleum total because ethanol (other category in transportation sector) is embedded in motor gasoline.

² Excludes petroleum products not used as a form of energy.

³ Petroleum includes petroleum coke used for electric generation.

⁴ Other includes wood, waste, ethanol, landfill gas, solar and geothermal.

**United States and New York State
Selected Energy Prices
in Nominal Dollars,
1997–2011**

Table 1-3a: United States

Year	Motor Gasoline	Residential Distillate	Residential Electricity	Residential Natural Gas	Commercial Electricity	Commercial Natural Gas	Industrial Electricity	Industrial Natural Gas
	cents/gal	cents/gal	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf
1997	121.8	103.3	8.4	6.91	7.5	5.80	4.5	3.61
1998	104.9	89.3	8.3	6.76	7.3	5.50	4.5	3.23
1999	115.5	91.7	8.2	6.65	7.2	5.34	4.4	3.28
2000	147.5	137.6	8.2	7.81	7.3	6.69	4.6	4.71
2001	140.7	131.5	8.6	9.64	7.8	8.51	5.0	5.84
2002	132.6	119.3	8.4	7.87	7.8	6.64	4.9	4.58
2003	153.0	143.1	8.7	9.45	8.0	8.26	5.1	6.34
2004	182.2	162.5	8.9	10.71	8.2	9.40	5.2	7.18
2005	222.3	215.4	9.4	12.62	8.7	11.23	5.7	9.29
2006	252.0	248.1	10.4	13.66	9.5	11.87	6.1	8.97
2007	273.4	272.1	10.7	12.99	9.6	11.24	6.4	8.48
2008	317.2	337.9	11.3	13.83	10.4	12.16	6.8	10.29
2009	230.0	251.6	11.5	12.08	10.2	9.92	6.8	6.61
2010	273.1	296.7	11.5	11.39	10.2	9.41	6.8	6.39
2011	347.7	356.3	11.7	11.03	10.2	9.00	6.8	6.12

Table 1-3b: New York State

Year	Motor Gasoline	Residential Distillate	Residential Electricity	Residential Natural Gas	Commercial Electricity	Commercial Natural Gas	Industrial Electricity	Industrial Natural Gas
	cents/gal	cents/gal	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf
1997	124.6	110.8	14.1	9.73	11.7	6.49	5.2	5.05
1998	106.2	98.6	13.6	9.62	11.0	6.11	4.9	4.03
1999	118.7	100.8	13.3	9.12	10.3	5.15	4.8	3.90
2000	152.3	149.9	14.0	9.80	12.1	7.73	5.4	6.10
2001	143.2	141.7	14.0	11.70	12.2	9.57	5.6	7.69
2002	135.5	126.6	13.5	9.85	11.8	6.42	5.2	5.54
2003	157.0	149.5	14.3	11.61	12.9	8.61	7.1	7.36
2004	187.4	169.6	14.5	12.49	13.0	10.10	7.0	8.04
2005	224.4	219.1	15.7	14.92	14.4	11.82	8.2	10.77
2006	256.7	255.6	16.9	15.44	15.5	11.98	9.4	10.62
2007	275.9	278.1	17.1	15.77	15.9	11.85	8.7	11.46
2008	325.6	342.4	18.3	16.86	16.8	12.93	10.1	12.37
2009	235.3	260.5	17.5	15.10	15.5	10.75	9.0	9.55
2010	277.3	301.0	18.7	14.04	16.3	10.87	8.8	8.54
2011	350.6	354.9	18.3	13.64	15.8	9.28	7.8	8.05

United States

Estimated Sources of Petroleum Products, 1997–2011

Figure 1-4: United States

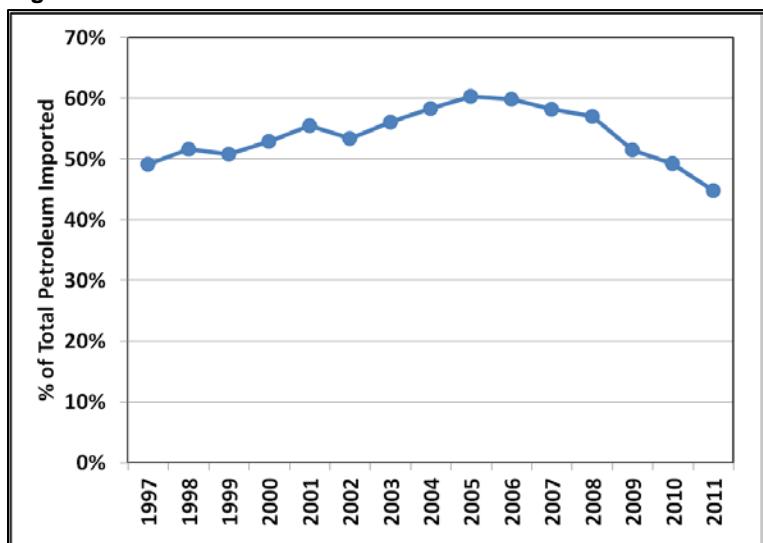


Table 1-4: United States

Year	Total Domestic ¹	Total Foreign	OPEC ²	Non-OPEC ³
	%	%	%	%
1997	50.8	49.2	24.4	24.8
1998	48.4	51.6	25.8	25.8
1999	49.2	50.8	25.3	25.5
2000	47.1	52.9	26.3	26.6
2001	44.5	55.5	28.0	27.4
2002	46.6	53.4	23.2	30.1
2003	43.9	56.1	25.7	30.4
2004	41.6	58.4	27.4	30.9
2005	39.7	60.3	26.8	33.6
2006	40.1	59.9	26.5	33.4
2007	41.8	58.2	28.8	29.4
2008	43.0	57.0	30.3	26.7
2009	48.5	51.5	24.9	26.6
2010	50.8	49.2	25.0	24.2
2011	55.2	44.8	23.4	21.4

¹ Domestic: Oil produced in the United States or from its outer continental shelf.

² OPEC: Largest contributors are Saudi Arabia, Venezuela, Nigeria, Iraq and Algeria.

³ Non-OPEC: Largest contributors are Canada, Mexico, United Kingdom, Angola, Brazil and Russia.

United States and New York State Factors Influencing Energy Demand and Expenditures, 1997–2011

Table 1-5a: United States

Year	Population	Housing Units	Non-Manufacturing ¹ Employment	Manufacturing ¹ Employment	GDP ²	Licensed Drivers	Vehicles Registered	Vehicle Miles Traveled
	thousands	thousands	thousands	thousands	B/2011\$	millions	millions	billions
1997	267,784	111,027	105,357	17,419	\$ 11,678	183	208	2,552
1998	270,248	112,499	108,370	17,560	\$ 12,135	185	211	2,628
1999	272,691	114,394	111,671	17,322	\$ 12,629	187	216	2,690
2000	281,425	116,301	114,522	17,263	\$ 12,999	191	221	2,747
2001	284,969	117,905	115,385	16,441	\$ 13,065	191	230	2,796
2002	287,625	119,456	115,082	15,259	\$ 13,307	195	230	2,856
2003	290,108	121,077	115,591	14,509	\$ 13,621	196	231	2,890
2004	292,805	122,825	117,194	14,315	\$ 14,115	199	237	2,965
2005	295,517	124,711	119,520	14,227	\$ 14,539	201	242	2,989
2006	298,380	126,500	121,970	14,155	\$ 14,926	203	244	3,014
2007	301,231	128,132	123,766	13,879	\$ 15,219	206	247	3,031
2008	304,094	129,313	123,446	13,406	\$ 14,931	208	248	2,977
2009	306,772	129,970	119,029	11,847	\$ 14,651	210	246	2,957
2010	308,746	131,705	118,389	11,528	\$ 14,957	210	242	2,967
2011	311,592	132,312	119,771	11,726	\$ 15,076	212	245	2,946

Table 1-5b: New York State

Year	Population	Housing Units	Non-Manufacturing ¹ Employment	Manufacturing ¹ Employment	GDP ³	Licensed Drivers	Vehicles Registered	Vehicle Miles Traveled
	thousands	thousands	thousands	thousands	MM/2011\$	thousands	thousands	billions
1997	18,657	7,423	7,351	801	\$ 926,768	10,529	10,027	120.79
1998	18,756	7,455	7,536	781	\$ 949,243	10,554	10,173	123.37
1999	18,883	7,572	7,686	773	\$ 987,139	10,627	10,437	126.49
2000	18,977	7,689	7,889	749	\$ 1,004,899	10,871	10,661	128.70
2001	19,083	7,724	7,888	707	\$ 1,027,575	11,015	10,707	130.83
2002	19,138	7,760	7,811	651	\$ 1,028,303	11,022	11,369	133.06
2003	19,176	7,799	7,798	612	\$ 1,030,169	11,357	10,802	135.05
2004	19,172	7,836	7,869	596	\$ 1,061,538	11,247	11,099	137.90
2005	19,133	7,878	7,958	579	\$ 1,105,538	11,081	11,863	137.52
2006	19,105	7,915	8,052	566	\$ 1,149,658	11,146	11,284	141.35
2007	19,132	7,952	8,183	552	\$ 1,167,596	11,369	11,495	136.74
2008	19,212	7,986	8,261	532	\$ 1,128,042	11,285	11,089	134.09
2009	19,307	8,018	8,080	476	\$ 1,124,303	11,329	11,245	133.50
2010	19,378	8,108	8,110	457	\$ 1,164,455	11,286	11,082	131.25
2011	19,465	8,119	8,230	459	\$ 1,157,969	11,211	10,085	127.73

¹ Includes non-farm jobs only.

² Gross Domestic Product in billions of 2011 dollars.

³ Gross State Product in millions of 2011 dollars.

Energy Consumption and Expenditure Indicators, State Comparisons, 2010

Table 1-6

States	Primary Energy Use		Primary Energy Use per Capita		Primary Energy Use per unit GSP		Energy Expenditures	
	TBtu	Ranking	MMBtu	Ranking	Btu	Ranking	per Capita	Ranking
Alabama	1,960	18	410	12	11,513	8	\$4,494	11
Alaska	642	39	899	2	13,449	4	\$8,807	1
Arizona	1,400	27	218	45	5,602	38	\$3,021	50
Arkansas	1,126	31	385	17	11,010	9	\$4,128	21
California	7,826	2	210	48	4,168	44	\$3,134	49
Colorado	1,517	24	301	32	5,993	33	\$3,319	45
Connecticut	754	35	211	47	3,406	49	\$3,977	25
Delaware	256	48	285	34	4,002	47	\$4,019	24
D.C.	186	50	307	29	1,791	51	\$4,033	23
Florida	4,382	3	233	43	5,953	36	\$3,194	47
Georgia	3,156	9	325	24	7,826	25	\$3,844	30
Hawaii	272	47	200	49	4,149	45	\$4,191	20
Idaho	534	41	340	21	9,526	17	\$3,622	37
Illinois	3,937	5	307	30	6,086	32	\$3,503	40
Indiana	2,871	10	442	10	10,742	11	\$4,217	19
Iowa	1,492	25	489	5	10,588	12	\$4,841	6
Kansas	1,165	30	408	13	9,243	19	\$4,357	14
Kentucky	1,977	17	455	9	12,404	6	\$4,526	10
Louisiana	4,065	4	894	3	17,494	1	\$8,661	2
Maine	407	43	307	28	8,038	23	\$4,746	7
Maryland	1,481	26	256	39	5,049	42	\$3,719	35
Massachusetts	1,397	28	213	46	3,697	48	\$3,739	34
Michigan	2,798	11	283	35	7,596	26	\$3,497	41
Minnesota	1,867	20	352	20	6,896	28	\$3,930	28
Mississippi	1,189	29	400	15	12,455	5	\$4,446	12
Missouri	1,928	19	322	25	7,923	24	\$3,817	32
Montana	401	44	405	14	10,985	10	\$4,610	9
Nebraska	844	33	461	8	9,368	18	\$4,421	13
Nevada	646	38	239	41	5,120	40	\$3,437	43
New Hampshire	296	46	224	44	4,794	43	\$3,971	26
New Jersey	2,448	14	278	37	5,094	41	\$4,246	18
New Mexico	680	37	329	23	8,822	20	\$3,599	38
New York	3,728	8	192	50	3,303	50	\$3,177	48
North Carolina	2,705	12	283	36	6,372	31	\$3,451	42
North Dakota	481	42	713	4	13,482	3	\$6,740	4
Ohio	3,834	6	332	22	8,210	22	\$3,907	29
Oklahoma	1,552	23	413	11	10,513	13	\$4,268	16
Oregon	977	32	255	40	5,276	39	\$3,281	46
Pennsylvania	3,759	7	296	33	6,725	29	\$3,829	31
Rhode Island	197	49	187	51	4,038	46	\$3,506	39
South Carolina	1,662	22	358	18	10,361	14	\$4,034	22
South Dakota	380	45	465	7	9,933	15	\$4,651	8
Tennessee	2,251	15	354	19	8,785	21	\$3,956	27
Texas	11,770	1	466	6	9,625	16	\$5,446	5
Utah	764	34	275	38	6,405	30	\$3,002	51
Vermont	148	51	236	42	5,842	37	\$4,344	15
Virginia	2,502	13	312	27	5,966	35	\$3,717	36
Washington	2,037	16	302	31	5,993	34	\$3,395	44
West Virginia	739	36	398	16	11,930	7	\$4,251	17
Wisconsin	1,800	21	316	26	7,326	27	\$3,774	33
Wyoming	535	40	948	1	14,934	2	\$7,904	3
United States	97,711		316		6,778		\$3,895	
NY as a % of U.S.	3.8%		61%		49%		82%	

Note: Table shows the latest year for which consumption and expenditure data are available for all states at time of publication.

Energy Consumption and Expenditure Indicators, State Comparisons for the Residential and Commercial Sectors, 2010

Table 1-7

States	Residential Primary Energy Use ¹ per Housing Unit		Residential Energy Expenditures per Housing Unit		Commercial Primary Energy Use ¹ per Non-Manufacturing Employee		Commercial Energy Expenditures Per Non-Manufacturing Employee	
	MMBtu	Ranking	Dollars	Ranking	MMBtu	Ranking	Dollars	Ranking
Alabama	192	15	\$2,165	12	166	22	\$1,757	11
Alaska	170	27	\$2,372	8	213	2	\$2,650	1
Arizona	134	45	\$1,527	46	148	36	\$1,460	24
Arkansas	193	14	\$1,739	37	177	11	\$1,360	35
California	107	50	\$1,383	51	118	44	\$1,469	22
Colorado	158	37	\$1,528	45	137	40	\$1,141	47
Connecticut	166	34	\$3,252	1	129	42	\$2,020	5
Delaware	178	26	\$2,464	7	164	23	\$1,809	7
D.C.	131	47	\$1,717	39	174	15	\$2,126	4
Florida	144	39	\$1,630	43	146	37	\$1,485	19
Georgia	201	9	\$2,117	14	167	21	\$1,483	20
Hawaii	66	51	\$1,762	34	69	51	\$1,763	10
Idaho	189	17	\$1,531	44	154	31	\$1,069	50
Illinois	185	21	\$1,903	21	153	32	\$1,292	40
Indiana	208	5	\$1,795	31	163	24	\$1,208	43
Iowa	182	24	\$1,893	24	160	28	\$1,369	33
Kansas	209	4	\$1,946	18	190	4	\$1,425	27
Kentucky	211	2	\$1,741	36	169	20	\$1,231	42
Louisiana	196	13	\$1,807	30	161	27	\$1,399	28
Maine	110	49	\$2,146	13	114	46	\$1,800	8
Maryland	188	19	\$2,494	5	182	7	\$1,927	6
Massachusetts	152	38	\$2,533	3	97	50	\$1,458	25
Michigan	168	32	\$1,929	19	177	10	\$1,574	16
Minnesota	169	31	\$1,715	40	145	38	\$1,198	44
Mississippi	189	16	\$1,959	17	174	14	\$1,659	15
Missouri	205	7	\$1,874	26	175	13	\$1,303	39
Montana	181	25	\$1,689	41	186	5	\$1,519	18
Nebraska	207	6	\$1,790	32	169	19	\$1,186	45
Nevada	130	48	\$1,719	38	107	49	\$1,135	48
New Hampshire	135	43	\$2,360	9	118	45	\$1,713	13
New Jersey	168	33	\$2,473	6	178	9	\$2,141	3
New Mexico	136	42	\$1,395	49	162	26	\$1,327	37
New York	138	41	\$2,298	10	151	34	\$2,200	2
North Carolina	187	20	\$1,901	22	179	8	\$1,462	23
North Dakota	210	3	\$1,829	28	191	3	\$1,372	31
Ohio	184	23	\$1,973	16	159	29	\$1,446	26
Oklahoma	198	10	\$1,850	27	175	12	\$1,359	36
Oregon	143	40	\$1,405	48	128	43	\$1,091	49
Pennsylvania	169	28	\$2,261	11	136	41	\$1,371	32
Rhode Island	132	46	\$2,598	2	108	47	\$1,749	12
South Carolina	188	18	\$1,919	20	171	18	\$1,477	21
South Dakota	196	11	\$1,758	35	173	16	\$1,250	41
Tennessee	216	1	\$1,891	25	173	17	\$1,532	17
Texas	169	30	\$1,900	23	155	30	\$1,382	29
Utah	169	29	\$1,390	50	144	39	\$1,012	51
Vermont	134	44	\$2,515	4	107	48	\$1,690	14
Virginia	203	8	\$2,099	15	186	6	\$1,368	34
Washington	166	35	\$1,441	47	150	35	\$1,162	46
West Virginia	196	12	\$1,783	33	162	25	\$1,317	38
Wisconsin	163	36	\$1,822	29	153	33	\$1,377	30
Wyoming	185	22	\$1,674	42	233	1	\$1,784	9
United States	166		\$1,895		152		\$1,505	
NYS as % of U.S.	83%		121%		99%		146%	

Note: Table shows the latest year for which consumption and expenditure data are available for all states at time of publication.

¹Use figures include electricity and the associated system losses.

Energy Consumption and Expenditure Indicators, State Comparisons for the Industrial and Transportation Sectors, 2010

Table 1-8

States	Industrial Primary Energy Use ¹ per unit of GSP		Industrial Energy Expenditures per unit of GSP		Transportation Primary Use ¹ per Vehicle Registration		Transportation Expenditures per Vehicle Registration	
	Btu	Dollars			MMBtu		Dollars	
Alabama	4,616	9	\$0.0249	10	104	29	\$2,081	37
Alaska	6,554	4	\$0.0107	32	296	1	\$5,950	1
Arizona	836	41	\$0.0075	41	111	24	\$2,289	25
Arkansas	3,915	13	\$0.0227	11	142	9	\$2,934	7
California	940	39	\$0.0067	45	100	35	\$2,155	28
Colorado	1,770	30	\$0.0095	35	103	31	\$2,049	40
Connecticut	342	49	\$0.0048	49	79	51	\$1,755	50
Delaware	834	42	\$0.0074	42	83	48	\$1,798	48
D.C.	31	51	\$0.0003	51	92	43	\$1,826	47
Florida	710	43	\$0.0063	46	108	26	\$2,131	31
Georgia	1,892	27	\$0.0114	31	128	13	\$2,450	19
Hawaii	979	38	\$0.0132	26	148	7	\$3,228	5
Idaho	3,317	17	\$0.0204	14	103	30	\$2,214	27
Illinois	1,836	29	\$0.0121	29	98	38	\$2,039	41
Indiana	4,832	7	\$0.0257	8	108	27	\$2,221	26
Iowa	5,203	6	\$0.0282	7	94	41	\$1,969	43
Kansas	3,309	18	\$0.0254	9	110	25	\$2,128	33
Kentucky	5,214	5	\$0.0292	6	132	11	\$2,714	12
Louisiana	11,636	1	\$0.0922	1	170	4	\$2,922	8
Maine	2,767	21	\$0.0204	15	119	21	\$2,603	14
Maryland	522	48	\$0.0051	48	97	40	\$2,078	39
Massachusetts	603	45	\$0.0087	37	86	47	\$1,844	46
Michigan	1,885	28	\$0.0140	25	80	50	\$1,648	51
Minnesota	2,395	24	\$0.0143	24	100	36	\$2,097	35
Mississippi	4,315	11	\$0.0225	12	183	3	\$3,456	2
Missouri	1,553	33	\$0.0116	30	111	23	\$2,295	24
Montana	3,435	16	\$0.0206	13	121	20	\$2,564	16
Nebraska	3,912	14	\$0.0199	17	101	34	\$2,143	29
Nevada	1,329	34	\$0.0124	28	155	6	\$3,295	4
New Hampshire	642	44	\$0.0078	39	89	45	\$1,944	44
New Jersey	540	47	\$0.0053	47	144	8	\$2,766	10
New Mexico	3,014	20	\$0.0127	27	123	17	\$2,587	15
New York	307	50	\$0.0029	50	102	33	\$2,133	30
North Carolina	1,320	35	\$0.0097	34	126	15	\$2,719	11
North Dakota	6,838	3	\$0.0418	3	140	10	\$2,705	13
Ohio	2,634	22	\$0.0175	20	98	39	\$2,083	36
Oklahoma	3,735	15	\$0.0204	16	125	16	\$2,387	22
Oregon	1,263	36	\$0.0088	36	105	28	\$2,310	23
Pennsylvania	2,030	26	\$0.0150	22	99	37	\$2,079	38
Rhode Island	541	46	\$0.0072	43	82	49	\$1,790	49
South Carolina	3,261	19	\$0.0185	19	126	14	\$2,530	17
South Dakota	3,920	12	\$0.0191	18	103	32	\$2,130	32
Tennessee	2,474	23	\$0.0151	21	119	22	\$2,426	20
Texas	4,732	8	\$0.0423	2	164	5	\$3,118	6
Utah	1,755	31	\$0.0079	38	88	46	\$1,860	45
Vermont	918	40	\$0.0102	33	92	42	\$2,113	34
Virginia	1,047	37	\$0.0068	44	121	19	\$2,476	18
Washington	1,662	32	\$0.0076	40	131	12	\$2,818	9
West Virginia	4,489	10	\$0.0310	5	122	18	\$2,416	21
Wisconsin	2,349	25	\$0.0150	23	89	44	\$1,984	42
Wyoming	8,372	2	\$0.0371	4	185	2	\$3,326	3
United States	2,108		\$0.0150		113		\$2,317	
NYS as % of U.S.	15%		19%		90%		92%	

Note: Table shows the latest year for which consumption and expenditure data are available for all states at time of publication.

¹Use figures include electricity and the associated system losses.

United States and New York State Selected Comparisons, 2011

Figure 1-9a: Primary Consumption by Fuel Type, 2011

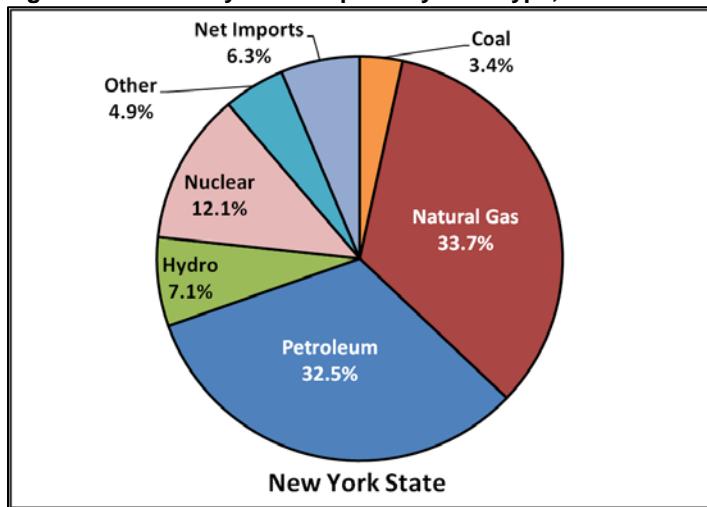


Figure 1-9b: Primary Consumption by Fuel Type, 2011

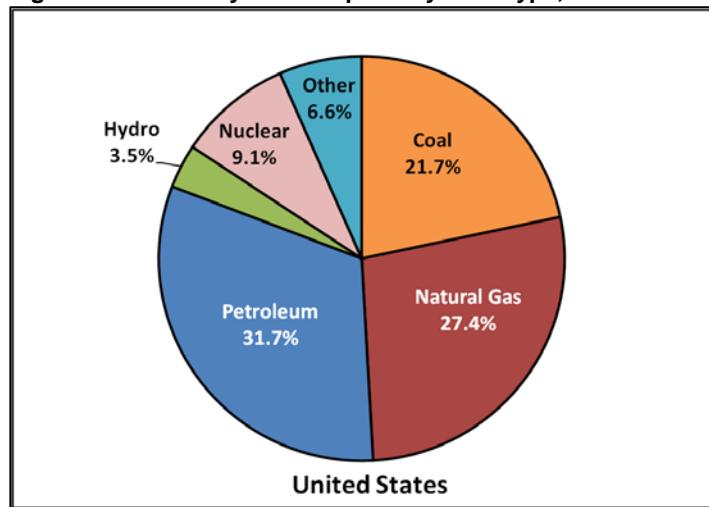


Figure 1-9c: Primary Consumption by Sector, 2011

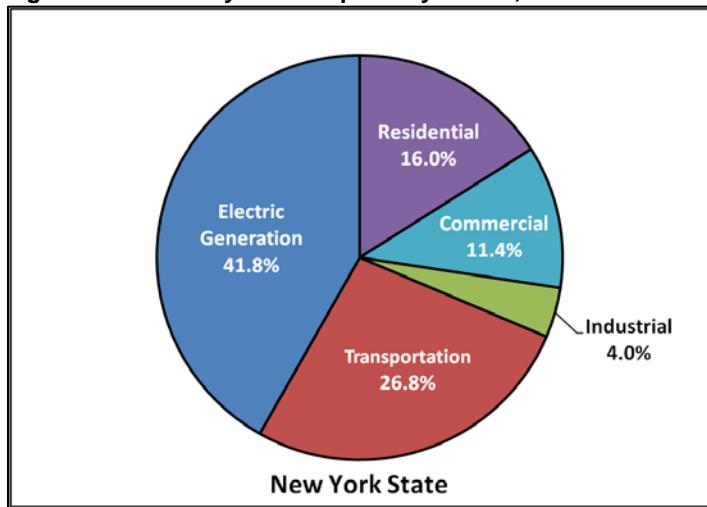
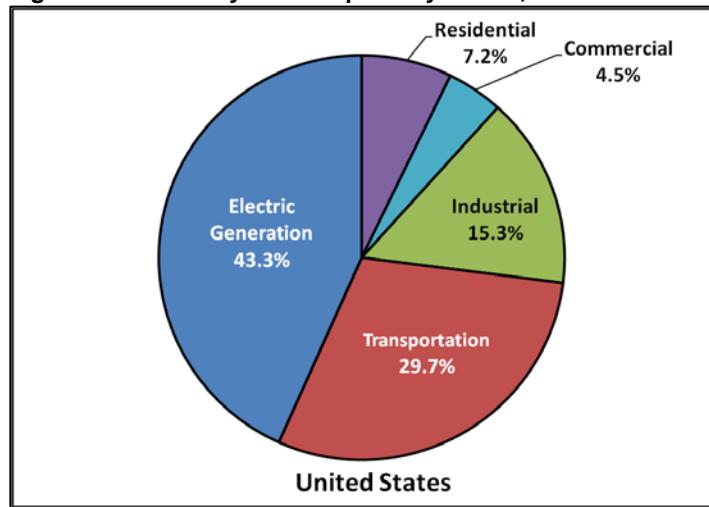


Figure 1-9d: Primary Consumption by Sector, 2011



United States and New York State Selected Comparisons, 2011

Figure 1-10a: Electricity Generation by Fuel Type, 2011

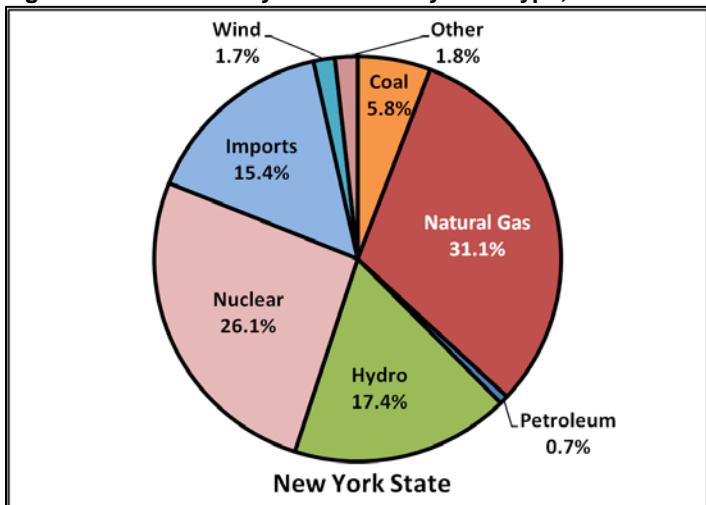


Figure 1-10b: Electricity Generation by Fuel Type, 2011

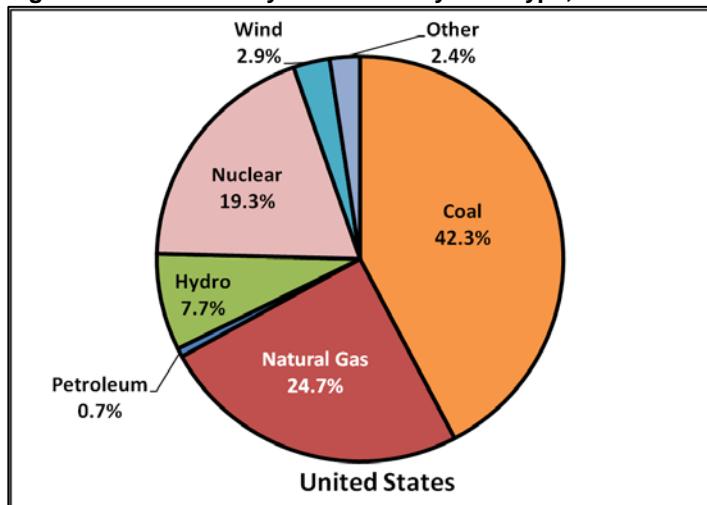


Figure 1-10c: Primary Consumption of Petroleum Products, 2011^{1,2}

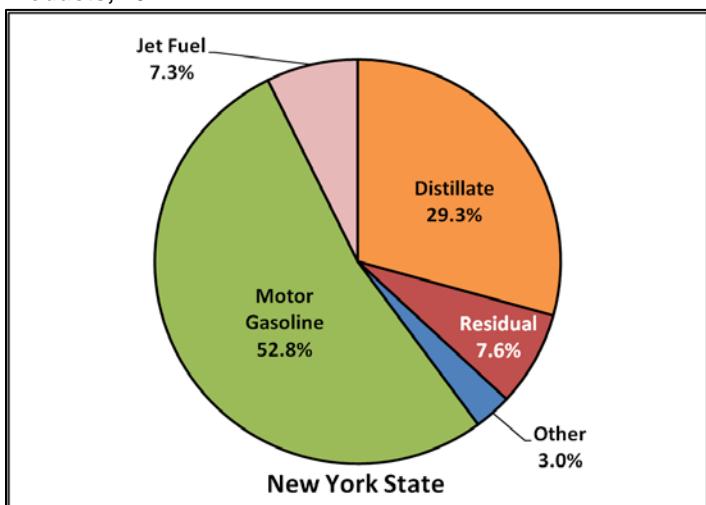
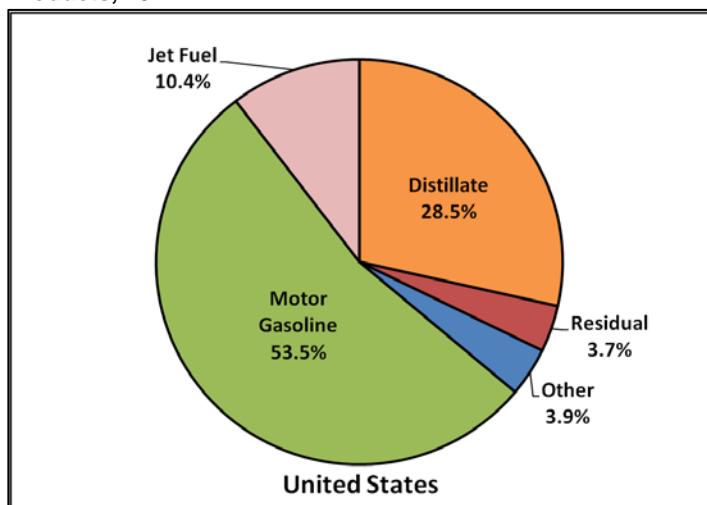


Figure 1-10d: Primary Consumption of Petroleum Products, 2011^{1,2}



¹ Excludes petroleum products not used as a form of energy.

² Motor gasoline percentages do not include ethanol embedded in motor gasoline. Percentages based on petroleum-only fuel.

United States and New York State Selected Comparisons, 2011

Figure 1-11a: Petroleum Consumption by Sector, 2011¹

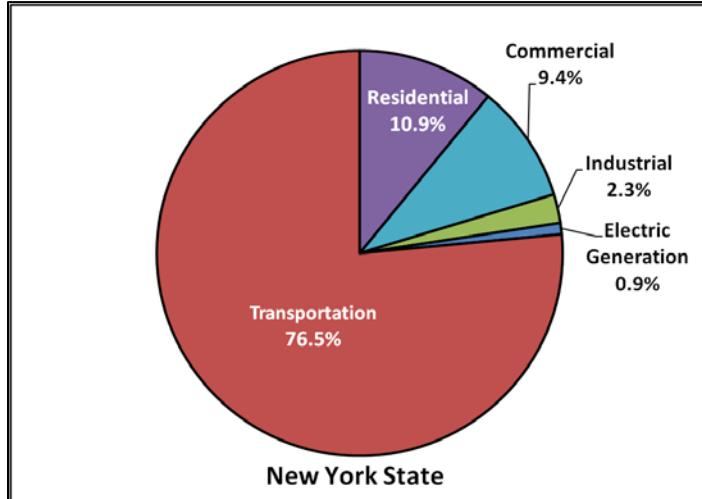


Figure 1-11b: Petroleum Consumption by Sector, 2011¹

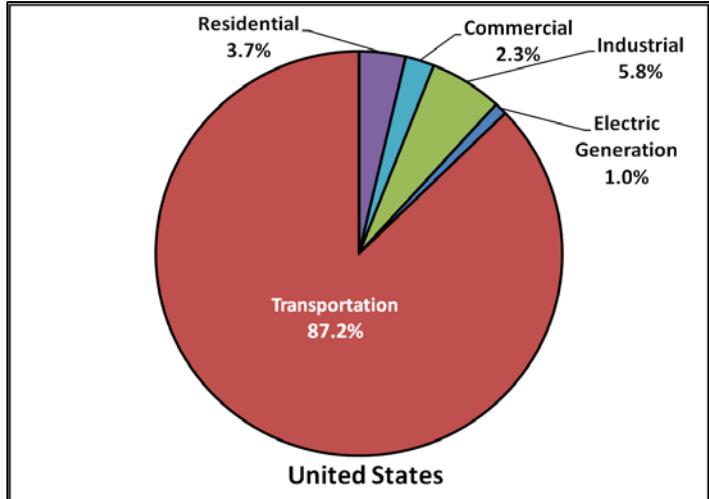


Figure 1-11c: Natural Gas Consumption by Sector, 2011

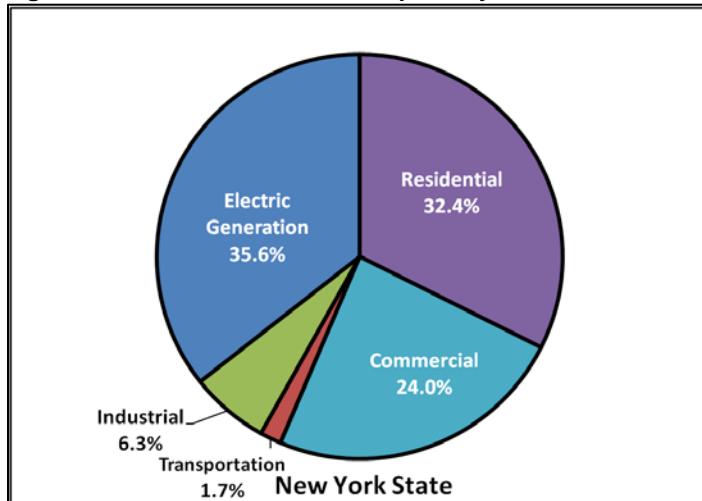
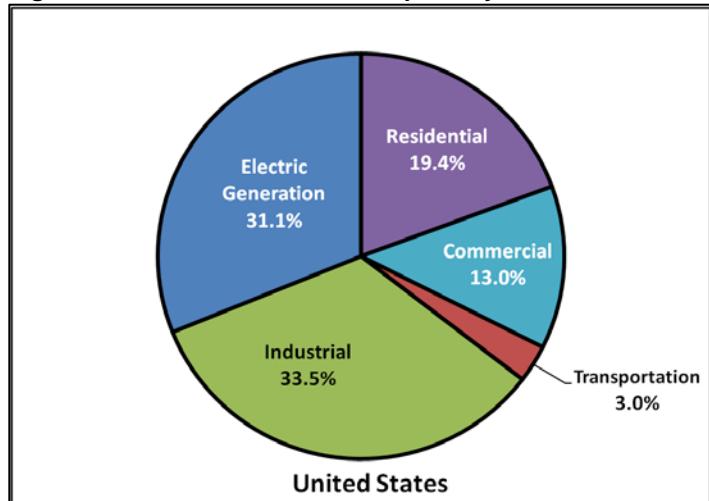


Figure 1-11d: Natural Gas Consumption by Sector, 2011



¹ Excludes petroleum products not used as a form of energy.

United States and New York State Selected Comparisons, 2011

Figure 1-12a: Coal Consumption by Sector, 2011

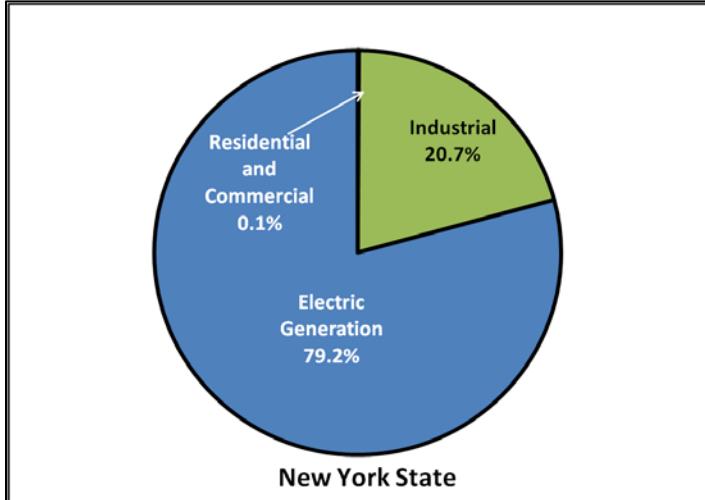


Figure 1-12b: Coal Consumption by Sector, 2011

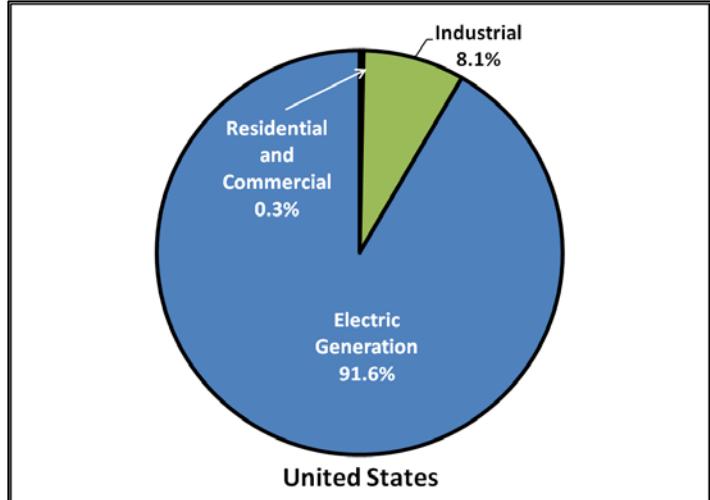


Figure 1-12c: Electricity Sales by Sector, 2011

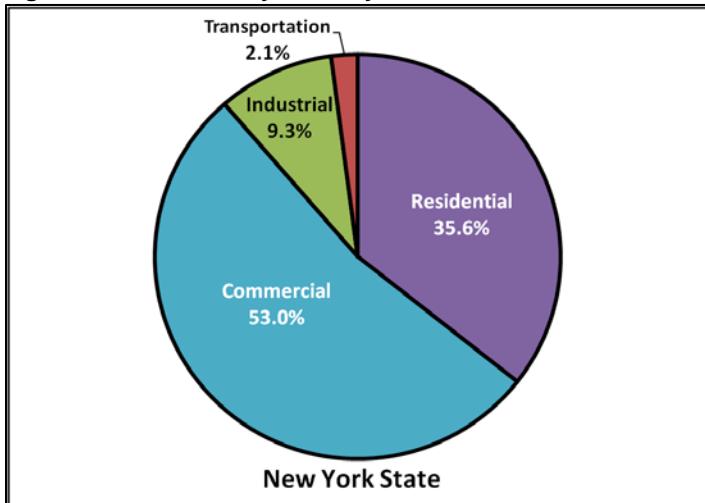
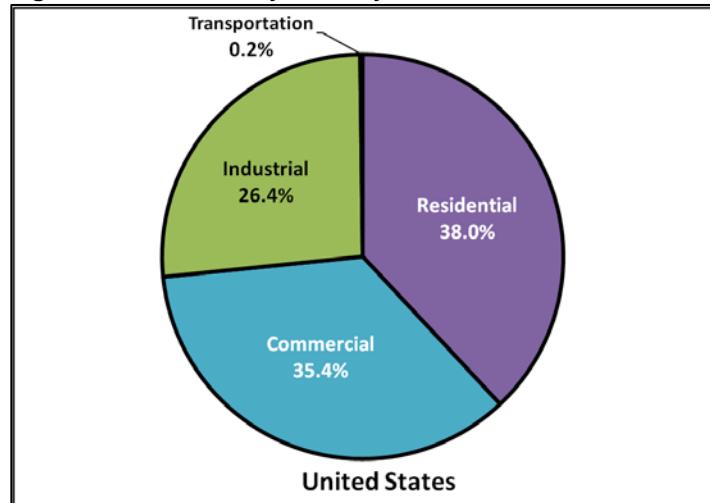


Figure 1-12d: Electricity Sales by Sector, 2011



United States and New York State Selected Energy Indicators, 1997–2011

Table 1-13a:
**Primary Consumption per Dollar of Gross
State Product/Gross Domestic Product**

Year	NYS	U.S.
	thousand Btu	thousand Btu
1997	4.22	8.10
1998	4.04	7.83
1999	3.99	7.65
2000	4.03	7.60
2001	3.82	7.36
2002	3.84	7.34
2003	3.95	7.19
2004	3.92	7.10
2005	3.71	6.90
2006	3.38	6.67
2007	3.43	6.66
2008	3.51	6.65
2009	3.37	6.45
2010	3.23	6.53
2011	3.19	6.45

Figure 1-13a: Primary Consumption per Dollar of Gross State Product/Gross Domestic Product

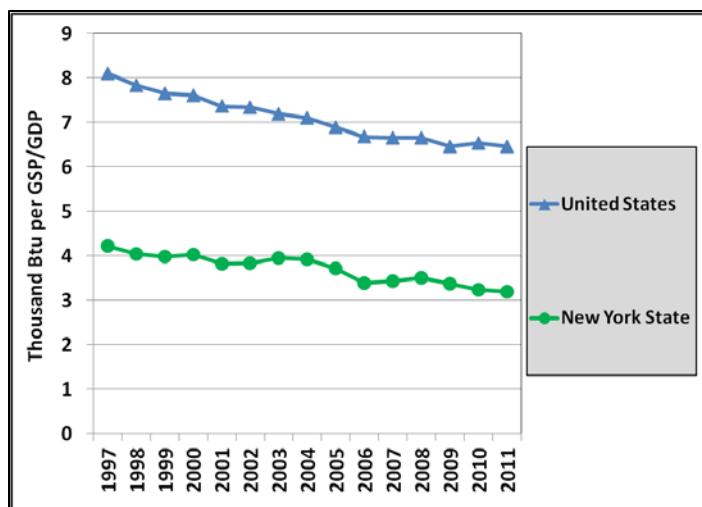
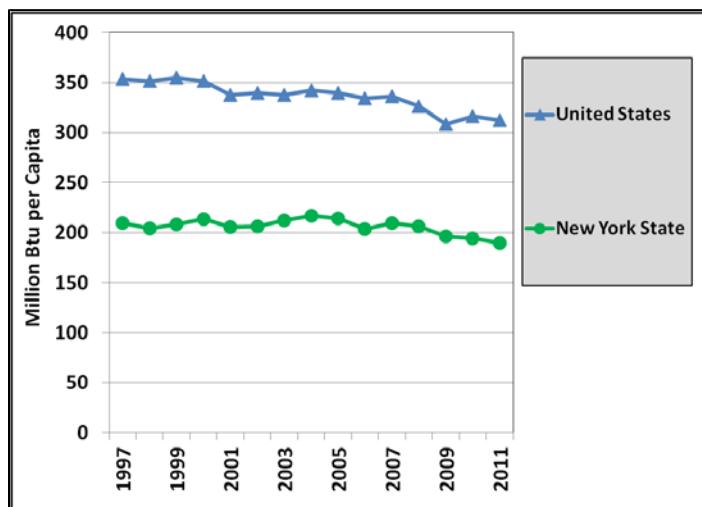


Table 1-13b:
Primary Consumption per Capita

Year	NYS	U.S.
	MMBtu	MMBtu
1997	209.69	353.26
1998	204.30	351.61
1999	208.43	354.41
2000	213.59	351.11
2001	205.69	337.49
2002	206.16	339.47
2003	212.02	337.73
2004	217.01	342.10
2005	214.29	339.34
2006	203.31	333.90
2007	209.26	336.28
2008	206.07	326.46
2009	196.46	308.24
2010	194.12	316.49
2011	189.84	312.30

Figure 1-13b: Primary Consumption per Capita



United States and New York State Selected Energy Indicators, 1997–2011

Table 1-14a:
Residential Consumption per Housing Unit

Year	NYS	U.S.
	MMBtu	MMBtu
1997	149.42	170.81
1998	141.62	168.49
1999	150.34	170.96
2000	157.75	175.62
2001	151.12	169.98
2002	149.34	174.05
2003	157.51	174.35
2004	156.46	171.73
2005	161.62	173.41
2006	144.60	163.54
2007	153.63	168.04
2008	149.71	167.01
2009	143.42	162.07
2010	142.02	165.99
2011	140.38	163.39

Figure 1-14a: Residential Consumption per Housing Unit

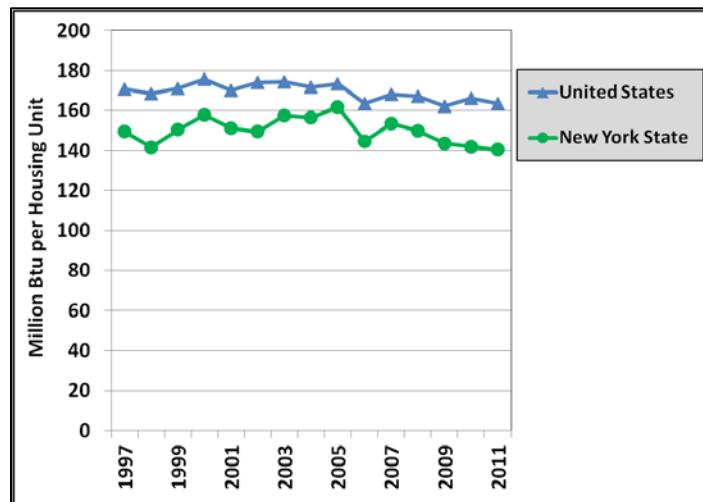
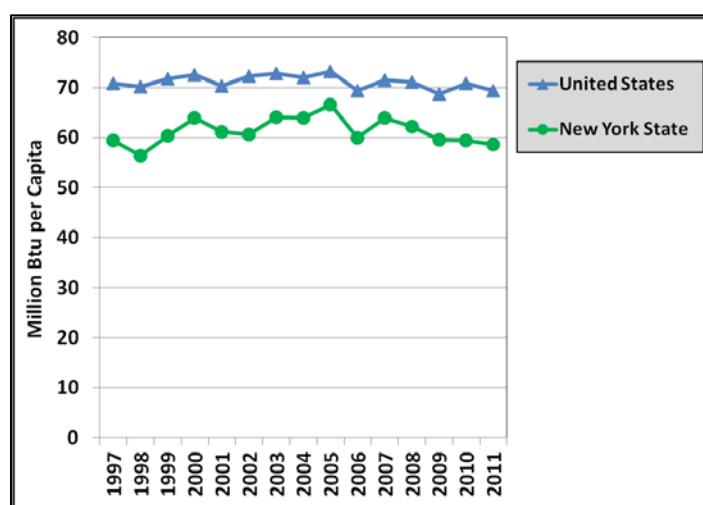


Table 1-14b:
Residential Consumption per Capita

Year	NYS	U.S.
	MMBtu	MMBtu
1997	59.45	70.82
1998	56.29	70.14
1999	60.28	71.72
2000	63.91	72.58
2001	61.17	70.33
2002	60.56	72.28
2003	64.05	72.77
2004	63.95	72.04
2005	66.55	73.18
2006	59.91	69.34
2007	63.85	71.48
2008	62.23	71.02
2009	59.56	68.66
2010	59.42	70.81
2011	58.56	69.38

Figure 1-14b: Residential Consumption per Capita



United States and New York State Selected Energy Indicators, 1997–2011

Table 1-15a:
**Commercial Consumption per
Non-Manufacturing Employee**

Year	NYS	U.S.
	MMBtu	MMBtu
1997	165.29	148.84
1998	161.39	147.34
1999	168.53	146.65
2000	169.41	149.97
2001	165.61	148.52
2002	170.09	150.72
2003	173.89	150.04
2004	180.08	150.68
2005	168.62	149.40
2006	160.58	145.21
2007	156.64	147.50
2008	159.55	148.90
2009	156.50	150.38
2010	156.86	152.70
2011	151.07	150.46

**Figure 1-15a: Commercial Consumption per
Non-Manufacturing Employee**

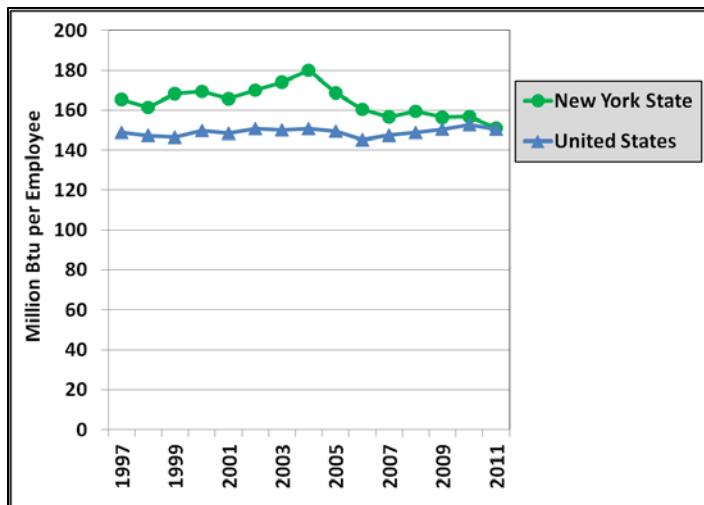
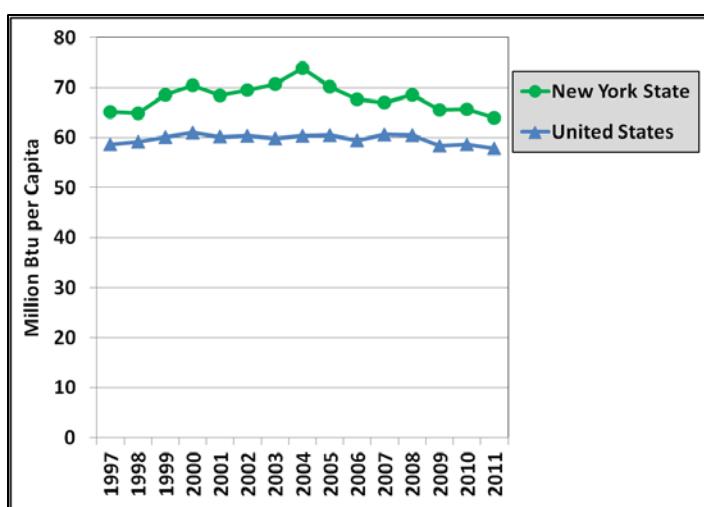


Table 1-15b:
Commercial Consumption per Capita

Year	NYS	U.S.
	MMBtu	MMBtu
1997	65.13	58.56
1998	64.85	59.08
1999	68.59	60.05
2000	70.42	61.03
2001	68.45	60.14
2002	69.42	60.31
2003	70.71	59.78
2004	73.92	60.31
2005	70.13	60.43
2006	67.68	59.36
2007	66.99	60.60
2008	68.60	60.44
2009	65.50	58.35
2010	65.65	58.55
2011	63.88	57.83

Figure 1-15b: Commercial Consumption per Capita



United States and New York State Selected Energy Indicators, 1997–2011

Table 1-16a:
**Industrial Consumption per
Manufacturing Employee**

Year	NYS	U.S.
	MMBtu	MMBtu
1997	792.6	2,020.8
1998	768.0	1,984.2
1999	693.2	2,006.9
2000	710.6	2,008.0
2001	676.9	1,990.2
2002	703.8	2,140.5
2003	686.0	2,242.2
2004	681.3	2,341.6
2005	700.5	2,280.6
2006	602.8	2,289.0
2007	710.0	2,334.0
2008	610.1	2,334.0
2009	594.8	2,407.8
2010	630.4	2,629.2
2011	634.2	2,608.9

**Figure 1-16a: Industrial Consumption per
Manufacturing Employee**

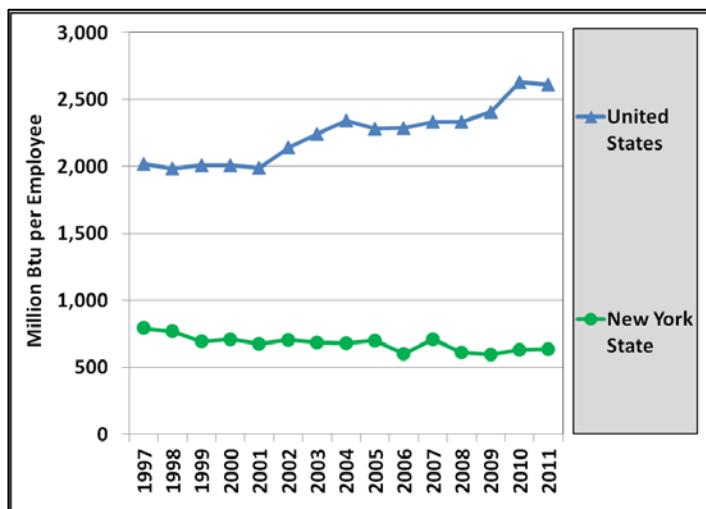
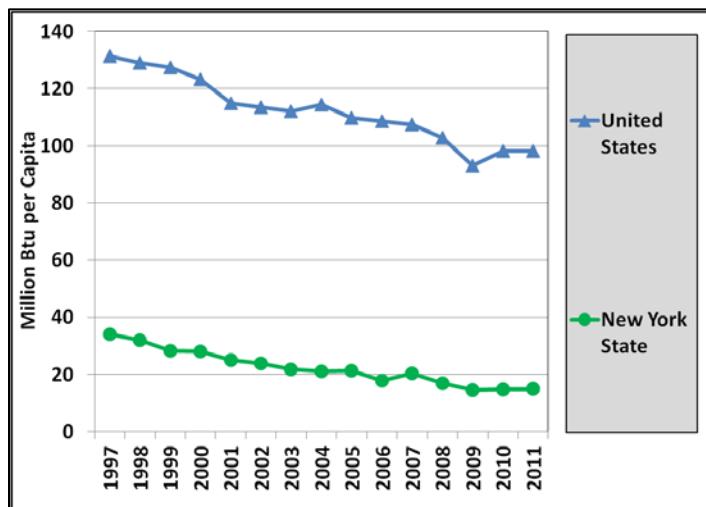


Table 1-16b:
Industrial Consumption per Capita

Year	NYS	U.S.
	MMBtu	MMBtu
1997	34.02	131.45
1998	31.97	128.93
1999	28.37	127.48
2000	28.06	123.17
2001	25.07	114.82
2002	23.93	113.56
2003	21.89	112.14
2004	21.16	114.48
2005	21.21	109.79
2006	17.87	108.59
2007	20.47	107.54
2008	16.89	102.89
2009	14.66	92.98
2010	14.87	98.17
2011	14.94	98.18

Figure 1-16b: Industrial Consumption per Capita



United States and New York State Selected Energy Indicators, 1997–2011

Table 1-17a:
**Transportation Consumption
per Vehicle Mile Traveled**

Year	NYS	U.S.
	Btu	Btu
1997	7,892	9,697
1998	7,782	9,610
1999	7,641	9,645
2000	7,549	9,665
2001	7,439	9,399
2002	7,515	9,400
2003	7,862	9,340
2004	8,061	9,409
2005	7,847	9,484
2006	7,819	9,564
2007	8,108	9,606
2008	8,360	9,410
2009	8,206	9,156
2010	8,000	9,256
2011	7,996	9,191

**Figure 1-17a: Transportation Consumption
per Vehicle Mile Traveled**

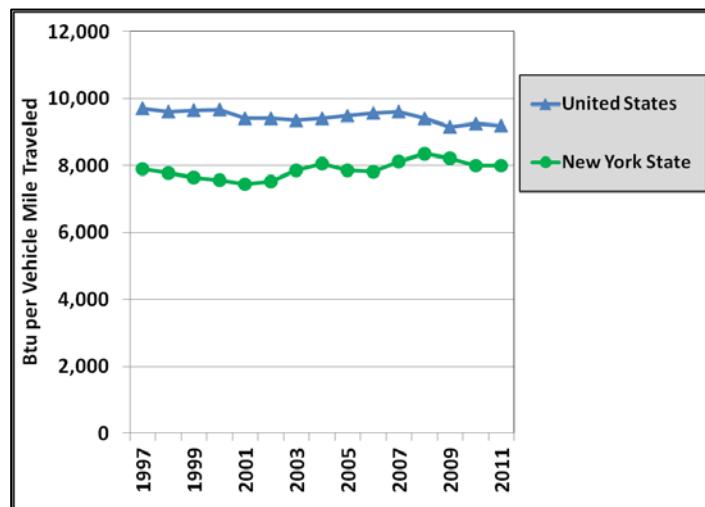
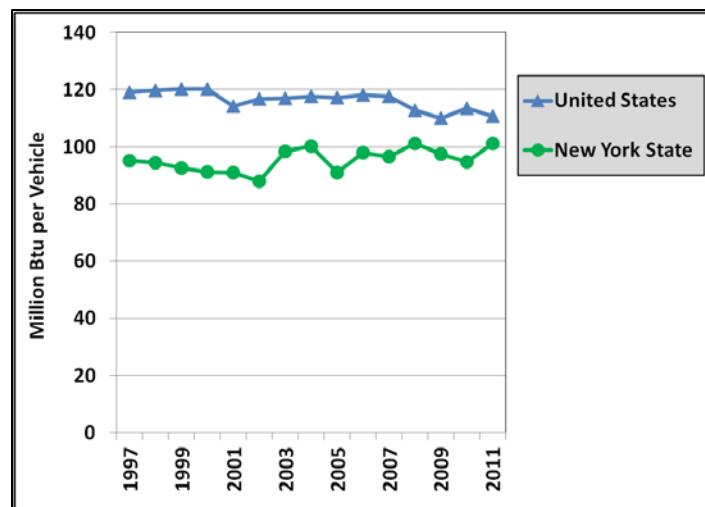


Table 1-17b:
**Transportation Consumption per
Registered Motor Vehicle**

Year	NYS	U.S.
	MMBtu	MMBtu
1997	95.07	118.99
1998	94.37	119.70
1999	92.60	120.13
2000	91.13	120.13
2001	90.90	114.24
2002	87.95	116.70
2003	98.29	116.86
2004	100.16	117.70
2005	90.96	117.16
2006	97.95	118.16
2007	96.45	117.76
2008	101.10	112.86
2009	97.42	109.91
2010	94.74	113.47
2011	101.27	110.63

**Figure 1-17b: Transportation Consumption per
Registered Motor Vehicle**



Section 2

NEW YORK STATE ENERGY CONSUMPTION

This section presents data on primary and net energy consumption in New York, by sector and fuel type, for the 15-year period from 1997 through 2011.

Primary consumption of energy is shown by fuel type in physical units, such as tons, cubic feet, GWh and barrels, and in trillion Btu (TBtu). Total primary energy consumption by sector, including residential, commercial, industrial, transportation and electric generation, is presented for the 15-year period.

This section also presents statistics on the state's other fuels, including wood, municipal waste, solar and geothermal energy.

Electricity generation is net of generation station use. Electricity from hydro, as well as wood, waste, landfill gas, wind, solar and net electricity imports, has been converted to primary energy by applying a statewide average annual heat rate (Btu per kWh generated) for fossil-fueled power plants.

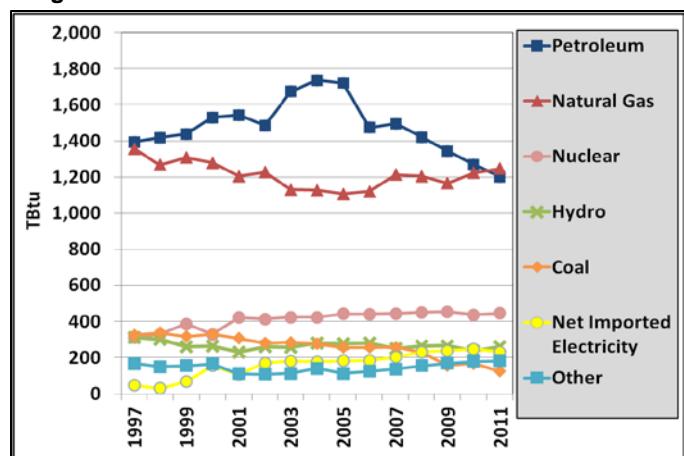
Electricity sales figures are combined with end-use consumption of coal, petroleum products, natural gas, biofuels, solar, and geothermal to derive total net energy consumption in the residential, commercial, industrial, and transportation sectors. Net energy consumption is provided in TBtu and physical units.

End-use energy consumption by large multifamily buildings and institutional facilities is included in the commercial sector.

Key Observations about 2011 New York State Energy Consumption Data

- ✓ Total primary energy consumption was 3,695 TBtu, a 1.8% decrease from 2010.
- ✓ Primary consumption of natural gas (1,247 TBtu) surpassed petroleum (1,202 TBtu) for the first time in 2011 as the largest energy source for New York State energy consumption, representing 33.7% of total primary energy consumption.
- ✓ Cumulative heating degree-days were 1.3% higher in 2011 compared to 2010.
- ✓ Primary consumption of energy from hydropower, natural gas and nuclear power increased 10.6%, 1.8% and 2.0%, respectively in 2011, while use of coal and petroleum decreased 25.1% and 5.3%, respectively.
- ✓ Total consumption of petroleum products was 1,202 TBtu, or 216 million barrels, representing 32.5% of total primary energy consumption.
- ✓ In 2011, statewide distillate oil, motor gasoline, and residual fuel use decreased by 3.8%, 5.9% and 6.8%, respectively from 2010 levels. Statewide jet fuel use increased by 4.7% from 2010 to 2011. Total statewide petroleum fuels use decreased by 5.3% from 2010 to 2011.
- ✓ Sales of natural gas totaled 1,217 billion cubic feet, which was 1.5% above the 1,198 billion cubic feet sold in 2010.
- ✓ Sales of natural gas by sector were 32.4% for the residential sector, 23.9% for the commercial sector, 6.3% for the industrial sector, 1.7% for the transportation sector, and 35.7% for the electric generation sector.
- ✓ Natural gas and nuclear power accounted for 31.1% and 26.1% of New York's electricity requirements in 2011, respectively.
- ✓ Energy used for electricity generation accounted for 41.8% of primary energy use.
- ✓ Sales of electricity to ultimate customers decreased by 0.4% between 2010 and 2011.
- ✓ Total residential net energy consumption was 765 TBtu, which was 1.0% lower than 2010 levels. The residential sector accounted for 29.0% of total net energy consumption.
- ✓ Total net energy consumption in the commercial sector was 684 TBtu, or 25.9% of total net energy consumption. The sector's total energy use decreased 1.8% below the 2010 level, while sales of electricity in the sector declined by 1.1%.
- ✓ Industrial net energy consumption was 193 TBtu, or 7.3% of total net consumption. The sector's total energy use increased 2.6% above the 2010 level.
- ✓ Transportation energy consumption was 999 TBtu, or down 2.8% from 2010. The sector accounted for 37.9% of total net energy consumption in 2011.

Figure 2-1



New York State Primary Consumption of Energy by Fuel Type, 1997–2011

Table 2-1a (in physical units)

Year	Coal	Natural Gas	Petroleum Products ¹	Hydro	Nuclear	Net Imported Electricity
	Mtons	Bcf	Mbbl	GWh	GWh	GWh
1997	12,522	1,324	253,220	32,676	29,570	4,913
1998	12,953	1,233	257,027	31,527	31,314	3,145
1999	12,187	1,274	260,213	26,810	37,019	6,904
2000	12,611	1,245	276,729	26,753	31,508	15,723
2001	11,784	1,172	279,045	23,152	40,395	10,628
2002	10,907	1,200	269,954	26,213	39,617	17,088
2003	11,313	1,102	301,218	25,798	40,679	18,163
2004	11,335	1,098	308,604	28,153	40,640	17,646
2005	10,739	1,080	306,040	27,583	42,443	18,115
2006	10,979	1,097	265,577	28,422	42,224	18,568
2007	11,058	1,187	268,768	25,557	42,453	20,708
2008	10,158	1,180	255,914	27,501	43,209	23,900
2009	7,031	1,143	241,309	27,945	43,485	25,009
2010	7,367	1,198	228,944	25,103	41,870	26,517
2011	5,603	1,217	216,375	28,355	42,695	25,202

Table 2-1b (in trillion Btu)

Year	Coal	Natural Gas	Petroleum Products ¹	Hydro	Nuclear	Net Imported Electricity	Other ²	Total ³
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	325.2	1,358.1	1,393.9	311.0	310.3	46.8	167.0	3,912.2
1998	337.4	1,267.1	1,417.4	302.1	328.5	30.1	149.2	3,831.8
1999	318.0	1,308.7	1,437.7	261.8	386.8	67.4	155.3	3,935.8
2000	330.8	1,279.7	1,530.0	264.3	328.6	155.4	164.6	4,053.3
2001	307.0	1,205.9	1,543.2	230.8	421.8	105.9	110.5	3,925.1
2002	280.6	1,227.2	1,485.8	260.9	413.7	170.1	107.2	3,945.4
2003	286.2	1,131.4	1,674.2	257.1	423.9	181.0	111.9	4,065.8
2004	276.5	1,126.6	1,735.7	281.7	423.8	176.6	139.7	4,160.4
2005	256.9	1,107.2	1,721.4	276.5	442.9	181.6	113.4	4,100.0
2006	256.3	1,120.2	1,474.7	282.5	440.6	184.6	125.1	3,884.1
2007	258.5	1,214.4	1,496.7	250.3	445.1	202.8	136.0	4,003.7
2008	229.0	1,205.1	1,421.9	265.4	451.7	230.6	155.4	3,959.2
2009	156.0	1,166.6	1,343.0	265.8	454.8	237.9	168.8	3,793.0
2010	167.1	1,224.4	1,269.7	235.7	437.6	249.0	178.1	3,761.7
2011	125.2	1,246.9	1,202.1	260.8	446.2	231.8	182.2	3,695.3

¹ Includes petroleum coke used for electric generation.

² Includes primarily wood, wind, waste, landfill gas, solar, geothermal, and ethanol; ethanol values are embedded in motor gasoline but are excluded from the petroleum products total.

³ Excludes non-fuel uses.

New York State Primary Consumption of Refined Petroleum Products, 1997–2011

Figure 2-2

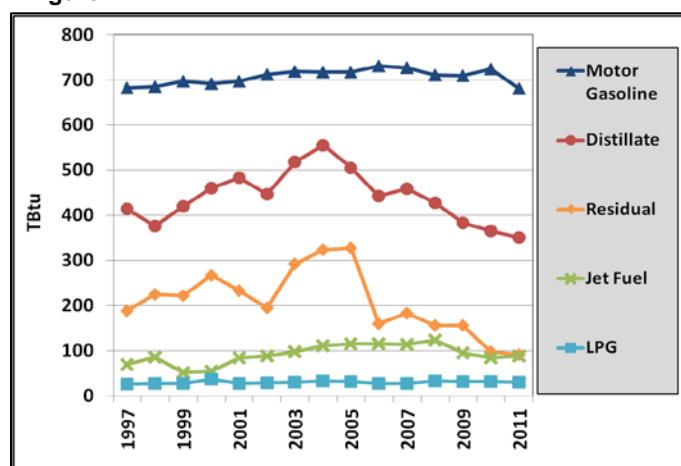


Table 2-2a (in thousand barrels)

Year	Distillate ¹	Residual	Kerosene	LPG	Motor Gasoline	Jet Fuel ²	Total ³
	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl
1997	71,033	29,992	2,906	6,686	130,923	12,206	253,220
1998	64,515	35,732	3,358	7,306	131,469	15,038	257,027
1999	71,969	35,352	3,086	7,316	133,621	9,206	260,213
2000	79,038	42,349	3,443	9,850	132,831	9,591	276,729
2001	82,878	37,090	3,444	7,111	133,724	14,904	279,045
2002	76,684	31,110	2,373	7,613	136,664	15,603	269,954
2003	88,919	46,578	3,195	7,771	138,010	17,286	301,218
2004	95,300	51,469	3,182	8,639	137,391	19,526	308,604
2005	86,630	52,151	3,632	8,261	137,355	20,291	306,040
2006	75,872	25,526	2,579	7,153	140,020	20,366	265,577
2007	78,850	28,975	1,777	7,346	139,140	20,162	268,768
2008	73,436	24,745	745	8,536	136,105	21,812	255,914
2009	65,804	24,791	1,219	8,344	135,921	16,790	241,309
2010	62,654	15,575	1,701	8,153	138,641	14,806	228,944
2011	60,270	14,517	1,058	7,914	130,522	15,497	216,375

Table 2-2b (in trillion Btu)

Year	Distillate ¹	Residual	Kerosene	LPG	Motor Gasoline	Jet Fuel ²	Total ³
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	413.8	188.6	16.5	25.2	682.5	69.2	1,393.9
1998	375.8	224.6	19.0	27.6	685.2	85.1	1,417.4
1999	419.2	222.3	17.5	27.6	696.3	52.1	1,437.7
2000	460.4	266.2	19.5	37.1	692.0	54.3	1,530.0
2001	482.8	233.2	19.5	26.8	696.7	84.3	1,543.2
2002	446.7	195.6	13.5	28.9	711.7	88.4	1,485.8
2003	518.0	292.8	18.1	29.4	718.6	98.0	1,674.2
2004	555.1	323.6	18.0	32.7	716.5	110.6	1,735.7
2005	504.6	327.9	20.6	31.0	716.7	114.9	1,721.4
2006	442.0	160.5	14.6	26.9	730.6	115.5	1,474.7
2007	459.3	182.2	10.1	27.8	726.2	114.2	1,496.7
2008	427.8	155.6	4.2	32.5	710.2	123.6	1,421.9
2009	383.3	155.9	6.9	31.8	709.2	95.2	1,343.0
2010	365.0	97.9	9.7	31.1	723.4	83.9	1,269.7
2011	351.1	91.3	6.0	30.1	681.1	87.8	1,202.1

¹ Distillate consumption estimates include biodiesel blended into diesel fuel.

² Kerosene-type jet fuel and aviation gasoline.

³ Includes petroleum coke used for electric generation. Ethanol values are embedded in motor gasoline but are excluded from the petroleum products total.

**New York State
Primary Consumption
of Energy by Sector,
1997–2011**

Figure 2-3

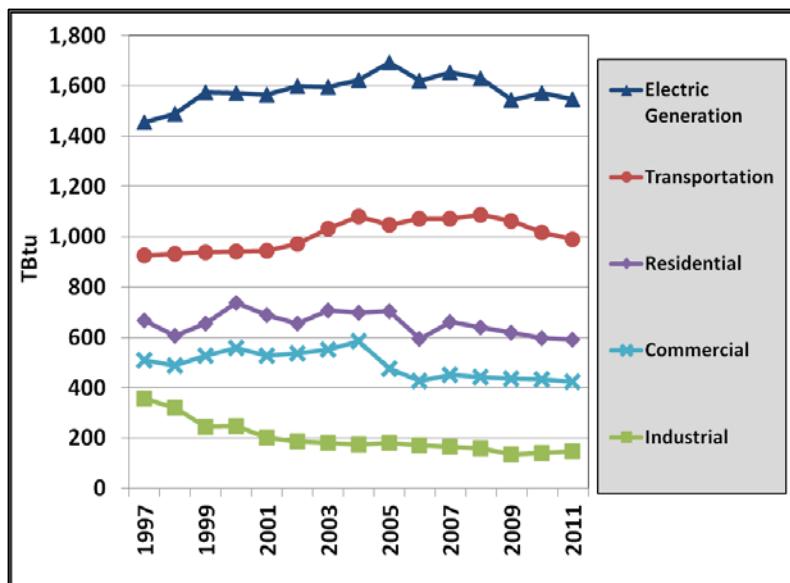


Table 2-3 (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Electric Generation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	667.5	509.1	355.9	924.9	1,454.8	3,912.2
1998	606.2	486.5	320.1	931.4	1,487.6	3,831.8
1999	653.9	528.1	244.1	936.5	1,573.1	3,935.8
2000	736.9	557.3	246.6	941.1	1,571.3	4,053.3
2001	687.5	527.0	202.3	944.5	1,563.8	3,925.1
2002	655.6	535.4	185.4	971.3	1,597.7	3,945.4
2003	706.2	552.7	178.8	1,031.9	1,596.2	4,065.8
2004	695.9	585.1	174.4	1,082.0	1,623.0	4,160.4
2005	703.1	475.2	180.9	1,047.0	1,693.8	4,100.0
2006	592.8	426.8	170.8	1,073.3	1,620.4	3,884.1
2007	661.0	452.3	166.1	1,070.7	1,653.6	4,003.7
2008	640.8	442.2	158.4	1,088.0	1,629.7	3,959.2
2009	618.6	434.7	135.3	1,062.1	1,542.2	3,793.0
2010	598.2	432.7	141.7	1,018.2	1,570.9	3,761.7
2011	589.7	423.1	146.8	989.3	1,546.4	3,695.3

Figure 2-4

New York State Primary Consumption of Energy for Electric Generation, 1997–2011

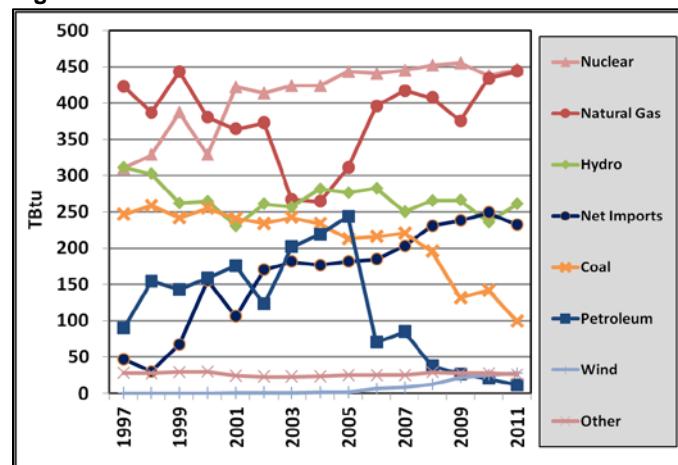


Table 2-4a (in physical units)

Year	Coal	Natural Gas	Distillate ¹	Residual	Total Petroleum ²	Conventional Hydro	Pumped Storage Hydro	Nuclear	Net Imported Electricity	Wind	Other
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	GWh	GWh	GWh	GWh	GWh	GWh
1997	9,464	413	1,568	12,813	14,381	30,618	2,058	29,570	4,913	0	2,809
1998	9,928	377	1,390	23,295	24,685	29,316	2,211	31,314	3,145	0	2,754
1999	9,265	433	2,207	20,697	22,905	24,752	2,058	37,019	6,904	0	2,950
2000	9,763	373	2,352	23,056	25,409	24,910	1,843	31,508	15,723	10	2,958
2001	9,258	357	3,010	25,184	28,194	21,486	1,666	40,395	10,628	21	2,404
2002	9,154	366	2,229	17,473	19,702	24,612	1,601	39,617	17,088	82	2,282
2003	9,646	261	2,410	29,821	32,230	24,207	1,591	40,679	18,163	41	2,302
2004	9,702	259	1,740	33,236	34,977	26,745	1,408	40,640	17,646	116	2,303
2005	9,069	304	1,574	37,320	38,894	26,204	1,379	42,443	18,115	103	2,481
2006	9,417	388	622	10,614	11,236	27,110	1,312	42,224	18,568	655	2,488
2007	9,613	408	1,372	12,224	13,596	24,184	1,373	42,453	20,708	833	2,555
2008	8,885	399	809	4,935	6,106	25,711	1,790	43,209	23,900	1,251	2,996
2009	6,108	368	736	3,261	4,296	26,420	1,525	43,485	25,009	2,266	2,888
2010	6,384	425	637	1,790	3,340	24,214	889	41,870	26,517	2,596	2,916
2011	4,591	434	331	1,026	1,826	27,634	721	42,695	25,202	2,828	2,823

Table 2-4b (in trillion Btu)

Year	Coal	Natural Gas	Distillate ¹	Residual	Total Petroleum ²	Hydro ³	Nuclear	Net Imports ³	Wind	Other ^{3,4}	Total ⁵
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	246.2	422.9	9.1	80.6	89.7	311.0	310.3	46.8	0.0	28.0	1,454.8
1998	258.6	386.3	8.1	145.1	154.5	302.1	328.5	30.1	0.0	27.5	1,487.6
1999	241.8	443.0	12.9	126.1	142.8	261.8	386.8	67.4	0.0	29.4	1,573.1
2000	254.8	380.1	13.7	143.3	158.6	264.3	328.6	155.4	0.1	29.5	1,571.3
2001	241.1	364.1	17.5	158.1	175.9	230.8	421.8	105.9	0.2	24.0	1,563.8
2002	234.3	372.5	13.0	108.4	122.8	260.9	413.7	170.1	0.8	22.7	1,597.7
2003	242.1	267.1	14.0	186.3	201.5	257.1	423.9	181.0	0.4	22.9	1,596.2
2004	233.6	264.2	10.1	205.7	219.0	281.7	423.8	176.6	1.2	23.0	1,623.0
2005	213.0	310.6	9.2	220.4	243.2	276.5	442.9	181.6	1.0	24.9	1,693.8
2006	215.8	395.5	3.6	61.3	70.1	282.5	440.6	184.6	6.5	24.7	1,620.4
2007	220.6	416.9	8.0	73.7	84.7	250.3	445.1	202.8	8.2	25.0	1,653.6
2008	195.6	407.3	4.7	31.0	37.9	265.4	451.7	230.6	12.3	28.9	1,629.7
2009	131.8	375.6	4.3	20.5	26.6	265.8	454.8	237.9	22.1	27.5	1,542.2
2010	141.6	433.7	3.7	11.3	20.5	235.7	437.6	249.0	25.3	27.4	1,570.9
2011	99.2	443.6	1.9	6.4	11.2	260.8	446.2	231.8	27.6	26.0	1,546.4

¹ Includes small quantities of kerosene-type jet fuel.

² Includes petroleum coke used for electric generation.

³ Converts to TBtu by applying a statewide average annual heat rate for fossil-fueled power plants.

⁴ Includes primarily waste, methane, wood, and solar. See table 2-5 for a breakout of energy output.

⁵ Excludes utility consumption of fuels used in the production of steam distributed for space heating.

New York State Electric Generation by Fuel Type, 1997–2011

Figure 2-5

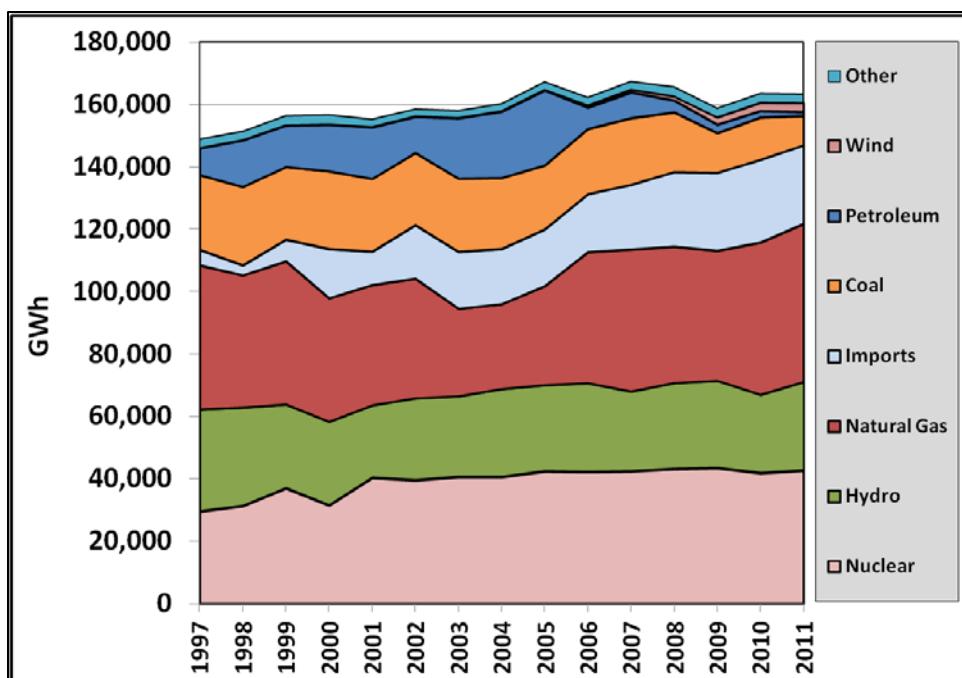


Table 2-5 (in gigawatt-hours)

Year	Coal	Natural Gas	Petroleum Products	Conv. Hydro	PS Hydro	Nuclear	Net Imports	Other ^{1,2}			Wind	Solar ³	Total
	GWh	GWh	GWh	GWh	GWh	GWh	GWh	GWh	GWh	GWh			
1997	24,059	46,281	8,588	30,618	2,058	29,570	4,913	2,809	2,754	2,950	0	0	148,896
1998	25,265	42,472	14,901	29,316	2,211	31,314	3,145	1,878	198	206	0	0	151,377
1999	23,366	45,999	13,304	24,752	2,058	37,019	6,904	1,905	205	192	0	0	156,352
2000	25,010	39,729	14,945	24,910	1,843	31,508	15,723	1,883	209	211	10	0	156,636
2001	23,432	38,697	16,512	21,486	1,666	40,395	10,628	1,837	284	283	21	0	155,241
2002	23,239	38,451	11,534	24,612	1,601	39,617	17,088	1,902	397	256	82	0	158,507
2003	23,581	28,156	19,292	24,207	1,591	40,679	18,163	1,905	205	192	41	0	158,012
2004	22,853	27,294	21,205	26,745	1,408	40,640	17,646	1,899	329	253	116	0	160,211
2005	20,598	31,873	24,013	26,204	1,379	42,443	18,115	1,900	648	340	103	0	167,208
2006	20,968	42,134	6,778	27,110	1,312	42,224	18,568	1,902	326	260	655	0	162,237
2007	21,406	45,634	8,195	24,184	1,373	42,453	20,708	1,902	397	256	833	0	167,341
2008	19,154	43,856	3,745	25,711	1,790	43,209	23,900	1,903	533	560	1,251	0	165,613
2009	12,759	41,780	2,648	26,420	1,525	43,485	25,009	1,900	648	340	2,266	0	158,780
2010	13,583	48,916	2,005	24,214	889	41,870	26,517	1,893	708	315	2,596	0	163,505
2011	9,426	50,805	1,189	27,634	721	42,695	25,202	1,878	735	210	2,828	7	163,330

¹ Includes primarily waste, landfill gas and wood.

² Data for disaggregation prior to 2001 are not available.

³ Solar powered electric generation is utility-scale solar photovoltaic and does not include customer-sited solar photovoltaic energy.

New York State Fossil Fuel¹ for Electric Generation Trends, 1997–2011

Figure 2-6a: Fossil Fuel Used per kWh of in-State Generation

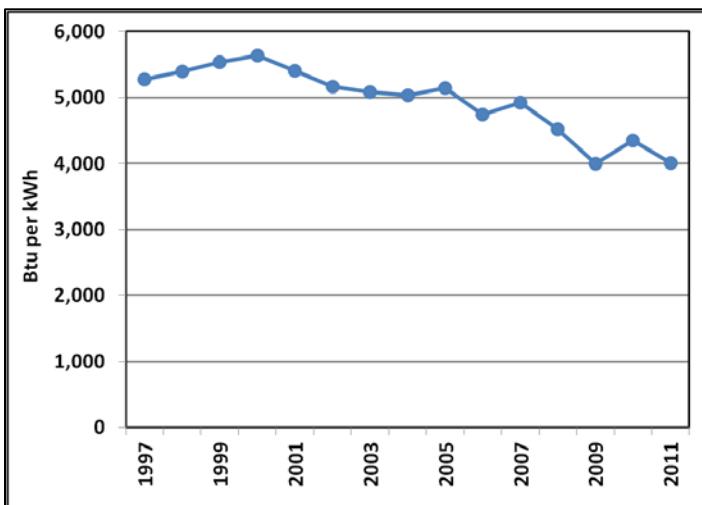


Figure 2-6b: Metric Tons Emitted of CO₂ Equivalent per GWh of in-State Generation

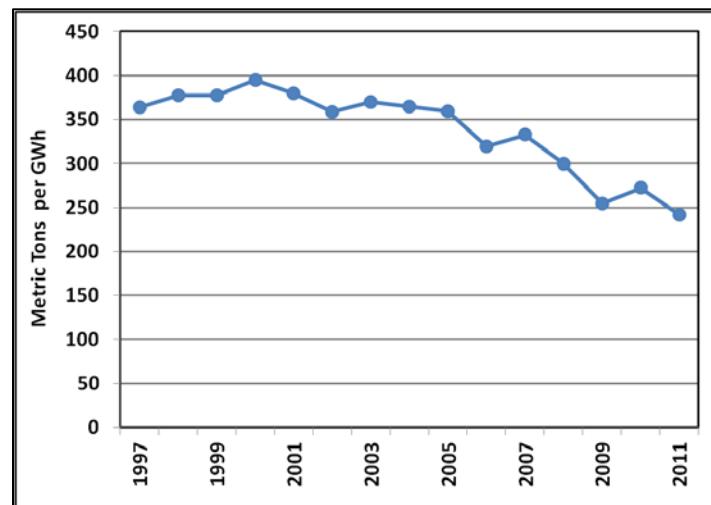


Table 2-6: Fossil Fuel Use for Electricity Trends

Year	Total Fossil Fuel Use	Fossil Fuel per kWh of in-State Generation	CO ₂ Emitted per GWh of in-State Generation
		TBtu	Btu
1997	759	5,270	364
1998	799	5,393	378
1999	828	5,538	378
2000	793	5,631	395
2001	781	5,401	380
2002	730	5,159	358
2003	711	5,082	370
2004	717	5,028	365
2005	767	5,143	359
2006	681	4,743	320
2007	722	4,925	333
2008	641	4,522	300
2009	534	3,992	254
2010	596	4,349	272
2011	554	4,010	242

¹ Fossil Fuel includes natural gas, coal, and all petroleum products used for electric generation.

New York State Sales of Electricity to Ultimate Consumers, 1997–2011

Figure 2-7

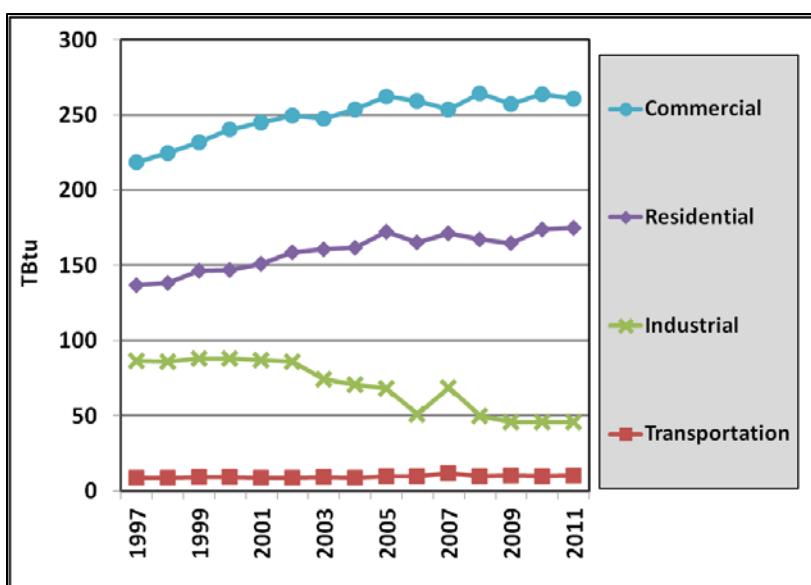


Table 2-7a (in gigawatt-hours)

Year	Residential	Commercial	Industrial	Transportation	Total
	GWh	GWh	GWh	GWh	GWh
1997	40,059	64,033	25,285	2,567	131,944
1998	40,563	65,834	25,218	2,580	134,196
1999	42,919	67,969	25,835	2,654	139,378
2000	43,018	70,417	25,838	2,753	142,027
2001	44,236	71,850	25,450	2,646	144,181
2002	46,457	73,198	25,148	2,637	147,440
2003	47,116	72,495	21,745	2,689	144,045
2004	47,379	74,378	20,675	2,650	145,082
2005	50,533	76,822	19,947	2,846	150,148
2006	48,427	76,029	14,976	2,806	142,238
2007	50,241	74,326	20,213	3,397	148,178
2008	49,034	77,416	14,685	2,918	144,053
2009	48,246	75,347	13,417	3,025	140,034
2010	50,946	77,276	13,480	2,922	144,624
2011	51,240	76,406	13,420	2,981	144,047

Table 2-7b (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu
1997	136.7	218.5	86.3	8.8	450.2
1998	138.4	224.6	86.0	8.8	457.9
1999	146.4	231.9	88.2	9.1	475.6
2000	146.8	240.3	88.2	9.4	484.6
2001	150.9	245.2	86.8	9.0	491.9
2002	158.5	249.8	85.8	9.0	503.1
2003	160.8	247.4	74.2	9.2	491.5
2004	161.7	253.8	70.5	9.0	495.0
2005	172.4	262.1	68.1	9.7	512.3
2006	165.2	259.4	51.1	9.6	485.3
2007	171.4	253.6	69.0	11.6	505.6
2008	167.3	264.1	50.1	10.0	491.5
2009	164.6	257.1	45.8	10.3	477.8
2010	173.8	263.7	46.0	10.0	493.5
2011	174.8	260.7	45.8	10.2	491.5

New York State Net Consumption of Energy by Sector, 1997–2011

Figure 2-8

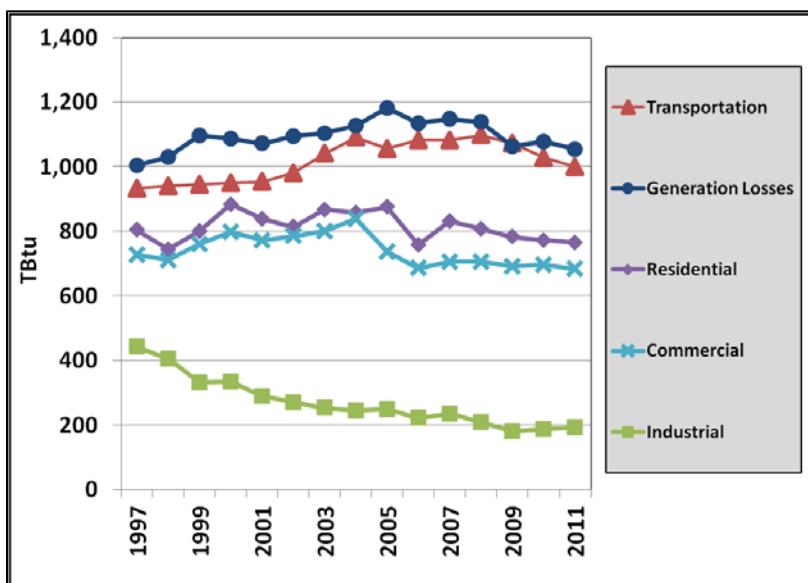
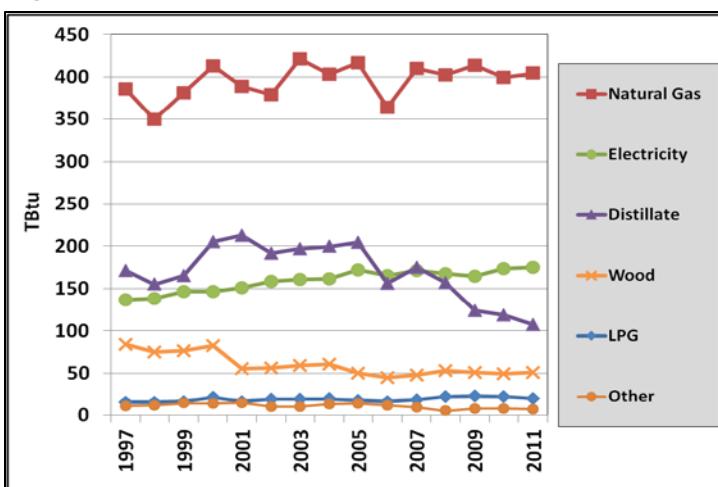


Table 2-8 (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Net Consumption	Generation Losses ¹	Primary Consumption
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	804.1	727.5	442.2	933.7	2,907.6	1,004.6	3,912.2
1998	744.6	711.2	406.1	940.2	2,802.1	1,029.7	3,831.8
1999	800.3	760.0	332.3	945.6	2,838.2	1,097.5	3,935.8
2000	883.7	797.6	334.8	950.5	2,966.6	1,086.8	4,053.3
2001	838.4	772.2	289.2	953.5	2,853.3	1,071.8	3,925.1
2002	814.1	785.1	271.2	980.3	2,850.7	1,094.7	3,945.4
2003	867.0	800.1	253.0	1,041.1	2,961.1	1,104.7	4,065.8
2004	857.6	838.8	245.0	1,091.1	3,032.5	1,127.9	4,160.4
2005	875.5	737.3	248.9	1,056.7	2,918.4	1,181.5	4,100.0
2006	758.0	686.2	221.9	1,082.8	2,749.0	1,135.1	3,884.1
2007	832.4	705.9	235.0	1,082.3	2,855.7	1,148.0	4,003.7
2008	808.1	706.3	208.5	1,098.0	2,820.9	1,138.2	3,959.2
2009	783.2	691.8	181.1	1,072.5	2,728.6	1,064.4	3,793.0
2010	772.0	696.4	187.7	1,028.2	2,684.3	1,077.4	3,761.7
2011	764.5	683.8	192.6	999.4	2,640.3	1,054.9	3,695.3

¹ Conversion and transmission losses.

Figure 2-9



New York State Net Residential Consumption of Energy by Fuel Type, 1997–2011

Table 2-9a (in physical units)

Year	Coal	Natural Gas	Distillate ¹	Kerosene	LPG	Total Petroleum	Wood	Electricity
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mcord	GWh
1997	28	376	29,367	1,744	4,013	35,124	4,202	40,059
1998	16	340	26,637	1,866	3,962	32,465	3,734	40,563
1999	22	371	28,347	2,327	4,299	34,973	3,832	42,919
2000	11	400	35,229	2,344	5,693	43,266	4,127	43,018
2001	13	376	36,502	2,390	4,306	43,198	2,755	44,236
2002	5	370	32,893	1,642	4,987	39,522	2,796	46,457
2003	11	410	33,847	1,639	4,933	40,419	2,943	47,116
2004	16	393	34,262	2,065	5,119	41,446	3,017	47,379
2005	13	406	35,054	2,203	4,661	41,918	2,518	50,533
2006	13	356	26,797	1,803	4,155	32,755	2,233	48,427
2007	13	400	30,101	1,318	4,771	36,190	2,410	50,241
2008	7	394	26,999	594	5,885	33,478	2,645	49,034
2009	2	405	21,285	971	5,940	28,196	2,527	48,246
2010	0	390	20,361	999	5,792	27,152	2,468	50,946
2011	0	394	18,403	726	5,296	24,425	2,527	51,240

Table 2-9b (in trillion Btu)

Year	Coal	Natural Gas	Distillate ¹	Kerosene	LPG	Total Petroleum	Wood	Electricity	Solar/ Geothermal ²	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	0.7	385.8	171.1	9.9	15.4	196.3	84.0	136.7	0.6	804.1
1998	0.4	349.5	155.2	10.6	15.2	180.9	74.7	138.4	0.6	744.6
1999	0.6	381.3	165.1	13.2	16.5	194.8	76.6	146.4	0.6	800.3
2000	0.3	413.1	205.2	13.3	21.8	240.3	82.5	146.8	0.6	883.7
2001	0.3	388.8	212.6	13.6	16.5	242.7	55.1	150.9	0.6	838.4
2002	0.1	378.8	191.6	9.3	19.1	220.0	55.9	158.5	0.6	814.1
2003	0.3	421.0	197.2	9.3	18.9	225.4	58.9	160.8	0.7	867.0
2004	0.4	403.5	199.6	11.7	19.6	230.9	60.3	161.7	0.8	857.6
2005	0.3	416.9	204.2	12.5	17.9	234.6	50.4	172.4	1.0	875.5
2006	0.3	364.3	156.1	10.2	15.9	182.3	44.7	165.2	1.3	758.0
2007	0.3	409.9	175.3	7.5	18.3	201.1	48.2	171.4	1.5	832.4
2008	0.2	402.7	157.3	3.4	22.6	183.2	52.9	167.3	1.8	808.1
2009	0.1	413.6	124.0	5.5	22.8	152.3	50.5	164.6	2.1	783.2
2010	0.0	399.7	118.6	5.7	22.2	146.5	49.4	173.8	2.6	772.0
2011	0.0	404.3	107.2	4.1	20.3	131.6	50.5	174.8	3.2	764.5

¹ Distillate consumption estimates include biodiesel blended into diesel fuel.

² Includes Solar Photovoltaic and Thermal energy. Residential sector solar estimates include small quantities consumed by the commercial sector.

New York State Net Commercial Consumption of Energy by Fuel Type, 1997–2011

Figure 2-10

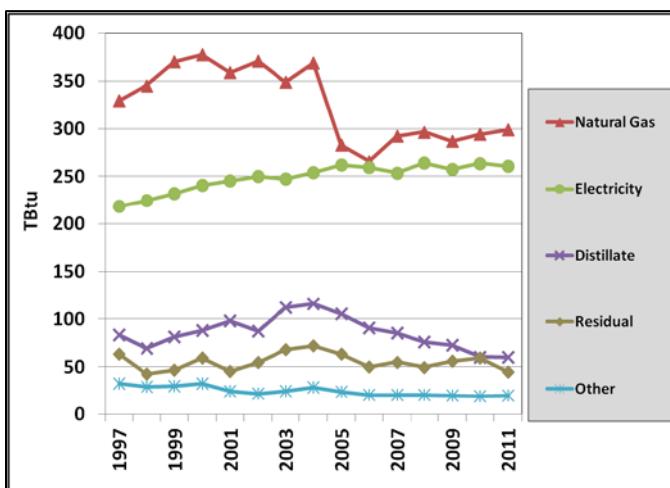


Table 2-10a (in physical units)

Year	Coal	Natural Gas	Distillate ¹	Residual	Kerosene	LPG	Total Petroleum	Wood	Electricity
	MTons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh
1997	226	321	14,337	10,105	801	1,138	26,381	702	64,033
1998	131	335	11,914	6,765	981	1,124	20,784	613	65,834
1999	158	360	13,946	7,439	682	1,220	23,287	645	67,969
2000	90	366	15,128	9,429	948	1,615	27,120	690	70,417
2001	102	347	16,865	7,193	874	1,221	26,153	485	71,850
2002	40	362	15,032	8,678	493	1,415	25,618	496	73,198
2003	73	339	19,198	10,784	665	1,408	32,055	517	72,495
2004	145	359	19,907	11,441	745	1,893	33,986	505	74,378
2005	147	276	18,086	10,066	759	1,108	30,019	404	76,822
2006	127	260	15,602	7,941	354	1,145	25,042	375	76,029
2007	119	285	14,606	8,723	244	1,276	24,849	398	74,326
2008	61	290	13,059	7,874	104	1,641	22,678	420	77,416
2009	19	281	12,428	8,872	171	1,724	23,195	418	75,347
2010	3	287	10,344	9,411	154	1,720	21,629	412	77,276
2011	4	291	10,281	7,089	168	1,851	19,389	407	76,406

Table 2-10b (in trillion Btu)

Year	Coal	Natural Gas	Distillate ¹	Residual	Kerosene	LPG	Total Petroleum	Wood	Waste	Electricity	Geothermal	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	5.6	329.5	83.5	63.5	4.5	4.4	156.0	14.0	3.7	218.5	0.2	727.5
1998	3.3	345.3	69.4	42.5	5.6	4.3	121.8	12.3	3.6	224.6	0.3	711.2
1999	4.0	370.4	81.2	46.8	3.9	4.7	136.6	12.9	3.9	231.9	0.3	760.0
2000	2.3	377.7	88.1	59.3	5.4	6.2	159.0	13.8	4.3	240.3	0.3	797.6
2001	2.5	358.9	98.2	45.2	5.0	4.7	153.1	9.7	2.5	245.2	0.3	772.2
2002	1.0	371.3	87.6	54.6	2.8	5.4	150.3	9.9	2.5	249.8	0.4	785.1
2003	1.8	348.8	111.8	67.8	3.8	5.4	188.8	10.3	2.4	247.4	0.5	800.1
2004	3.6	368.9	116.0	71.9	4.2	7.3	199.4	10.1	2.5	253.8	0.5	838.8
2005	3.7	283.0	105.4	63.3	4.3	4.2	177.2	8.1	2.6	262.1	0.6	737.3
2006	3.2	265.7	90.9	49.9	2.0	4.4	147.2	7.5	2.6	259.4	0.7	686.2
2007	3.0	291.9	85.1	54.8	1.4	4.9	146.2	8.0	2.5	253.6	0.7	705.9
2008	1.5	296.4	76.1	49.5	0.6	6.3	132.5	8.4	2.5	264.1	0.8	706.3
2009	0.5	286.8	72.4	55.8	1.0	6.6	135.8	8.4	2.3	257.1	1.0	691.8
2010	0.1	294.1	60.3	59.2	0.9	6.6	126.9	8.3	2.3	263.7	1.1	696.4
2011	0.1	298.9	59.9	44.6	1.0	7.1	112.5	8.1	2.3	260.7	1.1	683.8

¹ Distillate consumption estimates include biodiesel blended into diesel fuel.

Figure 2-11

New York State Net Industrial Consumption of Energy by Fuel Type, 1997–2011

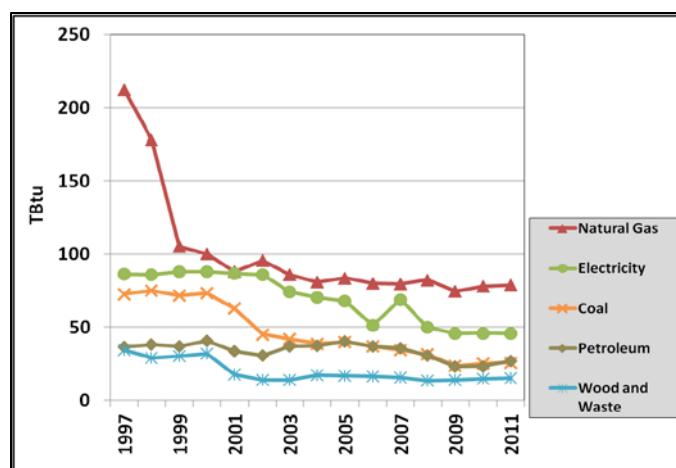


Table 2-11a (in physical units)

Year	Coal	Natural Gas		Residual	Kerosene	LPG	Total Petroleum	Wood	Electricity
		Mtons	Bcf						
1997	2,804	207	2,922	1,965	361	1,445	6,693	1,654	25,285
1998	2,878	173	3,016	1,868	511	1,687	7,082	1,379	25,218
1999	2,742	102	3,441	1,623	77	1,772	6,913	1,451	25,835
2000	2,747	97	3,285	2,005	151	2,308	7,749	1,544	25,838
2001	2,411	85	2,981	1,544	180	1,559	6,264	858	25,450
2002	1,708	93	2,889	1,362	238	1,145	5,634	676	25,148
2003	1,583	84	2,960	1,584	891	1,379	6,814	669	21,745
2004	1,472	79	3,481	1,483	372	1,561	6,897	837	20,675
2005	1,510	81	3,371	1,337	670	2,417	7,795	822	19,947
2006	1,422	78	3,463	1,301	422	1,754	6,940	771	14,976
2007	1,313	78	3,625	1,461	215	1,243	6,544	724	20,213
2008	1,205	81	3,389	1,282	47	753	5,471	615	14,685
2009	902	73	3,007	502	77	583	4,169	619	13,417
2010	980	76	2,525	618	548	503	4,194	673	13,480
2011	1,008	77	2,801	1,244	164	588	4,797	679	13,420

Table 2-11b (in trillion Btu)

Year	Coal	Natural Gas		Residual	Kerosene	LPG	Total Petroleum	Wood	Waste	Electricity	Total ^{2,3}
		TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	72.7	212.1	17.0	12.4	2.0	5.1	36.6	33.1	1.5	86.3	442.2
1998	75.1	177.8	17.6	11.7	2.9	6.0	38.2	27.6	1.4	86.0	406.1
1999	71.6	105.2	20.0	10.2	0.4	6.3	37.0	29.0	1.4	88.2	332.3
2000	73.5	100.2	19.1	12.6	0.9	8.2	40.8	30.9	1.2	88.2	334.8
2001	63.1	87.9	17.4	9.7	1.0	5.5	33.6	17.2	0.6	86.8	289.2
2002	45.2	95.4	16.8	8.6	1.4	4.1	30.8	13.5	0.5	85.8	271.2
2003	41.9	85.8	17.2	10.0	5.0	4.9	37.2	13.4	0.5	74.2	253.0
2004	38.9	81.1	20.3	9.3	2.1	5.5	37.3	16.7	0.5	70.5	245.0
2005	39.9	83.6	19.6	8.4	3.8	8.6	40.4	16.4	0.5	68.1	248.9
2006	37.1	80.2	20.2	8.2	2.4	6.2	37.0	15.4	1.2	51.1	221.9
2007	34.6	79.8	21.1	9.2	1.2	4.4	35.9	14.5	1.3	69.0	235.0
2008	31.6	82.4	19.7	8.1	0.3	2.6	30.7	12.3	1.3	50.1	208.5
2009	23.6	74.8	17.5	3.2	0.4	2.0	23.1	12.4	1.5	45.8	181.1
2010	25.5	77.8	14.7	3.9	3.1	1.7	23.4	13.5	1.5	46.0	187.7
2011	25.9	78.7	16.3	7.8	0.9	2.0	27.1	13.6	1.5	45.8	192.6

¹ Distillate consumption estimates include biodiesel blended into diesel fuel.

² Excludes non-fuel uses (e.g., feedstock).

³ Includes fuels used by industry to generate electricity and process steam.

Figure 2-12

New York State Net Transportation Consumption of Energy by Fuel Type, 1997–2011

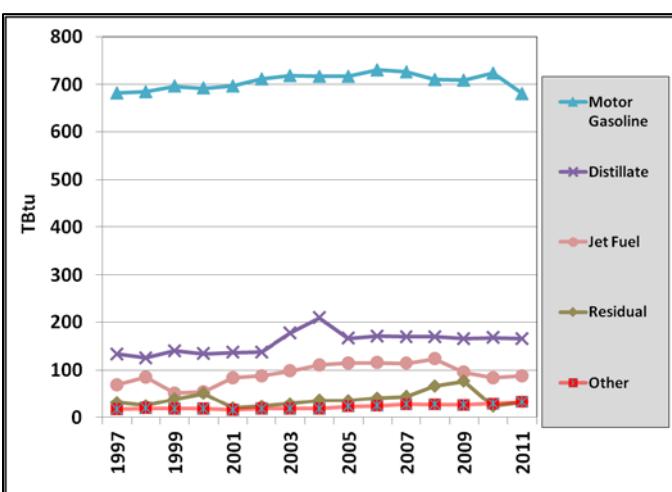


Table 2-12a (in physical units)

Year	Natural	Distillate ¹	Residual	Motor	Jet	LPG	Total	Ethanol	Electricity
	Gas			Gasoline	Fuel ²		Petroleum		
	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	GWh
1997	8	22,839	5,109	130,923	12,206	90	170,641	526	2,567
1998	8	21,558	4,024	131,469	15,038	533	172,231	391	2,580
1999	9	24,028	6,237	133,621	9,206	25	172,779	338	2,654
2000	8	23,044	8,126	132,831	9,591	234	173,452	374	2,753
2001	6	23,520	3,207	133,724	14,904	25	175,274	106	2,646
2002	9	23,641	3,826	136,664	15,603	66	179,707	93	2,637
2003	8	30,504	4,583	138,010	17,286	51	189,894	540	2,689
2004	9	35,910	5,823	137,391	19,526	66	191,812	6,904	2,650
2005	13	28,545	5,684	137,355	20,291	75	189,670	2,280	2,846
2006	14	29,388	6,530	140,020	20,366	99	190,464	5,939	2,806
2007	16	29,146	7,063	139,140	20,162	56	188,085	7,482	3,397
2008	16	29,180	10,654	136,105	21,812	257	188,181	9,827	2,918
2009	15	28,348	12,156	135,921	16,790	97	181,453	11,859	3,025
2010	19	28,787	3,756	138,641	14,806	138	172,629	13,499	2,922
2011	21	28,454	5,158	130,522	15,497	179	165,938	13,872	2,981

Table 2-12b (in trillion Btu)

Year	Natural	Distillate ¹	Residual	Motor	Jet	LPG	Total	Ethanol ³	Electricity	Total
	Gas			Gasoline	Fuel ²		Petroleum			
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1997	7.7	133.0	32.1	682.5	69.2	0.3	915.3	1.8	8.8	933.7
1998	8.2	125.6	25.3	685.2	85.1	2.0	921.9	1.4	8.8	940.2
1999	8.8	140.0	39.2	696.3	52.1	0.1	926.5	1.2	9.1	945.6
2000	8.5	134.2	51.1	692.0	54.3	0.9	931.3	1.3	9.4	950.5
2001	6.2	137.0	20.2	696.7	84.3	0.1	937.9	0.4	9.0	953.5
2002	9.2	137.7	24.1	711.7	88.4	0.3	961.8	0.3	9.0	980.3
2003	8.6	177.7	28.8	718.6	98.0	0.2	1,021.4	1.9	9.2	1,041.1
2004	8.9	209.2	36.6	716.5	110.6	0.3	1,049.2	23.9	9.0	1,091.1
2005	13.1	166.3	35.7	716.7	114.9	0.3	1,026.0	7.9	9.7	1,056.7
2006	14.5	171.2	41.1	730.6	115.5	0.4	1,038.1	20.6	9.6	1,082.8
2007	16.0	169.8	44.4	726.2	114.2	0.2	1,028.8	25.9	11.6	1,082.3
2008	16.3	170.0	67.0	710.2	123.6	1.0	1,037.6	34.1	10.0	1,098.0
2009	15.8	165.1	76.4	709.2	95.2	0.4	1,005.3	41.1	10.3	1,072.5
2010	19.0	167.7	23.6	723.4	83.9	0.5	952.4	46.8	10.0	1,028.2
2011	21.5	165.7	32.4	681.1	87.8	0.7	919.7	48.1	10.2	999.4

¹ Distillate consumption estimates include biodiesel blended into diesel fuel.

² Consists of aviation gasoline and kerosene-type jet fuel.

³ Ethanol values are embedded in motor gasoline but are excluded from the petroleum products total.

Section 3

NEW YORK ENERGY PRICES

This section presents data on retail energy prices for the 15-year period, 1997 through 2011. Energy prices are provided by fuel type in nominal dollars per physical unit and per million Btu for the residential, commercial, industrial, and transportation sectors.

This section includes a column in the price tables displaying gross domestic product (GDP) price deflators for converting nominal (current year) dollars into constant 2011 (real) dollars. To convert energy prices from nominal to constant 2011 dollars, divide the nominal energy price by the GDP price deflator for that particular year.

Historical petroleum, electricity, coal and natural gas prices were compiled primarily from various reports from the U.S. Department of Energy's Energy Information Administration.

Key Observations about 2011 New York State Energy Price Data

- ✓ Residential sector statewide average nominal fuel prices:
 - Home heating oil increased by 17.9% from an average \$3.01 per gallon in 2010 to \$3.55 in 2011.
 - Natural gas declined by 2.8% from an average \$14.04 per thousand cubic feet in 2010 to \$13.64 in 2011.
 - Electricity decreased by 2.6% from 18.7¢ per kilowatt hour in 2010 to 18.3¢ in 2011.
- ✓ Commercial sector statewide average nominal fuel prices:
 - Distillate fuel prices averaged \$3.40 per gallon in 2010, which was a 33.6% increase from 2010 prices.
 - Residual oil prices averaged \$109.46 per barrel in 2011, which was a 35.0% increase from 2010 prices.
 - Electricity prices averaged 15.8¢ per kilowatt-hour, which was a 3.1% decrease from 2010 prices.
 - Natural gas prices averaged \$9.28 per thousand cubic feet, which was a 14.7% decrease from 2010 prices.
- ✓ Industrial sector statewide average nominal fuel prices:
 - Residual oil prices averaged \$109.46 per barrel, which was a 35.0% increase from 2010 prices.
 - Natural gas prices averaged \$8.05 per thousand cubic feet, which was a 5.7% decrease from 2010 prices.
 - Electricity prices averaged 7.8¢ per kilowatt-hour, which was a 10.8% decrease compared to 2010 prices.
- ✓ The average retail price for all grades of gasoline was \$3.51 per gallon, up 74¢ per gallon (26.4%) from the \$2.77 per gallon average price in 2010.

New York State Residential Energy Prices in Nominal Dollars, 1997–2011

Figure 3-1

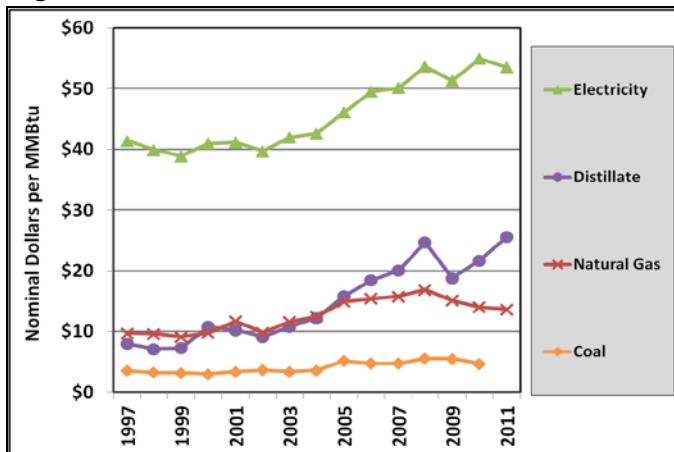


Table 3-1a (in physical units)

Year	Coal	Distillate ¹	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/Ton	Cents/Gal.	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	2011=1
1997	80.30	110.81	84.51	121.82	9.73	14.12	0.714
1998	70.27	98.61	59.94	112.29	9.62	13.62	0.725
1999	76.65	100.83	73.58	114.08	9.12	13.27	0.741
2000	75.56	149.92	127.44	143.25	9.80	13.97	0.766
2001	85.19	141.74	117.99	150.58	11.70	14.04	0.787
2002	83.35	126.62	106.92	132.22	9.85	13.55	0.800
2003	76.07	149.51	134.60	151.73	11.61	14.31	0.818
2004	80.37	169.62	162.14	168.06	12.49	14.54	0.840
2005	115.73	219.13	214.92	188.07	14.92	15.72	0.868
2006	105.03	255.61	260.15	211.43	15.44	16.89	0.896
2007	105.05	278.07	289.85	244.32	15.77	17.10	0.922
2008	122.13	342.43	365.31	286.15	16.86	18.30	0.957
2009	121.99	260.46	281.21	259.39	15.10	17.50	0.954
2010	102.58	300.96	320.90	275.10	14.04	18.74	0.969
2011	N/A	354.91	379.76	312.45	13.64	18.26	1.000

Table 3-1b (in \$/million Btu)

Year	Coal	Distillate ¹	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2011=1
1997	3.57	7.99	6.26	14.15	9.47	41.38	0.714
1998	3.25	7.11	4.44	13.05	9.31	39.91	0.725
1999	3.21	7.27	5.45	13.25	8.87	38.90	0.741
2000	3.02	10.81	9.44	16.68	9.55	40.95	0.766
2001	3.42	10.22	8.74	17.50	11.37	41.14	0.787
2002	3.63	9.13	7.92	15.37	9.61	39.71	0.800
2003	3.42	10.78	9.97	17.56	11.28	41.94	0.818
2004	3.60	12.23	12.01	19.51	12.17	42.62	0.840
2005	5.18	15.80	15.92	21.82	14.51	46.08	0.868
2006	4.76	18.43	19.27	24.64	15.02	49.51	0.896
2007	4.76	20.05	21.47	26.75	15.36	50.11	0.922
2008	5.58	24.69	27.06	31.33	16.42	53.63	0.957
2009	5.53	18.78	20.83	28.40	14.73	51.28	0.954
2010	4.70	21.70	23.77	30.12	13.72	54.92	0.969
2011	N/A	25.59	28.13	34.21	13.35	53.52	1.000

¹ Home heating oil

² To convert prices to 2011 dollars, divide the selected price by the deflator factor in the same row.

New York State Commercial Energy Prices in Nominal Dollars, 1997–2011

Figure 3-2

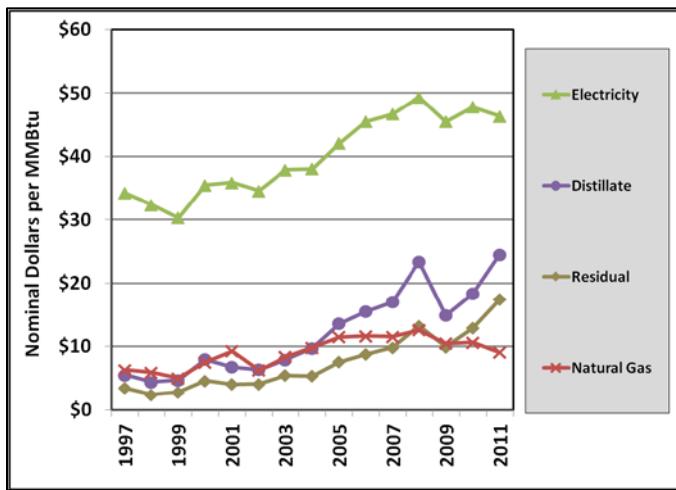


Table 3-2a (in physical units)

Year	Coal	Distillate ¹	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/Ton	Cents/Gal.	\$/bbl	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	2011=1
1997	38.28	76.28	21.63	84.51	92.47	6.49	11.68	0.714
1998	31.79	60.89	14.96	59.94	81.92	6.11	11.04	0.725
1999	31.09	65.32	17.48	73.58	83.51	5.15	10.33	0.741
2000	37.12	110.40	28.92	127.44	106.66	7.73	12.10	0.766
2001	37.59	93.62	25.59	117.99	113.24	9.57	12.24	0.787
2002	44.55	88.35	25.90	106.92	101.68	6.42	11.79	0.800
2003	40.84	109.84	34.20	134.60	120.53	8.61	12.93	0.818
2004	43.39	134.81	33.70	162.14	134.47	10.10	12.98	0.840
2005	48.26	188.48	47.59	214.92	151.09	11.82	14.36	0.868
2006	66.82	215.39	55.26	260.15	166.73	11.98	15.51	0.896
2007	64.04	236.33	61.74	289.85	193.44	11.85	15.92	0.922
2008	73.79	324.54	83.43	365.31	233.36	12.93	16.84	0.957
2009	87.48	206.79	62.49	281.21	188.33	10.75	15.51	0.954
2010	97.92	254.50	81.10	320.90	215.82	10.87	16.31	0.969
2011	134.11	339.93	109.46	379.76	237.83	9.28	15.81	1.000

Table 3-2b (in \$/million Btu)

Year	Coal	Distillate ¹	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2011=1
1997	1.65	5.50	3.44	6.26	10.74	6.32	34.22	0.714
1998	1.37	4.39	2.38	4.44	9.52	5.91	32.36	0.725
1999	1.34	4.71	2.78	5.45	9.70	5.01	30.28	0.741
2000	1.60	7.96	4.60	9.44	12.42	7.53	35.46	0.766
2001	1.62	6.75	4.07	8.74	13.16	9.30	35.88	0.787
2002	1.92	6.37	4.12	7.92	11.82	6.26	34.55	0.800
2003	1.76	7.92	5.44	9.97	13.95	8.37	37.89	0.818
2004	1.87	9.72	5.36	12.01	15.61	9.84	38.04	0.840
2005	2.08	13.59	7.57	15.92	17.53	11.50	42.08	0.868
2006	2.88	15.53	8.79	19.27	19.43	11.65	45.46	0.896
2007	2.76	17.04	9.82	21.47	21.18	11.54	46.65	0.922
2008	3.18	23.40	13.27	27.06	25.55	12.59	49.35	0.957
2009	3.77	14.91	9.94	20.83	20.62	10.49	45.45	0.954
2010	4.22	18.35	12.90	23.77	23.63	10.63	47.80	0.969
2011	5.78	24.51	17.41	28.13	26.04	9.08	46.34	1.000

¹ Home heating oil

² To convert prices to 2011 dollars, divide the selected price by the deflator factor in the same row.

Figure 3-3

New York State Industrial Energy Prices in Nominal Dollars, 1997–2011

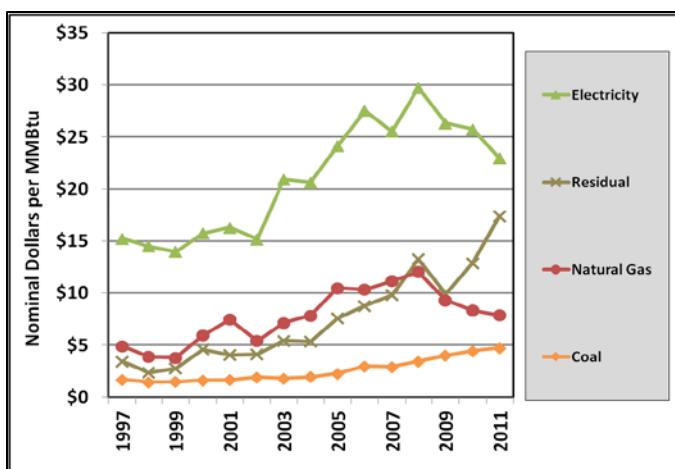


Table 3-3a (in physical units)

Year	Coal	Distillate ¹	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/Ton	Cents/Gal.	\$/bbl	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	2011=1
1997	34.68	74.75	21.63	70.74	87.82	5.05	5.20	0.714
1998	29.75	57.97	14.96	54.14	81.66	4.03	4.94	0.725
1999	30.12	64.77	17.48	62.51	83.51	3.90	4.76	0.741
2000	33.43	105.27	28.92	111.51	108.81	6.10	5.37	0.766
2001	33.76	91.67	25.59	90.86	111.95	7.69	5.55	0.787
2002	38.86	88.48	25.90	81.41	105.90	5.54	5.18	0.800
2003	36.35	107.90	34.20	109.76	130.56	7.36	7.14	0.818
2004	39.16	127.46	33.70	137.97	147.39	8.04	7.04	0.840
2005	45.37	190.14	47.59	181.85	160.92	10.77	8.23	0.868
2006	59.20	218.85	55.26	213.17	177.71	10.62	9.39	0.896
2007	57.94	238.55	61.74	243.27	220.66	11.46	8.71	0.922
2008	67.81	327.17	83.43	306.86	264.41	12.37	10.14	0.957
2009	78.28	197.77	62.49	204.39	217.46	9.55	8.98	0.954
2010	87.32	263.51	81.10	251.24	249.07	8.54	8.78	0.969
2011	91.68	324.40	109.46	331.56	276.92	8.05	7.83	1.000

Table 3-3b (in \$/million Btu)

Year	Coal	Distillate ¹	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator ²
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2011=1
1997	1.69	5.39	3.44	5.24	10.20	4.92	15.23	0.714
1998	1.45	4.18	2.38	4.01	9.49	3.90	14.49	0.725
1999	1.47	4.67	2.78	4.63	9.70	3.79	13.96	0.741
2000	1.63	7.59	4.60	8.26	12.67	5.95	15.75	0.766
2001	1.66	6.61	4.07	6.73	13.01	7.47	16.28	0.787
2002	1.92	6.38	4.12	6.03	12.31	5.40	15.17	0.800
2003	1.81	7.78	5.44	8.13	15.11	7.15	20.92	0.818
2004	1.96	9.19	5.36	10.22	17.11	7.84	20.63	0.840
2005	2.27	13.71	7.57	13.47	18.67	10.48	24.11	0.868
2006	2.97	15.78	8.79	15.79	20.71	10.33	27.53	0.896
2007	2.91	17.20	9.82	18.02	24.16	11.16	25.53	0.922
2008	3.44	23.59	13.27	22.73	28.95	12.04	29.71	0.957
2009	4.01	14.26	9.94	15.14	23.81	9.32	26.33	0.954
2010	4.45	19.00	12.90	18.61	27.27	8.35	25.74	0.969
2011	4.74	23.39	17.41	24.56	30.32	7.88	22.95	1.000

¹ Home heating oil

² To convert prices to 2011 dollars, divide the selected price by the deflator factor in the same row.

Figure 3-4

New York State Transportation Energy Prices in Nominal Dollars, 1997–2011

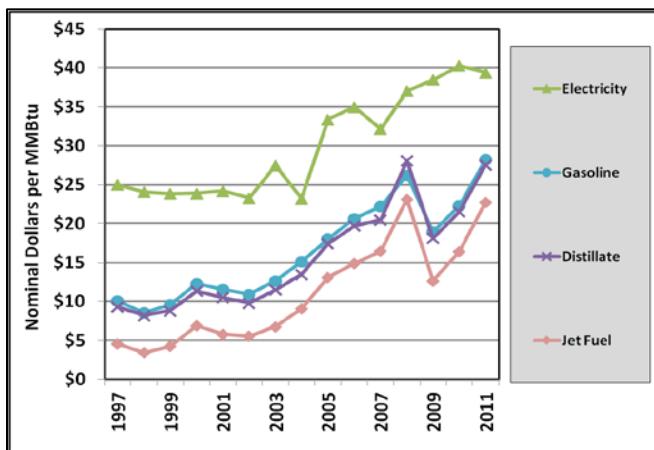


Table 3-4a (in physical units)

Year	Motor Gasoline	Distillate ¹	Jet Fuel ²	Residual ³	Electricity ⁴	GDP Deflator ⁵
	Cents/Gal.	Cents/Gal.	Cents/Gal.	\$/bbl		2011=1
1997	124.62	128.84	61.16	17.54	8.52	0.714
1998	106.23	113.73	45.90	12.20	8.21	0.725
1999	118.74	122.05	57.11	15.53	8.14	0.741
2000	152.33	157.00	93.15	25.78	8.15	0.766
2001	143.15	145.90	78.17	19.93	8.25	0.787
2002	135.53	135.92	74.79	21.82	7.95	0.800
2003	156.95	159.22	91.26	28.48	9.38	0.818
2004	187.37	186.82	122.31	29.61	7.92	0.840
2005	224.37	242.15	176.85	42.63	11.40	0.868
2006	256.68	273.22	201.02	49.10	11.94	0.896
2007	275.93	284.32	222.21	49.35	10.97	0.922
2008	325.63	389.30	312.26	75.95	12.64	0.957
2009	235.31	251.31	170.64	51.80	13.13	0.954
2010	277.30	299.02	221.81	68.28	13.74	0.969
2011	350.60	382.51	307.40	93.11	13.45	1.000

Table 3-4b (in \$/million Btu)

Year	Motor Gasoline	Distillate ¹	Jet Fuel ²	Residual ³	Electricity ⁴	GDP Deflator ⁵
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu		2011=1
1997	10.04	9.29	4.53	2.79	24.98	0.714
1998	8.56	8.20	3.40	1.94	24.07	0.725
1999	9.57	8.80	4.23	2.47	23.85	0.741
2000	12.28	11.32	6.90	4.10	23.90	0.766
2001	11.54	10.52	5.79	3.17	24.18	0.787
2002	10.93	9.80	5.54	3.47	23.29	0.800
2003	12.66	11.48	6.76	4.53	27.49	0.818
2004	15.09	13.47	9.06	4.71	23.21	0.840
2005	18.06	17.46	13.10	6.78	33.40	0.868
2006	20.66	19.70	14.89	7.81	34.98	0.896
2007	22.21	20.50	16.46	7.85	32.14	0.922
2008	26.21	28.07	23.13	12.08	37.06	0.957
2009	18.94	18.12	12.64	8.24	38.47	0.954
2010	22.32	21.56	16.43	10.86	40.28	0.969
2011	28.22	27.58	22.77	14.81	39.42	1.000

¹ Diesel

² Kerosene-based

³ Bunker fuel

⁴ Railroad use

⁵ To convert prices to 2011 dollars, divide the selected price by the deflator factor in the same row.

Section 4

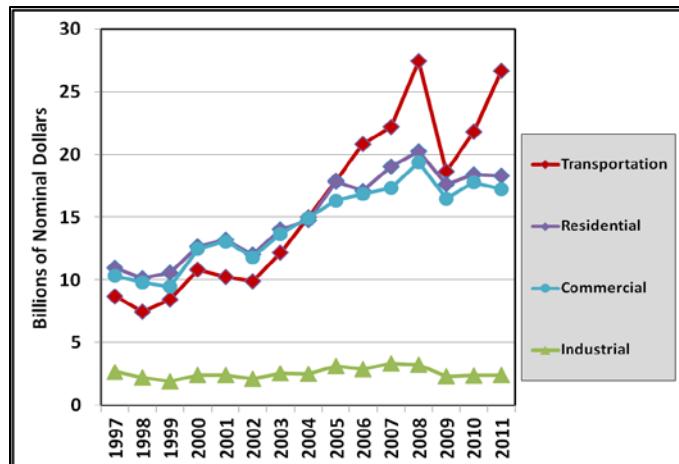
NEW YORK STATE ENERGY EXPENDITURES

This section presents the estimated costs of net energy consumed by sector and fuel type in nominal and constant 2011 dollars for the following selected years: 1997, 2002, and 2007 through 2011. Estimated costs were derived by multiplying quantities of fuels consumed, in TBtu, by their respective prices.

Key Observations about 2011 New York State Energy Expenditures Data

- ✓ Cumulative heating degree-days were 1.3% higher in 2011 compared to 2010.
- ✓ In nominal dollars, New York State's 2011 estimated energy bill of \$64.6 billion was up 7.1% from 2010, and 97.9% more than the \$32.7 billion spent in 1997.
- ✓ In constant 2011 dollars, New York State's estimated energy bill increased \$2.4 billion (3.8%) from 2010, and was \$18.9 billion (41.2%) greater than in 1997.
- ✓ New Yorkers spent \$18.3 billion for household energy, which was a 0.5% decrease from the 2010 level in nominal dollars and 3.6% lower in constant 2011 dollars.
- ✓ The total commercial customer energy bill was \$17.2 billion, which was 3.0% lower than 2010 in nominal dollars and 5.9% lower in constant 2011 dollars.
- ✓ Industrial customers paid \$2.4 billion for energy, which was a 0.6% increase from 2010 levels in nominal dollars, but 2.5% lower in constant 2011 dollars.
- ✓ The annual energy bill for transporting people and goods was \$26.7 billion, a 22.4% increase from 2010 levels in nominal dollars and 18.6% higher in constant 2011 dollars.
- ✓ From 2010 to 2011, statewide expenditures increased 20.7% for petroleum, and decreased 3.6% for electricity and 5.7% for natural gas in nominal dollars.

Figure 4-1



New York State Energy Expenditure Estimates by Fuel Type and Sector in Nominal Dollars, 1997–2011

Table 4-1 (in million dollars)

	1997	2002	2007	2008	2009	2010	2011
Residential							
Coal	\$2.5	\$0.5	\$1.6	\$1.0	\$0.3	\$0.0	\$0.0
Petroleum	\$1,646.5	\$2,117.1	\$4,165.6	\$4,681.5	\$3,090.2	\$3,377.5	\$3,553.9
Distillate	\$1,366.8	\$1,749.3	\$3,515.6	\$3,883.0	\$2,328.4	\$2,573.6	\$2,743.1
Kerosene	\$61.9	\$73.8	\$160.4	\$91.2	\$114.6	\$134.7	\$115.8
LPG	\$217.8	\$294.0	\$489.6	\$707.3	\$0.0	\$669.2	\$694.9
Natural Gas	\$3,653.5	\$3,640.4	\$6,295.4	\$6,612.9	\$6,092.8	\$5,483.3	\$5,397.7
Electricity	\$5,655.9	\$6,294.5	\$8,590.1	\$8,972.5	\$8,441.5	\$9,546.6	\$9,356.4
Total	\$10,958.4	\$12,052.5	\$19,052.6	\$20,267.9	\$17,624.7	\$18,407.5	\$18,308.0
Commercial							
Coal	\$9.3	\$1.9	\$8.2	\$4.9	\$1.9	\$0.3	\$0.6
Petroleum	\$753.2	\$868.8	\$2,121.7	\$2,613.7	\$1,790.4	\$2,045.7	\$2,455.5
Distillate	\$459.3	\$557.8	\$1,449.7	\$1,780.0	\$1,079.3	\$1,105.7	\$1,467.9
Residual	\$218.5	\$224.8	\$538.5	\$656.9	\$554.5	\$763.3	\$775.9
Kerosene	\$28.4	\$22.2	\$29.8	\$16.0	\$20.2	\$20.8	\$26.8
LPG	\$46.9	\$64.1	\$103.7	\$160.8	\$136.4	\$155.9	\$184.9
Natural Gas	\$2,082.7	\$2,324.1	\$3,368.1	\$3,732.1	\$3,008.9	\$3,126.7	\$2,713.8
Electricity	\$7,476.4	\$8,628.9	\$11,830.5	\$13,035.4	\$11,684.5	\$12,603.2	\$12,079.8
Total	\$10,321.5	\$11,823.8	\$17,328.5	\$19,386.1	\$16,485.6	\$17,775.8	\$17,249.7
Industrial							
Coal	\$122.9	\$86.7	\$100.6	\$108.8	\$94.5	\$113.3	\$122.7
Petroleum	\$197.4	\$200.8	\$581.2	\$655.2	\$335.8	\$435.0	\$602.3
Distillate	\$91.7	\$107.4	\$363.2	\$465.7	\$249.8	\$279.4	\$381.6
Residual	\$42.5	\$35.3	\$90.2	\$107.0	\$31.4	\$50.1	\$136.2
Kerosene	\$10.7	\$8.1	\$22.0	\$6.0	\$6.6	\$57.9	\$22.8
LPG	\$52.4	\$50.0	\$105.8	\$76.5	\$48.1	\$47.6	\$61.7
Natural Gas	\$1,043.6	\$515.4	\$890.6	\$992.1	\$696.7	\$649.9	\$619.9
Electricity	\$1,313.9	\$1,301.7	\$1,760.7	\$1,488.6	\$1,205.3	\$1,183.9	\$1,050.8
Total	\$2,677.8	\$2,104.6	\$3,333.0	\$3,244.7	\$2,332.3	\$2,382.1	\$2,395.6
Transportation							
Petroleum	\$8,494.7	\$9,705.0	\$21,842.3	\$27,081.5	\$18,266.7	\$21,412.0	\$26,292.2
Distillate	\$1,235.9	\$1,349.5	\$3,480.4	\$4,771.2	\$2,992.1	\$3,615.3	\$4,571.2
Residual	\$89.6	\$83.5	\$348.6	\$809.2	\$629.8	\$256.5	\$480.3
Motor Gasoline	\$6,852.3	\$7,779.4	\$16,128.3	\$18,614.3	\$13,432.9	\$16,146.9	\$19,219.7
Jet Fuel	\$313.3	\$489.5	\$1,879.8	\$2,858.3	\$1,203.1	\$1,378.9	\$2,000.1
LPG	\$3.5	\$3.1	\$5.1	\$28.6	\$8.9	\$14.4	\$20.9
Electricity	\$218.8	\$209.5	\$372.6	\$369.0	\$397.0	\$401.6	\$401.0
Total	\$8,713.5	\$9,914.5	\$22,214.8	\$27,450.4	\$18,663.7	\$21,813.6	\$26,693.1
Total							
Coal	\$134.6	\$89.1	\$110.4	\$114.6	\$96.7	\$113.6	\$123.3
Petroleum	\$11,091.8	\$12,891.7	\$28,710.7	\$35,031.8	\$23,483.0	\$27,270.2	\$32,903.8
Distillate	\$3,153.8	\$3,764.0	\$8,808.9	\$10,899.8	\$6,649.6	\$7,574.0	\$9,163.8
Residual	\$350.6	\$343.5	\$977.3	\$1,573.0	\$1,215.6	\$1,069.9	\$1,392.4
Motor Gasoline	\$6,852.3	\$7,779.4	\$16,128.3	\$18,614.3	\$13,432.9	\$16,146.9	\$19,219.7
Kerosene	\$101.1	\$104.0	\$212.1	\$113.2	\$141.4	\$213.3	\$165.4
Jet Fuel	\$313.3	\$489.5	\$1,879.8	\$2,858.3	\$1,203.1	\$1,378.9	\$2,000.1
LPG	\$320.7	\$411.3	\$704.2	\$973.2	\$840.4	\$887.2	\$962.4
Natural Gas	\$6,779.8	\$6,479.9	\$10,554.1	\$11,337.1	\$9,798.4	\$9,259.9	\$8,731.4
Electricity	\$14,665.0	\$16,434.6	\$22,553.8	\$23,865.5	\$21,728.3	\$23,735.2	\$22,887.9
Total	\$32,671.2	\$35,895.4	\$61,928.9	\$70,349.1	\$55,106.4	\$60,379.0	\$64,646.4

Figure 4-2

New York State Energy Expenditure Estimates by Fuel Type and Sector in Constant 2011 Dollars, 1997–2011

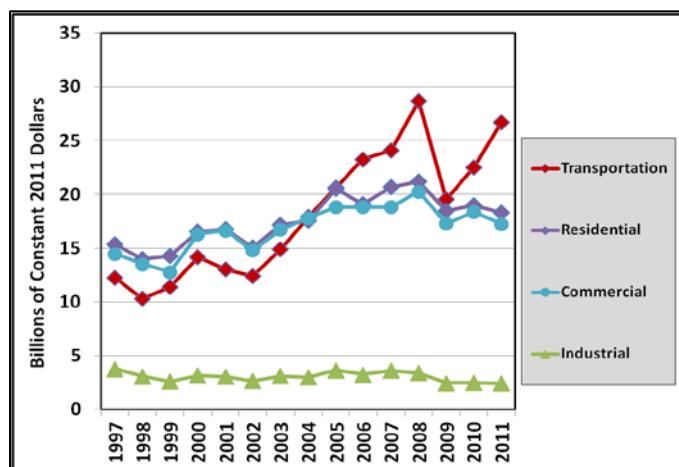


Table 4-2 (in million dollars)

	1997	2002	2007	2008	2009	2010	2011
Residential							
Coal	\$3.5	\$0.6	\$1.7	\$1.0	\$0.4	\$0.0	\$0.0
Petroleum	\$2,307.6	\$2,647.1	\$4,519.1	\$4,891.0	\$3,240.0	\$3,484.2	\$3,553.9
Distillate	\$1,915.5	\$2,187.3	\$3,814.0	\$4,056.8	\$2,441.3	\$2,654.9	\$2,743.1
Kerosene	\$86.8	\$92.2	\$174.0	\$95.2	\$120.2	\$138.9	\$115.8
LPG	\$305.3	\$367.6	\$531.1	\$739.0	\$0.0	\$690.4	\$694.9
Natural Gas	\$5,120.4	\$4,551.8	\$6,829.7	\$6,908.9	\$6,388.2	\$5,656.4	\$5,397.7
Electricity	\$7,926.7	\$7,870.3	\$9,319.1	\$9,374.1	\$8,850.7	\$9,847.9	\$9,356.4
Total	\$15,358.1	\$15,069.9	\$20,669.6	\$21,175.0	\$18,479.3	\$18,988.5	\$18,308.0
Commercial							
Coal	\$13.0	\$2.4	\$8.9	\$5.1	\$1.9	\$0.3	\$0.6
Petroleum	\$1,055.6	\$1,086.4	\$2,301.8	\$2,730.7	\$1,877.2	\$2,110.2	\$2,455.5
Distillate	\$643.7	\$697.4	\$1,572.8	\$1,859.6	\$1,131.7	\$1,140.6	\$1,467.9
Residual	\$306.3	\$281.1	\$584.3	\$686.3	\$581.3	\$787.4	\$775.9
Kerosene	\$39.9	\$27.7	\$32.3	\$16.7	\$21.1	\$21.4	\$26.8
LPG	\$65.7	\$80.2	\$112.5	\$168.0	\$143.0	\$160.9	\$184.9
Natural Gas	\$2,918.9	\$2,906.0	\$3,654.0	\$3,899.1	\$3,154.8	\$3,225.4	\$2,713.8
Electricity	\$10,478.1	\$10,789.2	\$12,834.5	\$13,618.8	\$12,251.0	\$13,001.0	\$12,079.8
Total	\$14,465.5	\$14,783.9	\$18,799.1	\$20,253.7	\$17,284.9	\$18,336.9	\$17,249.7
Industrial							
Coal	\$172.2	\$108.4	\$109.1	\$113.7	\$99.1	\$116.9	\$122.7
Petroleum	\$276.6	\$251.1	\$630.5	\$684.5	\$352.1	\$448.7	\$602.3
Distillate	\$128.6	\$134.3	\$394.0	\$486.5	\$261.9	\$288.2	\$381.6
Residual	\$59.6	\$44.1	\$97.9	\$111.7	\$32.9	\$51.7	\$136.2
Kerosene	\$15.0	\$10.2	\$23.8	\$6.3	\$6.9	\$59.7	\$22.8
LPG	\$73.5	\$62.5	\$114.8	\$79.9	\$50.4	\$49.1	\$61.7
Natural Gas	\$1,462.6	\$644.4	\$966.1	\$1,036.5	\$730.5	\$670.4	\$619.9
Electricity	\$1,841.4	\$1,627.5	\$1,910.1	\$1,555.3	\$1,263.7	\$1,221.3	\$1,050.8
Total	\$3,752.9	\$2,631.5	\$3,615.8	\$3,389.9	\$2,445.4	\$2,457.3	\$2,395.6
Transportation							
Petroleum	\$11,905.2	\$12,134.7	\$23,696.0	\$28,293.5	\$19,152.4	\$22,087.9	\$26,292.2
Distillate	\$1,732.1	\$1,687.4	\$3,775.8	\$4,984.7	\$3,137.2	\$3,729.4	\$4,571.2
Residual	\$125.6	\$104.4	\$378.2	\$845.4	\$660.3	\$264.6	\$480.3
Motor Gasoline	\$9,603.5	\$9,727.0	\$17,497.1	\$19,447.4	\$14,084.2	\$16,656.6	\$19,219.7
Jet Fuel	\$439.1	\$612.1	\$2,039.3	\$2,986.2	\$1,261.4	\$1,422.5	\$2,000.1
LPG	\$4.9	\$3.9	\$5.6	\$29.9	\$9.3	\$14.9	\$20.9
Electricity	\$306.6	\$262.0	\$404.2	\$385.5	\$416.3	\$414.2	\$401.0
Total	\$12,211.8	\$12,396.7	\$24,100.2	\$28,679.0	\$19,568.7	\$22,502.1	\$26,693.1
Total							
Coal	\$188.7	\$111.5	\$119.7	\$119.8	\$101.4	\$117.2	\$123.3
Petroleum	\$15,545.0	\$16,119.3	\$31,147.3	\$36,599.7	\$24,621.6	\$28,131.0	\$32,903.8
Distillate	\$4,420.0	\$4,706.3	\$9,556.5	\$11,387.7	\$6,972.0	\$7,813.1	\$9,163.8
Residual	\$491.4	\$429.5	\$1,060.3	\$1,643.4	\$1,274.5	\$1,103.6	\$1,392.4
Motor Gasoline	\$9,603.5	\$9,727.0	\$17,497.1	\$19,447.4	\$14,084.2	\$16,656.6	\$19,219.7
Kerosene	\$141.7	\$130.1	\$230.1	\$118.2	\$148.2	\$220.1	\$165.4
Jet Fuel	\$439.1	\$612.1	\$2,039.3	\$2,986.2	\$1,261.4	\$1,422.5	\$2,000.1
LPG	\$449.4	\$514.3	\$764.0	\$1,016.8	\$881.2	\$915.2	\$962.4
Natural Gas	\$9,501.8	\$8,102.2	\$11,449.8	\$11,844.5	\$10,273.5	\$9,552.2	\$8,731.4
Electricity	\$20,552.8	\$20,549.1	\$24,467.9	\$24,933.7	\$22,781.8	\$24,484.4	\$22,887.9
Total	\$45,788.3	\$44,882.0	\$67,184.8	\$73,497.6	\$57,778.3	\$62,284.9	\$64,646.4

Section 5

NEW YORK STATE'S SOURCES OF ENERGY

New York State is the eighth largest energy user of all the states. Nevertheless, households, businesses, industries and electric utilities in New York State rely largely on fuels produced elsewhere. Twelve percent of the total primary energy requirements were met from in-state resources in 2011. Hydroelectric power is produced at various locations throughout New York State, including 28 large projects and approximately 340 small (less than 10 MW) projects. In 2011, New York State produced more hydroelectric power than any other state east of the Rocky Mountains. New York is currently the 12th largest state in the United States in installed wind power capacity through the end of 2012 with more than 1,600 MW of installed wind capacity. Crude oil and natural gas production are found in the western region of the state. The “Other” category described in this section primarily consists of wood, waste, landfill gas, solar, geothermal and ethanol.

Key Observations about New York State Sources of Energy in 2011

- ✓ In-state resources produced 12.0% of New York State's total primary energy requirement, including 7.1% from hydropower and 3.2% from biofuels including ethanol, waste, wood and landfill gas, collectively. Wind, solar and geothermal renewable resources met 0.8% of New York State's total primary energy requirement. The remaining 0.9% was met with petroleum and natural gas production.
- ✓ Hydroelectric power and energy collectively from biofuels including ethanol, waste, wood and landfill gas account for 58.6% and 26.5%, respectively, of New York State's in-state primary energy production. Wind, solar and geothermal resources accounted for 7.2% of New York's in-state primary energy production while crude oil and natural gas constitute the remaining 7.7%.
- ✓ In-state crude oil and natural gas production represent 0.2% and 2.6%, respectively, of the State's use of these fuels. New York State consumers rely on external sources for 100% of refined petroleum fuel products because there are no petroleum refineries in the state.
- ✓ In-state production of natural gas decreased 13.1% from 2010 to 2011. Energy production from wind, solar and geothermal resources increased 10.2% from 2010 to 2011 while collective production of biofuels including ethanol, waste, wood and landfill gas increased 0.2%.
- ✓ In 2011, in-state natural gas production was 31.1 billion cubic feet, and accounted for 0.9% of total statewide primary energy use.

Figure 5-1⁶

New York State Primary Energy Production by Fuel Type,¹ 1997–2011

Table 5-1a (in physical units)

Year	Hydro Electricity ²	Natural Gas	Crude Oil	Ethanol
	GWh	Bcf	Mbbl	Mbbl
1997	32,676	16.2	276	0
1998	31,527	16.6	217	0
1999	26,810	16.8	206	0
2000	26,753	17.8	210	0
2001	23,152	28.0	166	0
2002	26,213	37.1	165	0
2003	25,798	36.0	144	0
2004	28,153	46.9	170	0
2005	27,583	55.2	197	0
2006	28,422	55.2	319	0
2007	25,557	54.9	387	100
2008	27,501	50.3	397	2,064
2009	27,945	44.8	324	1,189
2010	25,103	35.8	387	2,672
2011	28,355	31.1	391	n.a.

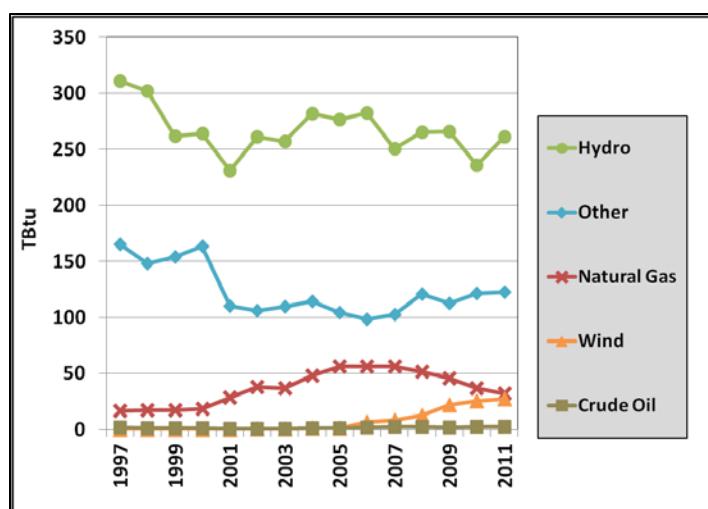


Table 5-1b (in trillion Btu)

Year	Hydro Electricity ²	Natural Gas	Crude Oil	Biofuels ^{3,4,5}	Wind	Solar/ Geothermal ⁴
	TBtu	TBtu	TBtu	Tbtu	TBtu	TBtu
1997	311.0	16.6	1.6	164.3	0.0	0.8
1998	302.1	17.1	1.3	146.9	0.0	0.9
1999	261.8	17.3	1.2	153.2	0.0	0.9
2000	264.3	18.3	1.2	162.2	0.1	0.9
2001	230.8	28.7	1.0	109.0	0.2	0.9
2002	260.9	38.1	1.0	105.1	0.8	1.0
2003	257.1	36.9	0.8	108.5	0.4	1.2
2004	281.7	48.1	1.0	113.2	1.2	1.3
2005	276.5	56.5	1.1	102.9	1.0	1.6
2006	282.5	56.5	1.9	96.1	6.5	1.9
2007	250.3	56.2	2.2	100.1	8.2	2.2
2008	265.4	51.4	2.3	118.5	12.3	2.6
2009	265.8	45.8	1.9	109.5	22.1	3.0
2010	235.7	37.0	2.2	117.8	25.3	3.7
2011	260.8	32.2	2.3	118.0	27.6	4.4

¹ Includes energy produced from resources indigenous to New York State.

² Includes both conventional and pumped storage hydro.

³ Includes primarily wood, waste, landfill gas and ethanol.

⁴ Consumption used as proxy.

⁵ Ethanol TBtu are based on biomass inputs (feedstock) for the production of fuel ethanol.

⁶ Other includes biofuels, solar and geothermal.

Section 6

APPENDICES

Appendix A-1	New York State Greenhouse Gas Emissions from Fuel Combustion.....	A-1
Appendix A-2	New York State CO ₂ Emissions by Fuel Type from Fuel Combustion.....	A-2
Appendix B	New York State Household Energy Consumption and Expenditures by End Use.....	B-1
Appendix C	Estimated Annual Gasoline Consumption by County in New York State	C-1
Appendix D-1	Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2007 – 2011, 5-Year Estimates	D-1
Appendix D-2	Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2011, 1-Year Estimates	D-2
Appendix D-3	New York State Population by County, 2000-2011	D-3
Appendix E	New York State Degree-Days.....	E-1
Appendix F	Abbreviations and Conversion Factors	F-1
Appendix G	Glossary	G-1
Appendix H	Data Sources	H-1

Appendix A-1

New York State Estimated Greenhouse Gas Emissions^{1,3} from Fuel Combustion, 1990, 1997-2011

Figure A-1: Annual NYS GHG Emissions from Fuel Combustion

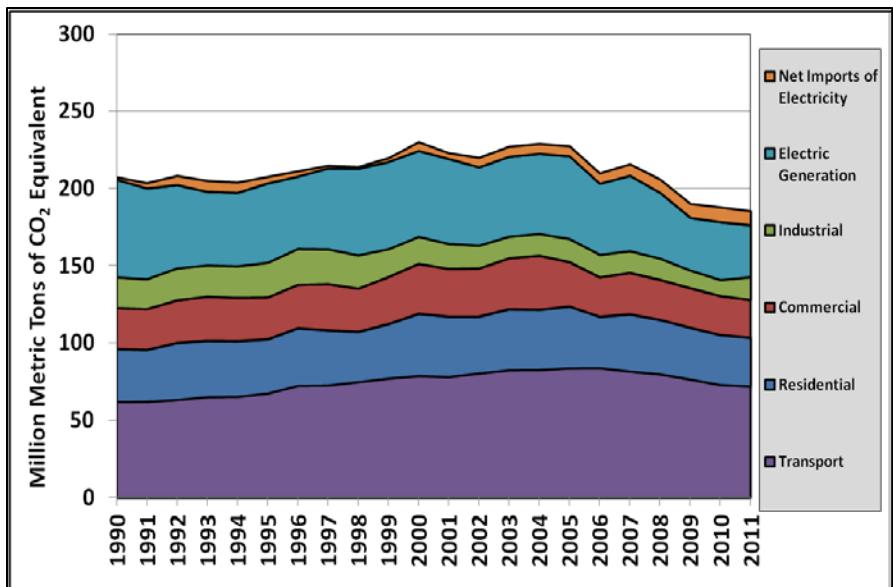


Table A-1: GHG Emissions by Sector (in million metric tons carbon dioxide equivalent)^{2,3,5}

Year	Residential	Commercial	Industrial	Transportation	Electric Generation	Net Imports of Electricity ⁶	Total ⁴
1990	34.2	26.5	20.0	62.0	63.0	1.6	207.3
.....							
1997	35.6	29.8	22.5	72.8	52.3	1.8	214.8
1998	32.4	27.8	21.7	75.0	56.0	1.1	214.0
1999	35.1	30.3	18.0	77.3	56.4	2.5	219.7
2000	40.2	32.2	17.5	78.9	55.7	5.7	230.1
2001	38.9	30.7	16.3	78.3	54.9	3.8	223.0
2002	36.7	31.1	14.9	80.6	50.7	6.2	220.0
2003	39.3	32.8	14.0	82.7	51.7	6.6	227.2
2004	38.8	34.8	14.1	82.9	52.0	6.4	228.9
2005	39.7	28.6	15.0	84.0	53.6	6.6	227.5
2006	33.0	25.4	14.6	84.1	45.9	6.7	209.9
2007	36.9	26.7	14.1	81.8	48.8	7.5	215.8
2008	35.1	25.8	13.8	80.0	42.5	8.6	205.9
2009	33.4	25.4	11.5	76.7	34.0	9.0	190.1
2010	32.2	25.1	10.5	73.1	37.3	9.6	187.8
2011	31.4	24.3	14.9	72.2	33.4	9.1	185.3
% Change 1990-2011	-8.2%	-8.5%	-25.3%	16.5%	-47.0%	457.7%	-10.6%

¹ Total Greenhouse Gas (GHG) emissions from fuel combustion include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

² Total GHG emissions are expressed in millions of metric tons of carbon dioxide equivalent. One ton equals approximately 2,200 pounds. "MM" equals one million. To convert emissions to short tons, multiply by a factor of 1.1.

³ Emissions levels for 1990 form the basis of the U.S. greenhouse gas inventory and it was the base year for the United Nations Framework Convention on Climate Change's Kyoto Protocol. Data for 1991-1996 can be found by clicking on the table above.

⁴ In 2011 GHG emissions from fuel combustion represented 89% of total GHG emissions.

⁵ All data is subject to revision. Additional information on GHG emissions can be found in the Climate Action Plan (<http://www.dec.ny.gov/energy/80930.html>) and New York State Energy Plan (<http://www.nysesenergyplan.com>).

⁶ GHG emissions from Net Imports of Electricity are based on estimated emissions factors for neighboring electric service territories. These values are not based upon any environmental attribute tracking system or reporting data.

Appendix A-2

New York State Estimated CO₂ Emissions by Fuel Type^{1,1,3,4} from Fuel Combustion, 2011

Figure A-2: CO₂ Emissions from Fuel Combustion by Fuel Type^{1,3}

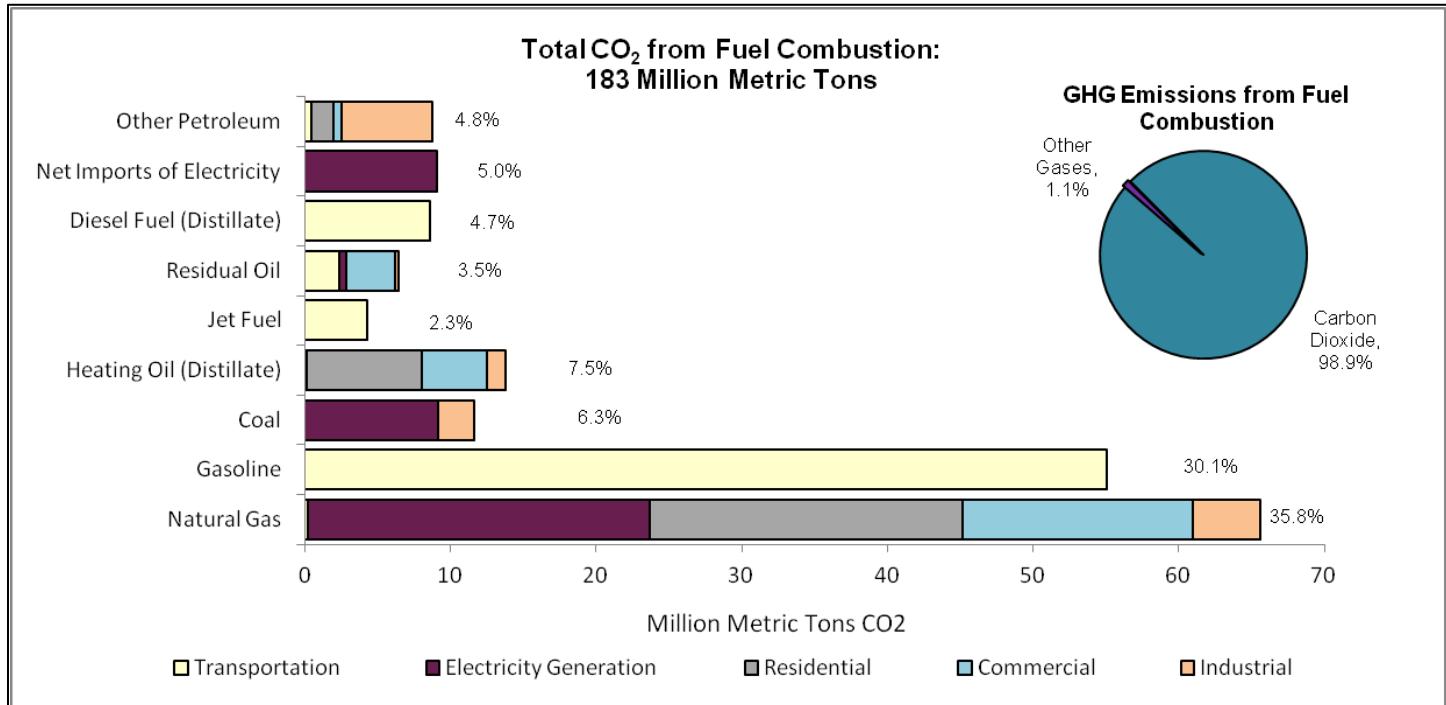


Table A-2: CO₂ Emissions from Fuel Combustion by Fuel Type (in million metric tons carbon dioxide)²

Fuel Type	Transportation	Electricity Generation	Residential	Commercial	Industrial	Total CO ₂ Emissions	Percent of Total CO ₂ Emissions
(million metric tons CO ₂)							(%)
Other Petroleum	0.43	N/A	1.55	0.51	6.29	8.78	4.8
Net Imports of Electricity	N/A	9.08	N/A	N/A	N/A	9.08	5.0
Diesel Fuel (Distillate)	8.59	N/A	N/A	N/A	N/A	8.59	4.7
Residual Oil	2.34	0.48	N/A	3.34	0.24	6.40	3.5
Jet Fuel	4.28	N/A	N/A	N/A	N/A	4.28	2.3
Heating Oil (Distillate)	N/A	0.14	7.92	4.43	1.28	13.77	7.5
Coal	N/A	9.17	0.00	0.01	2.40	11.59	6.3
Gasoline	55.09	N/A	N/A	N/A	N/A	55.09	30.1
Natural Gas	0.18	23.51	21.43	15.84	4.66	65.62	35.8

¹ Emissions from fuel combustion by fuel type only include carbon dioxide (CO₂) emissions. These emissions comprise 99% of total GHG emissions from fuel combustion.

² CO₂ emissions are expressed in millions of metric tons of carbon dioxide equivalent. One ton equals approximately 2,200 pounds. "MM" equals one million. To convert emissions to short tons, multiply by a factor of 1.1.

³ In 2011 GHG emissions from fuel combustion represented 89% of total GHG emissions.

⁴ Additional information on GHG emissions can be found in the Climate Action Plan (<http://www.dec.ny.gov/energy/80930.html>) and New York State Energy Plan (<http://www.nysesenergyplan.com>).

Appendix B **New York State** **Household Consumption and Expenditures by End Use, 2009¹**

Table B-1 Total Household Energy

	Households ² (MM)	Average per household using the fuel	
		Consumption	Expenditure
Electricity	7.2	6,578 kWh	\$1,161
Natural Gas	5.8	68 Mcf	\$1,010
Fuel Oil	2.3	501 gallons	\$1,275
Kerosene	0.2	235 Gallons	593
LPG ³	2.5	243 gallons	\$705
Wood	0.4	Q	Q

Table B-2 Space-Heating⁴

	Households ² (MM)	Average per Household using the fuel as main heating source	
		Consumption	Expenditure
Electricity	0.5	1,440 kWh	\$241
Natural Gas	4.1	59 Mcf	\$873
Fuel Oil	2.1	461 gallons	\$1,173
LPG ^{3,5}	0.2	847 gallons	\$2,406

Table B-3 Water-Heating

	Households ² (MM)	Average per Household using the fuel as water heating source	
		Consumption	Expenditure
Electricity	1.2	2,333kWh	\$398
Natural Gas	4.4	20 Mcf	\$299
Fuel Oil	1.3	120 gallons	\$305
LPG ³	0.2	175 gallons	\$545

Table B-4 Electric Air Conditioning

	Households ² (MM)	Average per Household	
		Consumption	Expenditure
Central Air	1.5		
Room/Wall	3.9	548 kWh	\$105

¹ Data in these tables represent site or delivered energy. Consumption and expenditures for biomass (e.g. wood), coal, solar, and outdoor propane grills are excluded. See RECS Terminology (<http://www.eia.gov/consumption/residential/terminology.cfm>) for further explanation of these terms.

² The 7.2 million households represent New York single-family, mobile home, and multifamily housing units. Vacant housing units, seasonal units, second homes, military housing, and group quarters are excluded.

³ Propane

⁴ Some households may use multiple heating fuels. Averages include main (primary) and secondary space heating applications.

⁵ Propane usage and expenditure estimates for heating are from EIA's Short Term Energy and Winter Fuels Outlook for the Winter '08-'09 period.

See Appendix D-1 and D-2 for estimate of number of households using the fuel as a primary heating source.

Q = Data not reported by the U.S. DOE's Energy Information Administration's Residential Energy Consumption Survey.

Appendix C

Estimated Annual Gasoline Sales by County in New York State, 2009–2011

Table C-1 (in thousand gallons)

County	2009	2010	2011
New York State	5,644,564	5,781,480	5,548,356
New York City	1,019,417	1,087,228	1,026,928
Rest of State	4,625,147	4,694,252	4,521,428
Albany	137,622	137,748	135,742
Alleghany	15,128	16,335	15,121
Broome	105,846	102,751	98,970
Cattaraugus	24,429	23,828	22,836
Cayuga	35,287	37,020	32,462
Chautauqua	45,986	45,417	40,651
Chemung	30,210	34,386	32,006
Chenango	21,769	21,913	21,856
Clinton	45,007	46,980	45,703
Columbia	35,334	35,873	35,203
Cortland	23,866	24,814	24,411
Delaware	22,546	23,527	21,948
Dutchess	106,157	109,669	107,876
Erie	381,156	385,719	382,784
Essex	19,366	19,555	18,292
Franklin	19,482	19,220	17,934
Fulton	26,659	24,310	23,652
Genesee	51,817	55,086	51,877
Greene	27,232	27,821	27,446
Hamilton	3,127	3,050	2,886
Herkimer	28,411	29,992	29,841
Jefferson	63,801	61,641	57,139
Lewis	11,305	12,325	12,071
Livingston	34,510	36,172	37,591
Madison	19,661	19,775	19,855
Monroe	288,062	292,420	288,428
Montgomery	42,293	39,732	39,481
Nassau	491,570	497,893	497,383
Niagara	66,563	74,298	77,871
Oneida	108,813	109,012	103,460
Onondaga	233,343	241,230	238,207
Ontario	57,842	63,926	60,295
Orange	164,007	165,375	160,558
Orleans	14,251	11,728	11,694
Oswego	56,326	57,884	55,452
Otsego	32,756	32,508	31,215
Putnam	46,346	45,563	43,905
Rensselaer	75,503	76,121	71,911
Rockland	50,026	53,822	49,695
St. Lawrence	39,311	40,675	39,931
Saratoga	102,506	105,060	102,836
Schenectady	64,054	68,727	69,178
Schoharie	14,614	16,670	14,116
Schuyler	9,000	8,881	8,450
Seneca	25,028	20,679	16,273
Steuben	53,204	54,417	53,186
Suffolk	663,649	666,099	598,640
Sullivan	30,839	28,062	24,848
Tioga	20,673	22,311	21,901
Tompkins	32,211	33,618	33,352
Ulster	91,007	95,808	95,679
Warren	40,709	40,658	39,678
Washington	17,165	16,494	14,633
Wayne	37,990	39,353	39,054
Westchester	295,461	295,570	279,772
Wyoming	16,879	16,824	16,366
Yates	7,433	7,906	7,829

Note: Individual county data for New York City are not available.

Appendix D-1

Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2007 - 2011, 5-Year Estimates

Table D-1 (in housing units)

County	Total Occupied Units	Utility Gas	Bottled Tank or LP Gas	Electricity	Fuel Oil or Kerosene	Coal or Coke	Wood	Solar Energy	Other	No Fuel Used
New York State	7,215,687	3,908,626	224,689	653,872	2,173,724	18,216	134,125	1,680	61,827	38,928
New York City	3,049,978	1,703,644	43,044	258,175	973,011	2,314	1,712	899	36,176	31,003
Bronx	471,923	150,440	5,499	34,105	271,743	529	192	69	4,584	4,762
Kings	907,785	651,367	14,864	45,434	180,914	657	714	367	6,664	6,804
New York	733,393	248,735	9,807	131,410	308,684	781	166	291	18,828	14,691
Queens	773,130	511,234	11,268	42,147	197,408	307	537	156	5,790	4,283
Richmond	163,747	141,868	1,606	5,079	14,262	40	103	16	310	463
Rest of State	4,165,709	2,204,982	181,645	395,697	1,200,713	15,902	132,413	781	25,651	7,925
Albany	123,544	85,306	2,681	17,251	15,292	116	1,953	44	602	299
Alleghany	18,936	9,678	1,726	1,620	1,675	875	2,947	4	381	30
Broome	80,257	52,904	5,018	8,039	10,366	392	2,853	28	528	129
Cattaraugus	32,440	16,620	3,884	4,112	2,857	494	3,927	0	498	48
Cayuga	31,807	15,713	3,874	2,969	5,756	443	2,466	0	531	55
Chautauqua	55,499	38,852	3,887	6,758	1,687	104	3,223	8	909	71
Chemung	35,528	26,174	1,396	3,224	2,491	451	1,500	0	250	42
Chenango	20,003	2,993	2,297	2,880	8,173	255	3,177	15	195	18
Clinton	31,527	3,290	1,028	8,858	15,042	83	2,889	0	245	92
Columbia	25,681	2,929	2,081	3,645	14,590	64	2,028	8	274	62
Cortland	17,915	8,882	1,417	2,252	3,327	443	1,431	6	140	17
Delaware	20,177	2,608	1,979	1,892	9,640	102	3,629	51	267	9
Dutchess	107,151	27,228	4,006	12,699	59,554	263	2,349	80	762	210
Erie	379,478	337,293	6,351	21,726	7,562	331	4,072	0	1,533	610
Essex	16,067	1,018	1,616	2,648	8,421	33	2,213	9	89	20
Franklin	18,940	1,363	1,189	2,368	11,323	106	2,391	0	154	46
Fulton	22,939	9,348	1,570	1,801	7,409	38	2,009	0	752	12
Gennssee	23,965	13,920	2,616	2,170	3,435	153	1,275	0	376	20
Greene	18,922	1,129	1,807	2,329	11,795	67	1,641	0	154	0
Hamilton	2,303	96	522	154	985	0	488	0	30	28
Herkimer	26,470	11,620	1,494	3,015	7,626	136	2,223	13	278	65
Jefferson	44,722	18,678	5,009	6,896	10,220	101	3,294	3	415	106
Lewis	10,602	1,031	1,087	756	4,556	18	3,068	2	62	22
Livingston	24,201	11,544	3,353	3,318	3,272	258	1,970	0	435	51
Madison	26,930	11,416	2,431	2,946	7,295	417	1,988	0	387	50
Monroe	293,104	237,482	4,378	36,551	10,210	178	1,882	0	1,607	816
Montgomery	20,059	9,424	921	1,600	6,296	141	1,209	0	448	20
Nassau	443,315	210,650	3,525	22,026	204,938	140	713	17	755	551
Niagara	88,589	68,960	4,118	6,434	6,692	41	1,630	42	527	145
Oneida	91,568	54,803	3,977	9,114	19,019	171	3,325	27	714	418
Onondaga	183,381	138,849	4,719	24,815	10,007	693	2,361	45	1,310	582
Ontario	43,474	25,594	4,987	5,058	4,869	479	2,038	0	287	162
Orange	124,939	58,075	5,462	11,984	45,652	343	2,382	12	756	273
Orleans	15,896	6,629	2,615	1,661	3,377	46	1,325	0	181	62
Oswego	45,600	19,681	8,162	4,210	7,655	305	4,901	0	507	179
Ostego	24,713	3,973	3,523	2,595	10,982	120	3,245	0	242	33
Putnam	34,998	2,522	1,346	6,479	23,558	65	720	0	265	43
Rensselaer	63,626	29,092	3,806	7,821	19,049	135	2,930	63	513	217
Rockland	98,106	86,459	847	6,617	3,486	30	253	10	171	233
St. Lawrence	41,825	13,553	2,978	4,373	14,464	71	5,876	50	331	129
Saratoga	87,762	48,926	7,655	9,839	17,153	161	3,413	20	549	46
Schenectady	58,203	42,554	1,562	6,161	6,880	34	766	13	174	59
Schoharie	12,801	581	1,263	1,787	7,020	67	1,847	0	221	15
Schuyler	7,610	1,494	1,807	770	1,874	641	907	0	96	21
Seneca	13,257	5,911	2,536	1,195	2,124	694	679	0	88	30
Steuben	41,101	21,774	4,716	4,122	3,811	1,864	4,150	0	565	99
Suffolk	496,677	169,705	8,276	32,025	281,693	454	2,853	82	988	601
Sullivan	29,432	1,001	4,351	3,904	17,313	175	2,454	0	226	8
Tioga	20,458	5,931	2,087	1,888	7,601	890	1,985	0	76	0
Tompkins	38,531	18,910	4,152	7,342	4,770	632	2,215	14	367	129
Ulster	70,034	13,080	5,464	7,147	39,804	153	3,765	53	476	92
Warren	28,392	12,304	2,524	3,293	8,168	118	1,571	29	344	41
Washington	24,682	5,416	2,383	2,387	10,539	126	3,534	3	267	27
Wayne	36,563	19,226	4,129	4,456	5,708	268	2,485	0	257	34
Westchester	345,908	150,961	4,900	27,993	158,239	264	1,097	30	1,716	708
Wyoming	15,549	7,114	1,820	2,234	1,936	390	1,772	0	266	17
Yates	9,552	2,715	2,337	1,490	1,477	270	1,126	0	114	23

Appendix D-2

Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2011, 1-Year Estimates¹

Table D-2 (in housing units)

County	Total Occupied Units	Utility Gas	Bottled LP Gas	Electricity	Fuel Oil or Kerosene	Coal or Coke	Wood	Solar Energy	Other	No Fuel Used
New York State	7,187,938	4,014,222	222,634	707,016	1,979,067	17,807	143,287	2,728	63,609	37,568
New York City	3,023,330	1,792,560	39,209	276,562	849,707	1,858	1,552	1,469	32,005	28,408
Bronx	467,138	167,384	5,428	35,072	250,398	331	103	85	4,050	4,287
Kings	901,062	666,962	14,249	50,547	152,038	519	494	674	6,807	8,772
New York	728,520	286,775	8,772	140,458	265,265	703	63	318	15,413	10,753
Queens	764,825	529,744	9,301	45,187	169,736	305	719	392	5,289	4,152
Richmond	161,785	141,695	1,459	5,298	12,270	0	173	0	446	444
Rest of State	4,164,608	2,221,662	183,425	430,454	1,129,360	15,949	141,735	1,259	31,604	9,160
Albany	122,551	80,629	3,076	22,032	13,706	48	2,148	42	597	273
Broome	79,727	53,570	5,568	7,848	8,989	509	2,171	91	855	126
Cattaraugus	31,938	16,009	3,479	4,425	2,878	738	3,737	0	641	31
Cayuga	31,533	16,047	3,626	2,948	4,813	694	2,672	0	672	61
Chautauqua	56,033	38,682	4,582	7,178	1,418	26	3,402	36	589	120
Chemung	35,644	25,808	1,503	3,708	2,120	380	1,714	0	355	56
Clinton	32,323	3,532	1,012	9,139	14,728	12	3,607	0	192	101
Dutchess	107,263	29,935	4,297	13,525	54,835	261	3,119	227	790	274
Erie	379,687	338,683	5,948	21,659	6,609	455	4,042	0	1,611	680
Jefferson	46,322	20,286	5,279	6,531	10,300	29	3,483	15	252	147
Livingston	24,342	12,013	3,261	3,040	3,475	223	1,858	0	472	0
Madison	26,805	11,186	2,687	4,047	6,365	247	1,854	0	318	101
Monroe	296,558	234,089	3,443	45,726	8,456	147	1,585	0	2,036	1,076
Nassau	442,039	219,895	2,804	24,775	191,477	68	743	24	1,844	409
Niagara	87,848	68,129	3,649	6,853	6,727	0	1,532	76	575	307
Oneida	91,133	55,493	3,946	9,983	17,078	143	3,600	0	705	185
Onondaga	181,113	137,617	4,739	25,245	7,782	677	2,307	29	2,107	610
Ontario	45,029	26,549	5,750	6,076	3,232	538	2,218	0	533	133
Orange	125,643	58,471	7,058	11,852	44,086	235	3,315	0	409	217
Oswego	44,297	18,917	7,506	3,660	7,420	176	5,354	0	629	635
Putnam	35,352	2,951	1,133	6,781	23,165	36	741	0	448	97
Rensselaer	62,712	28,344	3,286	9,331	17,510	0	2,891	121	819	410
Rockland	98,214	85,518	651	7,129	4,116	103	170	0	207	320
St. Lawrence	40,937	14,045	2,636	4,681	12,767	161	5,794	176	526	151
Saratoga	90,230	52,100	7,669	9,660	16,734	80	3,440	0	510	37
Schenectady	57,691	41,382	1,720	7,085	5,910	181	1,271	0	47	95
Steuben	41,843	21,743	3,755	5,502	4,025	1,785	4,148	0	661	224
Suffolk	500,776	175,809	8,893	33,548	276,007	644	3,970	159	1,165	581
Sullivan	27,431	755	3,118	3,983	16,268	14	2,678	0	615	0
Tompkins	39,145	19,921	3,928	7,492	4,551	664	1,949	0	640	0
Ulster	69,127	14,087	5,363	8,899	35,639	117	4,073	100	643	206
Warren	27,884	12,350	2,954	3,708	7,511	25	1,110	16	210	0
Wayne	36,428	19,072	4,819	4,117	5,297	241	2,418	0	464	0
Westchester	343,481	149,476	4,740	35,232	150,120	221	1,118	0	2,119	455

¹ Counties with populations of less than 65,000 were not part of the American Community Survey 1-Year Estimates.

Appendix D-3

New York State Population Estimates by County, 2000-2011

Table D-3

County	April 2000	July 2001	July 2002	July 2003	July 2004	July 2005	July 2006	July 2007	July 2008	July 2009	July 2010	July 2011
New York State	18,977,026	19,082,838	19,137,800	19,175,939	19,171,567	19,132,610	19,104,631	19,132,335	19,212,436	19,307,066	19,395,206	19,465,197
Albany	294,601	296,232	298,283	301,085	302,173	302,791	303,997	303,858	303,739	304,733	303,889	303,565
Alleghany	49,881	50,079	50,014	50,165	50,311	49,768	49,359	49,079	49,177	48,969	48,951	48,778
Bronx	1,332,244	1,346,555	1,358,739	1,362,373	1,358,963	1,351,736	1,348,164	1,354,056	1,363,488	1,376,261	1,387,159	1,392,002
Broome	200,415	200,868	201,438	201,037	200,974	200,477	200,905	200,877	201,029	200,935	200,368	199,031
Cattaraugus	83,874	83,346	83,301	83,335	82,864	82,039	81,342	81,056	80,761	80,491	80,250	79,832
Cayuga	81,910	81,313	81,401	81,395	81,284	81,104	80,892	80,629	80,482	80,172	79,997	79,738
Chautauqua	139,698	138,730	138,346	137,587	137,174	136,139	135,640	135,481	135,229	135,197	134,813	134,368
Chemung	91,119	90,780	90,613	90,154	89,777	88,860	88,732	88,634	88,503	88,849	88,830	88,840
Chenango	51,356	51,109	51,205	51,393	51,297	51,154	51,391	51,463	51,326	50,639	50,396	50,118
Clinton	79,882	80,320	80,707	81,396	81,803	82,233	82,547	82,556	82,401	82,280	82,143	81,945
Columbia	63,074	62,953	63,182	63,304	63,646	63,717	63,427	63,430	63,253	63,023	63,020	62,550
Cortland	48,704	48,903	48,891	49,475	49,628	49,330	49,449	49,624	49,537	49,358	49,324	49,363
Delaware	47,894	47,771	47,666	47,930	48,283	48,377	48,271	48,450	48,363	48,182	47,843	47,559
Dutchess	280,032	284,712	287,700	290,781	292,859	294,362	294,712	295,319	296,267	296,887	297,739	297,999
Erie	950,227	946,515	943,551	941,846	938,333	931,745	925,564	921,887	920,571	919,334	918,751	918,028
Essex	38,893	38,893	39,195	39,334	39,295	39,321	39,490	39,373	39,435	39,478	39,316	39,181
Franklin	51,110	50,925	50,924	51,228	51,197	51,257	51,511	51,782	51,907	51,706	51,609	51,551
Fulton	55,053	54,904	54,988	55,081	55,233	55,301	55,328	55,489	55,584	55,558	55,471	55,180
Gennssee	60,548	60,321	60,289	60,412	60,224	60,068	59,919	59,930	59,895	59,932	60,080	59,993
Greene	48,021	47,976	48,177	48,416	48,755	49,142	49,513	49,537	49,467	49,372	49,160	48,954
Hamilton	5,376	5,312	5,232	5,181	5,158	5,093	4,987	4,969	4,893	4,858	4,835	4,793
Herkimer	64,502	64,274	63,971	64,080	64,332	64,292	64,029	64,343	64,404	64,381	64,481	64,160
Jefferson	111,716	111,422	111,112	110,246	109,924	113,486	113,650	115,059	115,033	115,023	116,680	117,910
Kings	2,465,689	2,477,252	2,480,559	2,472,999	2,459,094	2,445,809	2,436,132	2,441,324	2,460,361	2,487,751	2,508,515	2,532,645
Lewis	26,946	26,951	26,618	26,692	26,661	26,773	27,001	27,086	26,878	27,047	27,101	27,072
Livingston	64,631	65,088	65,118	65,130	65,484	65,322	65,357	65,460	65,637	65,420	65,349	65,070
Madison	69,420	69,852	70,261	71,010	71,397	71,471	72,042	72,709	73,075	73,169	73,464	73,365
Monroe	735,328	739,891	741,391	741,671	741,075	738,506	738,329	739,249	741,018	743,386	744,635	745,625
Montgomery	49,637	49,472	49,298	49,449	49,460	49,505	49,724	49,798	49,951	50,001	50,260	49,916
Nassau	1,334,625	1,337,086	1,339,572	1,339,761	1,337,964	1,332,318	1,324,905	1,322,048	1,325,129	1,332,088	1,341,033	1,344,436
New York	1,538,096	1,555,729	1,555,382	1,562,154	1,569,947	1,573,573	1,578,171	1,581,402	1,587,022	1,583,431	1,587,481	1,601,948
Niagara	219,795	218,552	218,127	218,072	217,737	216,818	216,148	215,791	215,793	216,043	216,542	216,011
Oneida	235,516	234,247	234,078	234,243	234,654	234,282	234,229	234,488	234,482	234,619	234,870	234,287
Onondaga	458,326	458,576	459,484	460,961	461,412	460,910	460,925	461,287	463,472	465,633	467,253	466,960
Ontario	100,009	100,819	101,763	102,625	103,385	104,259	104,644	105,216	106,302	107,214	108,095	108,525
Orange	341,397	347,674	352,975	358,727	362,934	364,522	366,908	368,464	370,201	372,079	373,551	374,872
Orleans	44,184	43,898	43,660	43,593	43,682	43,475	43,420	43,342	43,254	42,975	42,861	42,622
Oswego	122,387	122,269	122,496	123,120	123,340	122,640	122,354	122,213	122,366	122,055	122,166	122,228
Ostego	61,692	61,924	62,093	62,567	62,934	63,069	63,032	62,914	62,561	62,280	62,227	61,917
Putnam	95,731	97,055	98,263	98,964	99,468	99,575	99,357	99,454	99,666	99,718	99,933	99,933
Queens	2,229,394	2,231,316	2,224,507	2,214,608	2,198,516	2,185,222	2,173,862	2,177,351	2,193,623	2,217,166	2,233,895	2,247,848
Rensselaer	152,553	152,700	153,040	154,201	155,523	156,104	157,312	158,243	159,011	159,150	159,465	159,395
Richmond	443,762	448,961	452,813	455,939	456,846	457,028	457,577	459,642	463,701	466,965	469,393	470,467
Rockland	286,794	290,613	293,728	296,224	297,562	298,737	299,390	301,668	305,413	308,652	312,520	315,158
St. Lawrence	111,922	111,497	111,292	111,329	111,468	111,606	111,556	111,586	111,684	112,169	111,917	111,690
Saratoga	200,626	203,974	206,446	209,410	211,478	212,975	214,627	215,798	217,282	218,652	219,988	220,882
Schenectady	146,652	146,334	147,199	147,891	148,900	150,200	151,768	152,275	153,360	154,050	154,932	155,058
Schoharie	31,488	31,794	31,785	32,032	32,310	32,534	32,661	32,894	32,890	32,776	32,692	32,578
Schuyler	19,188	19,175	19,179	19,151	19,034	18,880	18,752	18,707	18,644	18,398	18,338	18,361
Seneca	33,319	34,764	35,046	35,212	35,312	35,177	35,223	35,469	35,370	35,286	35,206	35,198
Steuben	98,681	99,216	99,583	99,191	98,983	98,473	98,541	98,726	98,949	98,938	99,033	99,033
Suffolk	1,419,379	1,442,488	1,456,745	1,470,849	1,478,215	1,477,687	1,475,626	1,475,255	1,480,218	1,487,206	1,494,388	1,498,816
Sullivan	73,885	74,143	74,452	75,447	76,265	76,780	77,231	77,991	77,755	77,647	77,470	76,900
Tioga	51,883	51,712	51,992	51,895	51,631	51,611	51,536	51,565	51,498	51,236	51,095	51,043
Tompkins	96,487	97,458	98,227	99,049	99,531	99,433	99,651	99,910	100,383	101,497	101,654	101,723
Ulster	177,726	178,440	180,128	180,942	181,847	182,438	182,845	182,818	183,174	182,638	182,473	182,448
Warren	63,263	63,406	63,774	64,323	64,576	65,206	65,554	65,740	65,848	65,694	65,723	65,831
Washington	61,032	61,142	61,152	61,621	62,278	62,468	62,771	63,054	63,252	63,077	63,322	63,165
Wayne	93,779	93,794	93,735	94,001	93,860	93,727	93,595	93,539	93,739	93,643	93,783	93,436
Westchester	923,621	931,577	935,219	935,799	935,457	933,401	931,426	933,414	937,449	944,201	950,283	955,899
Wyoming	43,462	43,061	43,007	42,955	42,852	42,780	42,673	42,515	42,281	42,236	42,138	41,944
Yates	24,591	24,725	24,688	24,898	25,008	25,129	25,025	25,234	25,352	25,303	25,367	25,454

Appendix E

New York State Heating and Cooling Degree-Days, 1997–2011

Figure E-1

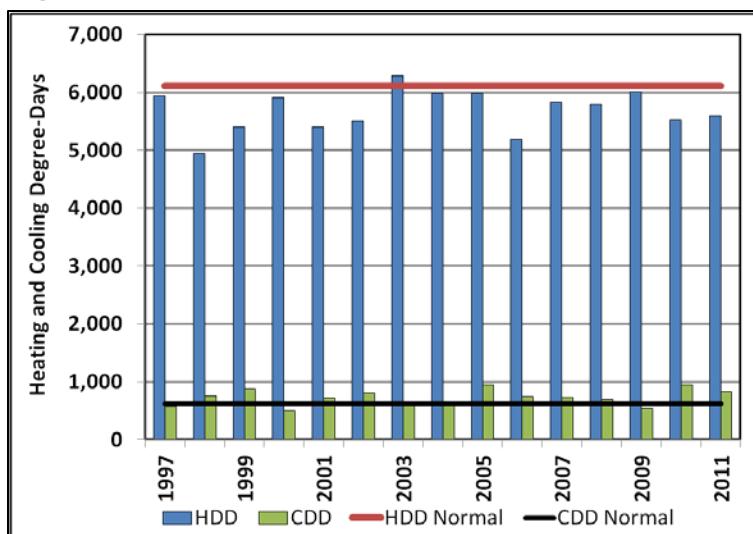


Table E-1 (monthly heating degree-days)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1997	1,157	846	862	552	316	27	7	19	100	379	728	948	5,941
1998	925	808	767	458	125	35	5	7	54	328	623	813	4,948
1999	1,115	892	854	463	166	11	0	15	52	391	531	914	5,404
2000	1,185	913	692	539	188	32	17	18	97	360	693	1,176	5,910
2001	1,128	942	937	469	170	21	13	3	85	328	513	799	5,408
2002	932	836	797	420	286	25	1	4	43	415	699	1,052	5,510
2003	1,327	1,123	860	580	280	50	5	4	73	431	581	974	6,288
2004	1,393	1,018	796	484	148	46	8	16	56	382	634	1,004	5,985
2005	1,225	970	976	447	320	4	1	3	34	338	587	1,079	5,984
2006	908	954	841	433	201	27	1	11	109	401	522	781	5,189
2007	1,009	1,171	887	577	166	17	9	8	53	197	712	1,015	5,821
2008	1,039	971	888	408	287	12	3	22	66	422	693	982	5,793
2009	1,324	959	850	452	213	56	18	8	106	431	543	1,044	6,004
2010	1,157	1,003	679	351	136	19	0	7	59	350	648	1,116	5,525
2011	1,256	1,022	873	483	159	22	1	10	49	342	529	850	5,596
Normal	1,188	1,017	867	528	233	45	8	18	113	405	678	1,016	6,116

Table E-2 (monthly cooling degree-days)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1997	0	0	0	0	3	108	227	177	54	0	0	0	569
1998	0	0	0	0	44	93	254	258	100	5	0	0	754
1999	0	0	0	0	26	176	362	216	95	0	0	0	875
2000	0	0	0	0	20	112	146	171	53	0	0	0	502
2001	0	0	0	0	25	150	164	302	66	6	0	0	713
2002	0	0	0	0	7	121	302	277	100	0	0	0	807
2003	0	0	0	0	7	72	238	271	70	0	0	0	658
2004	0	0	0	0	38	92	199	179	86	0	0	0	594
2005	0	0	0	0	3	196	290	315	136	4	0	0	944
2006	0	0	0	0	20	120	315	233	46	3	0	0	737
2007	0	0	0	0	37	145	209	216	91	30	0	0	728
2008	0	0	0	0	5	178	280	158	77	0	0	0	698
2009	0	0	0	0	17	65	165	250	43	0	0	0	540
2010	0	0	0	0	47	179	363	253	97	5	0	0	944
2011	0	0	0	0	33	136	325	230	99	4	0	0	827
Normal	0	0	0	0	24	107	233	195	56	6	0	0	621

Note: Normal is a 30 year degree-day average value from 1971 to 2000.

Appendix F

Abbreviations and Conversion Factors

ABBREVIATIONS

B	billion or 10^9
bbl	barrel
Bcf	Billion cubic feet
Btu	British thermal unit
cf	cubic foot
CO ₂	carbon dioxide
gal	gallon
GDP	gross domestic product
GSP	gross state product
GWh	gigawatt-hour or million kWh
kWh	kilowatt-hour
LPG	liquefied petroleum gas
M	thousand or 10^3
McF	Thousand cubic feet
MM	million or 10^6
N/A	Not applicable
n.a.	Not available
OPEC	Organization of Petroleum Exporting Countries
T	trillion or 10^{12}

CONVERSION FACTORS

Approximate heat content of various fuels (2011)

Coal		
Electric generation		21,604,000 Btu/ton
Other end use sectors		21,179,000 Btu/ton
Natural Gas		
Electric generation		1,022 Btu/cf
Other end use sectors		1,022 Btu/cf
Wood		20,000,000 Btu/cord
Electricity		3,412 Btu/kWh
Petroleum Products		
Distillate fuel oil		5,825,000 Btu/barrel
Ethanol		3,560,000 Btu/barrel
Jet fuel, kerosene-type		5,670,000 Btu/barrel
Kerosene		5,670,000 Btu/barrel
Motor gasoline		5,218,000 Btu/barrel
LPG (propane)		3,836,000 Btu/barrel
Residual fuel oil		6,287,000 Btu/barrel
(one barrel equals 42 gallons)		

Appendix G

Glossary

GLOSSARY

Anthracite coal - The highest ranked coal, used primarily for residential and commercial space heating. It is a hard, brittle and black lustrous coal, often referred to as hard coal, containing a high percentage of fixed carbon and a low percentage of volatile matter.

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

Biofuels - Non-fossil biomass energy sources that are essentially unprocessed and burned or gasified to produce thermal energy or electricity. Examples are fuel wood, waste wood, garbage and crop waste. Different mixes of biofuels are used by each consuming sector. The residential sector burns wood for space heating. The transportation sector uses ethanol as an additive to motor gasoline. Some electric generation uses wood or municipal waste as co-firing or primary fuels.

Bituminous coal - Often referred to as “soft coal,” is more volatile than anthracite, and has a higher heat content than lignite. It has a heating value of 11,450-13,010 Btu per pound and is the most commonly used coal.

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 facilitate comparison. One Btu is equal to 252 calories of heat energy.

Coke - A solid carbonaceous residue derived from low-ash, low-sulfur bituminous coal. The volatile constituents are driven off by baking in an oven at temperatures as high as 2,000 degrees Fahrenheit so that the fixed carbon and residual ash are fused together.

Combined heat and Power (ChP) - Includes plants designed to produce both heat and electricity from a single heat source.

Commercial sector - The sector of the economy that engages primarily in providing services and goods. Apartment and office buildings, governmental units, schools, institutions, churches, restaurants, and retail stores are included.

Constant Dollars - Values that have been adjusted to remove the effect of changes in inflation. The price paid for a product or service in the present value of the constant dollar year. Also referred to as real dollars.

Cord of wood - A cord of wood measures 4-feet by 4-feet by 8-feet, or 128 cubic feet.

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

Degree-days, cooling - 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°Fahrenheit, then the cooling degree-days for that day are zero; otherwise, they are equal to the difference between the average and 65°F.

Degree-days, heating - 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°F when the daily mean is 65°Fahrenheit or higher. If the average of a day's high and low temperature extremes is more than 65°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°F. Note that a higher number of heating degree-days implies cooler temperatures.

Dekatherm - One dekatherm equals 10 therms or 1,000,000 Btu.

Distillate fuel - A category of fuels comprised of No. 1 and 2 heating oils, diesel fuels, and No. 4 fuel oil. These products are used primarily for space heating, on-highway and off-road diesel engine fuel (including railroad engine fuel), and electric power generation.

Electric generation - Includes both publicly and privately owned generating plants in New York State.

End-use - Any ultimate consumption of any type of energy source including fossil fuels (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 0.083 times the imperial gallon. One U.S. gallon of water weighs 8.3 pounds.

Geothermal energy - Thermal energy generated and stored in the Earth. Water or steam extracted from geothermal reservoirs can be used for geothermal heat pumps, water heating, or electricity generation.

Gigawatt (GW) - One million kilowatts, or one billion watts.

Gigawatt-hour (GWh) - One million kilowatt-hours, or one billion watt-hours.

Hydro - A prefix used to identify a type of generating station, power, or energy output in which the prime energy source 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 fuels that meet 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 and to reduce viscosity of distillate fuels during winter.

Kilowatt (kW) - One thousand watts.

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

Liquefied petroleum gas (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.

Mcf - One thousand cubic feet.

Megawatt (MW) - One thousand kilowatts or one million watts.

Megawatt hour (MWh) - One thousand kilowatt-hours, or one million watt-hours.

Metric Ton - A unit of weight equal to approximately 2,200 pounds.

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. Leaded and unleaded refinery products are included.

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.

Naphtha - A general term applied to a petroleum fraction with an approximate boiling range between 122 and 400°F.

Net Energy Consumption - The energy actually consumed at the end-use location (e.g. building or vehicle), including electricity as well as the fuels burned to provide space heat, water heat, etc. "Net" energy accounts for electricity based on the heat content of energy at the plug (3,412 Btu per kWh), and excludes the heat losses incurred during generation, transmission, and distribution of electricity. Adding the heat losses associated with electricity use to "net" energy results in "primary" energy.

Nominal dollars - Values that have not been adjusted to remove the effect of changes in inflation. The price paid for a product or service at the time of the transaction.

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

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

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

Primary Energy Consumption - The total consumption of fuels, including the fuels used to generate electricity. "Primary" energy accounts for electricity based on the equivalent heat content of fuel at the generator. Subtracting the heat losses associated with electricity generation, transmission, and distribution from "primary" energy results in "net" energy.

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 petro-chemical feedstocks. Propane is the first product refined from crude petroleum.

Real dollars - Values that have been adjusted to remove the effect of inflation or changes in the purchasing power of the dollar. Also referred to as constant dollars because the adjustments equalize and make the cost of commodities comparable over time.

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, still 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 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.

Short Ton (Coal) - A unit of weight equal to 2,000 pounds.

Solar Photovoltaic - Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors.

Solar Thermal - Solar radiation that is converted into thermal energy. Normally, a solar thermal collector includes a frame, glazing and an absorber, together with appropriate insulation. The heat collected by the solar collector may be used immediately or stored for later use. Solar collectors are used for space heating; domestic hot water heating; and heating swimming pools, hot tubs, or spas.

Therm - 100,000 Btu.

Transportation Sector - An energy-consuming sector that consists of all vehicles whose primary purpose is transporting people and/or goods from one physical location to another. Included are automobiles; trucks; buses; motorcycles; trains, subways, and other rail vehicles; aircraft; and ships, barges, and other waterborne vehicles. Vehicles whose primary purpose is not transportation (e.g., construction cranes and bulldozers, farming vehicles, and warehouse tractors and forklifts) are classified in the sector of their primary use.

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.” The metric or “long 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 one ampere flowing under a pressure of one 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.

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

Appendix H

Data Sources

State Energy Data Report - U.S. Department of Energy, Energy Information Administration
(U.S. DOE/EIA)

State Energy Price & Expenditure Report - U.S. DOE/EIA

Annual Energy Review - U.S. DOE/EIA

Electric Power Annual - U.S. DOE/EIA

Retail Motor Gasoline Price Report - U.S. DOE/EIA

Residential Energy Consumption Survey - U.S. DOE/EIA

Detailed Population Characteristics - U.S. Bureau of the Census

Detailed Housing Characteristics - U.S. Bureau of the Census

Heating and Cooling Degree-day Report - U.S. National Climatic Data Center

Employment and Earnings - U.S. Bureau of Labor Statistics

Survey of Current Business - U.S. Bureau of Economic Analysis

United States Highway Statistics - U.S. Federal Highway Administration

Motor Gasoline Reported by State - U.S. Federal Highway Administration

New York State, Gas and Mineral Resources - N.Y.S. Department of Environmental Conservation

Highway Statistics for New York State - N.Y.S. Department of Motor Vehicles

Motor Fuel Volume & Revenue Report - N.Y.S. Department of Taxation & Finance

Population & Housing Estimates - N.Y.S. Empire State Development

New York State Renewable Portfolio Standard Performance Report - N.Y.S. Energy Research & Development Authority

Load & Capacity Data Report - New York Independent System Operator

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

Visit nyserda.ny.gov to learn more about NYSERDA programs and funding opportunities.

**New York State
Energy Research and
Development Authority**

17 Columbia Circle
Albany, New York 12203-6399

toll free: 1 (866) NYSERDA
local: (518) 862-1090
fax: (518) 862-1091

info@nyserda.ny.gov
nyserda.ny.gov



Patterns and Trends New York State Energy Profiles: 1997-2011

Final Report
June 2013

New York State Energy Research and Development Authority
Francis J. Murray, Jr., President and CEO