

# Patterns and Trends New York Energy Profiles: 2002–2016

Final Report | January 2019

## **NYSERDA's Promise to New Yorkers:**

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

### **Mission Statement:**

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

### **Vision Statement:**

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

**Patterns and Trends**  
**New York State Energy Profiles:**  
**2002–2016**

Prepared by:  
**New York State Energy Research and Development Authority**  
Albany, NY

January 2019

# Message from the President

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Governor Andrew M. Cuomo's Reforming the Energy Vision (REV) strategy is the most forward-thinking and comprehensive effort in the nation to build a clean, resilient, and affordable energy system for all New Yorkers. The New York State Energy Research and Development Authority (NYSERDA) supports REV with a focus on reducing costs of renewable energy and energy efficiency and increasing their adoption in a more equitable, cost-effective way.

As part of our mission, we support cleantech innovation and help stimulate private investment in the clean energy economy. In addition, we make important information available to assist individuals, businesses, and institutions so they can make informed energy decisions.

Patterns and Trends provides a 15-year overview of New York State energy-related data compiled by NYSERDA. Data in the report is collected and reported by sector and end use and includes 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.

Highlights from the report:

- New York State's Gross State Product (adjusted for inflation) increased 2.3% from 2015 to 2016 while energy consumption decreased 1.7% over the same period and is now 11.7% lower than the 2004 peak.
- For the second year in a row, energy prices in 2016 decreased across all sectors and all fuel types.
  - Some of the larger price declines included residential home heating oil prices (down 14.1%) and motor gasoline prices in the transportation sector decreasing by approximately 11.5% in 2016 compared to 2015. This is the fourth consecutive year of lower gasoline and heating oil prices, compared to the previous year.
  - Natural gas prices also decreased, declining nearly 11% in the industrial sector, 10% in the commercial sector, and 3% in residential sector.
- New York State uses the second lowest amount of energy per person and has the lowest energy consumption per unit of gross state product in the U.S.

We hope you find the information in Patterns and Trends useful and welcome any feedback on how this report may better meet the needs of the State's energy stakeholders.

Alicia Barton  
President and CEO  
New York State Energy Research and Development Authority

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**Patterns and Trends—New York State Energy Profiles: 2002–2016** 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 public, businesses, and government analysts. This report was prepared using the most recent comprehensive data available through the 2016 calendar year. Historical data prior to 2002 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.

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# 1 Overview

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Patterns and Trends is organized as follows:

**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 New York State data, specifically gasoline, distillate fuel, kerosene, aviation fuels, residual oil, and liquefied petroleum gases.

**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.

**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 British thermal units (MMBtu).

**New York State Energy Expenditures** presents the estimated net energy expenditures by sector and fuel type in nominal dollars, as well as in 2016 constant (inflation adjusted prices) dollars. Estimated expenditures were derived by multiplying quantities consumed by their respective retail prices. Out of State energy expenditure estimates by fuel type are also provided in nominal dollars, as well as in 2016 constant (inflation adjusted prices) dollars.

**New York State’s Sources of Energy** provides information on sources of the State’s energy supplies.

**Appendices** provide 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; electricity and natural gas prices; customers and sales by sector by utility; weather normalized residential energy consumption; estimated county-level solar and combined heat and power systems capacity and generation; conversion factors; and glossary of energy terms.

# 2016 NEW YORK STATE ENERGY FAST FACTS

## PRIMARY ENERGY CONSUMPTION

1.7% lower than 2015

Primary consumption (4.1% of U.S. total) (trillion Btu).....	3,670.2
<b>By sector:</b>	
Residential..... (15.2%) .....	558.1
Commercial..... (10.3%) .....	378.6
Industrial..... (3.7%) .....	136.2
Transportation..... (30.8%).....	1,130.9
Electric Generation..... (40.0%).....	1,466.5

### By fuel type:

Petroleum..... (33.9%) .....	1,244.3
Natural Gas..... (36.4%) .....	1,335.1
Nuclear..... (11.8%).....	434.8
Hydro..... (6.4%).....	235.0
Net Imported Electricity..... (6.2%).....	226.1
Other <sup>1</sup> ..... (4.5%).....	165.2
Coal..... (0.8%) .....	29.7

Primary consumption per capita (million Btu)..... 185.9

## NET ENERGY CONSUMPTION AND EXPENDITURES

Net Energy Consumption (trillion Btu)      Estimated Expenditures (billion dollars)

Total:.....2,708.0.....\$48.8

### By sector:

Residential..... (27.0%) .....	731.6	(31.9%) .....	\$15.6
Commercial..... (23.6%) .....	639.6	(27.8%) .....	\$13.6
Industrial..... (7.3%) .....	196.6	(3.6%).....	\$1.8
Transportation..... (42.1%) .....	1,140.3	(36.7%) .....	\$17.9

### By fuel type:

Petroleum..... (45.7%) .....	1,238.4	(43.5%) .....	\$20.6
Natural Gas..... (31.3%) .....	848.6	(14.3%) .....	\$6.8
Electricity..... (18.6%) .....	504.3	(41.9%).....	\$21.4
Other <sup>1</sup> ..... (3.8%) .....	102.6	(0.2%) .....	<\$0.1
Coal..... (0.5%) .....	14.0	(0.1%).....	<\$0.1

Estimated energy expenditures leaving the State (billions).....\$22.3

## AVERAGE ENERGY PRICES

	2016	2015
Gasoline - all grades (gallon).....	\$2.18.....	\$2.46
Heating Oil (gallon).....	\$2.27.....	\$2.65
Natural Gas (thousand cubic feet)		
Residential.....	\$10.85 .....	\$11.20
Commercial.....	\$6.18.....	\$ 6.86
Industrial.....	\$5.92 .....	\$ 6.62
Electricity (kilowatt-hour)		
Residential.....	17.6¢.....	18.5¢
Commercial.....	14.4¢.....	15.3¢
Industrial.....	6.0¢.....	6.3¢

## GREENHOUSE GAS EMISSIONS FROM FUEL COMBUSTION

Total (million metric tons of CO<sub>2</sub> equivalent).....167.0

### By sector:

Residential..... (18.5%).....	30.9
Commercial..... (12.4%).....	20.7
Industrial..... (6.1%) .....	10.2
Transportation..... (44.1%).....	73.7
Electric Generation..... (18.9%) .....	31.5

### By fuel type:

Petroleum..... (54.1%) .....	
Natural Gas..... (43.9%) .....	
Coal..... (2.0%) .....	

Greenhouse gas emissions per capita (metric tons of CO<sub>2</sub> equivalent).....8.5

<sup>1</sup>Ethanol (46.6 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 0.7% from 2015

Sales to ultimate consumers (gigawatt-hours).....147,803

### By sector:

Residential..... (34.4%).....	50,831
Commercial..... (51.7%).....	76,507
Industrial..... (12.0%).....	17,709
Transportation..... (1.9%).....	2,756

Generation (gigawatt-hours).....160,798

### By fuel type:

Nuclear..... (25.9%).....	41,638
Natural Gas..... (35.3%).....	56,793
Hydro..... (16.9%).....	27,150
Net Imported Electricity..... (16.2%).....	26,117
Coal..... (0.9%).....	1,493
Petroleum..... (0.4%).....	643
Other <sup>1</sup> ..... (1.9%).....	3,021
Wind..... (2.5%).....	3,943

## PETROLEUM

Consumption increased 0.5% from 2015

Consumption (4.2% of U.S. total) (million barrels).....229.9

### By sector:

Residential..... (9.2%).....	21.6
Commercial..... (4.6%).....	10.5
Industrial..... (1.4%).....	3.4
Transportation..... (84.3%) .....	193.4
Electric Generation..... (0.5%).....	1.0

In-State production (thousand barrels).....222.0

## NATURAL GAS

Consumption decreased 4.3% from 2015

Consumption (4.7% of U.S. total) (billion cubic feet).....1,294.9

### By sector:

Residential..... (31.7%) .....	410.8
Commercial..... (23.2%) .....	300.6
Industrial..... (6.0%) .....	77.4
Transportation..... (2.6%).....	33.7
Electric Generation..... (36.5%) .....	472.4

In-State production (billion cubic feet).....13.4

## ADDITIONAL 2016 STATISTICS

Population (6.1% of U.S. total) (million).....	19.7
Number of housing units (million).....	8.2
Gross State Product (billion 2016 dollars).....	\$1,541.0
Motor vehicle registrations (million).....	11.1
Vehicle miles of travel (billion miles).....	122.9
Heating degree-days (decreased 9.0% from 2015).....	5,642
Cooling degree-days (increased 19.3% from 2015).....	799

Note: Totals may not sum exactly due to rounding.

## DATA SOURCE

### NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

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nyserda.ny.gov/patterns-and-trends

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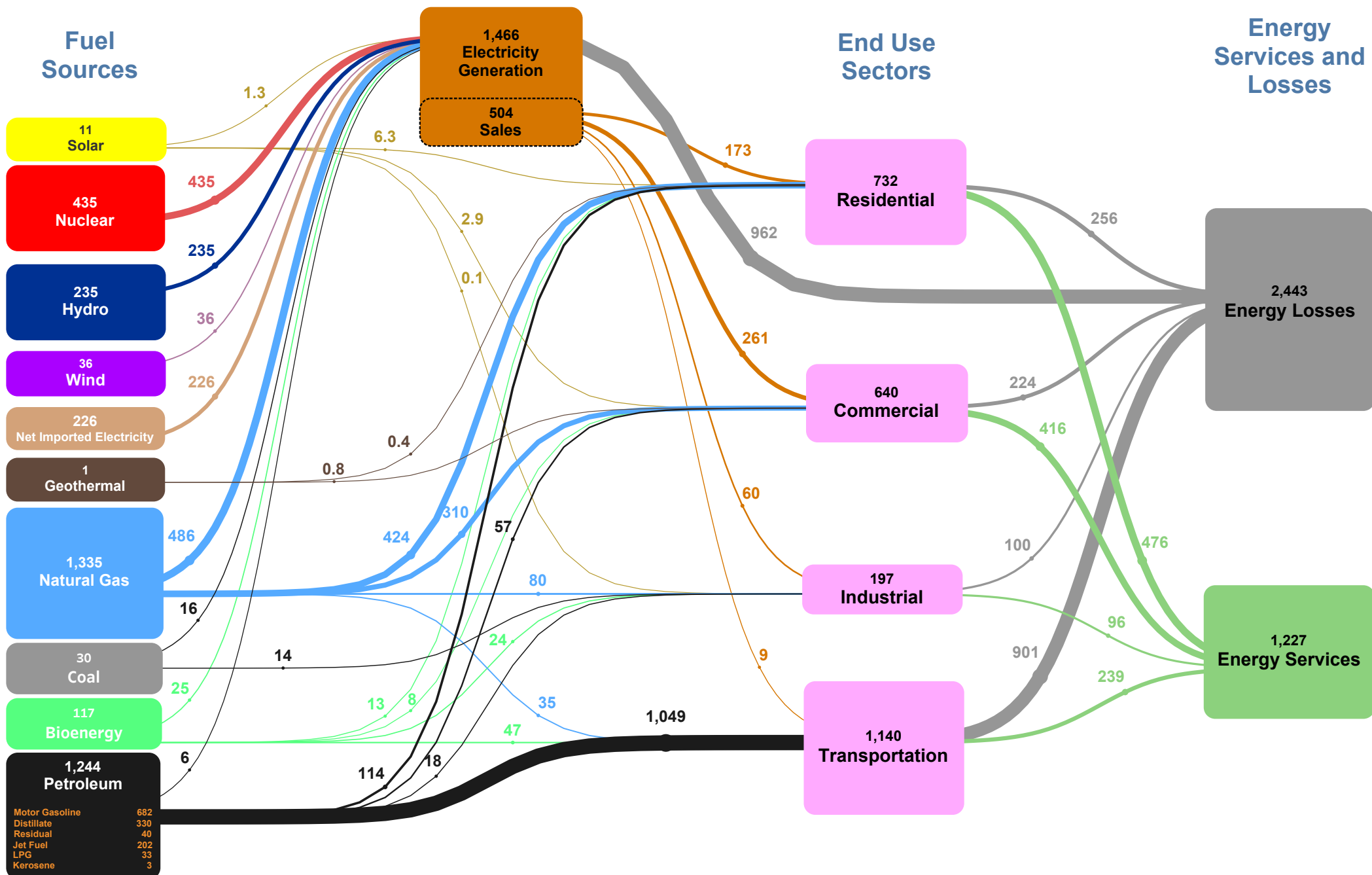


NEW YORK  
STATE OF  
OPPORTUNITY.

NYSERDA

# 2016 New York State Energy Flow (TBtu)

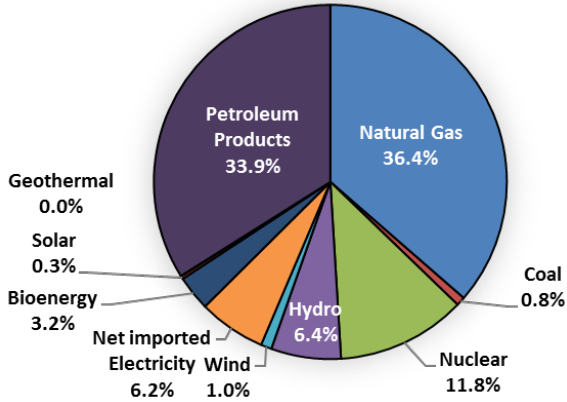
## Estimated New York Energy Consumption in 2016: 3,670 TBtu



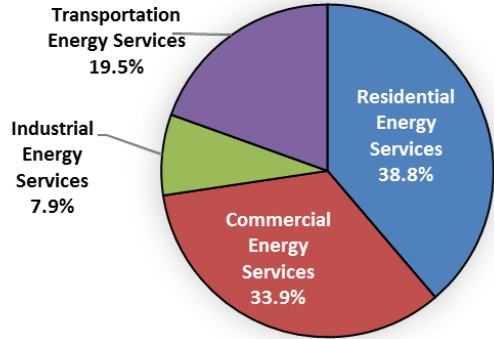
Source: NYSDERDA, Patterns and Trends New York State Energy Profiles: 2002-2016 published January 2019. Motor gasoline includes ethanol which is not included in Total Petroleum so sums may differ from the total. Electricity Sales (504 TBtu) are a part of the total Electricity Generation sector (1,466 TBtu). Bioenergy includes ethanol (47 TBtu), wood (38 TBtu), landfill gas (6 TBtu), and waste (26 TBtu). Geothermal energy in this case represents ground source heat pumps. Electricity losses are calculated as the difference between energy input for electricity generation and energy from retail electricity sales. Energy losses for the end-use sectors are based on the following estimated end-use efficiency factors from the Lawrence Livermore National Laboratory, 65% for the residential sector, 65% for the commercial sector, 49% for the industrial sector, and 21% for the transportation sector. Totals may not equal the sum of components due to rounding.

# 2016 New York State Energy at a Glance

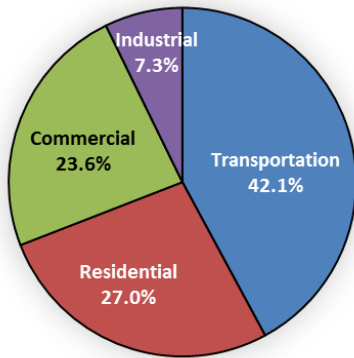
## 2016 NYS Fuel Sources



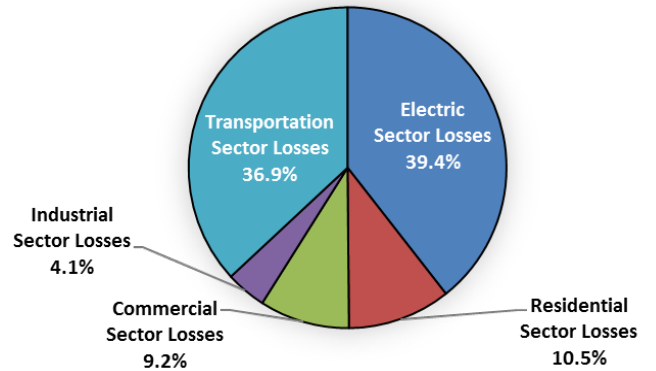
## 2016 NYS Energy Services



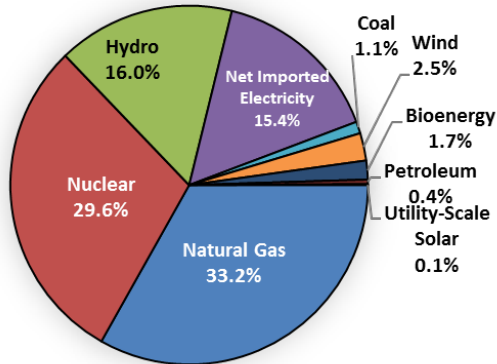
## 2016 NYS End-Use Sectors



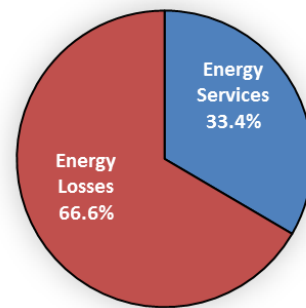
## 2016 NYS Energy Losses



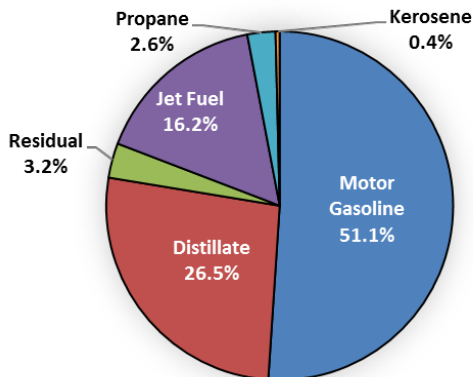
## 2016 NYS Energy for Electricity Generation



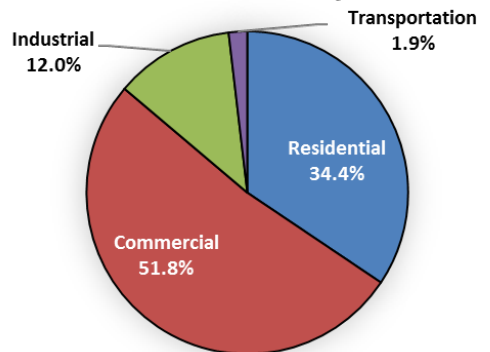
## 2016 NYS Energy End-Use Services and Losses



## 2016 NYS Petroleum Products

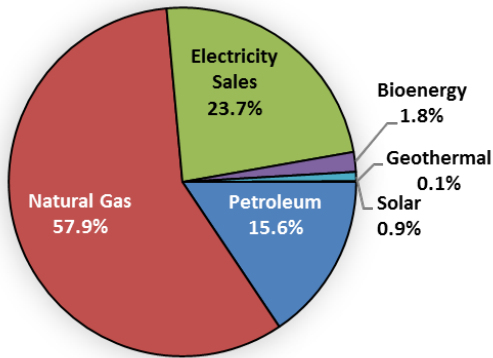


## 2016 NYS Electricity Sales

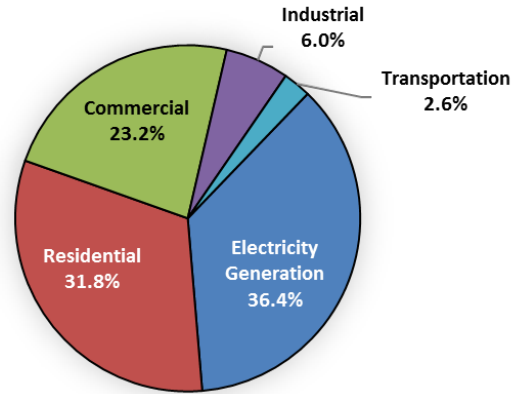


# 2016 New York State Energy at a Glance

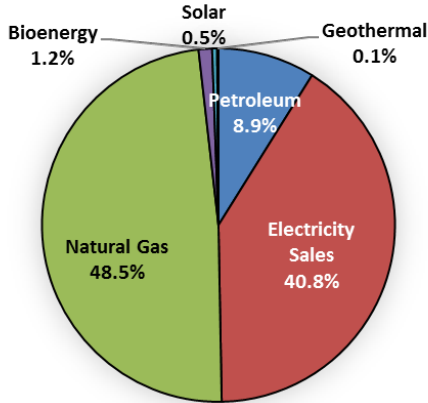
## 2016 NYS Residential Sector



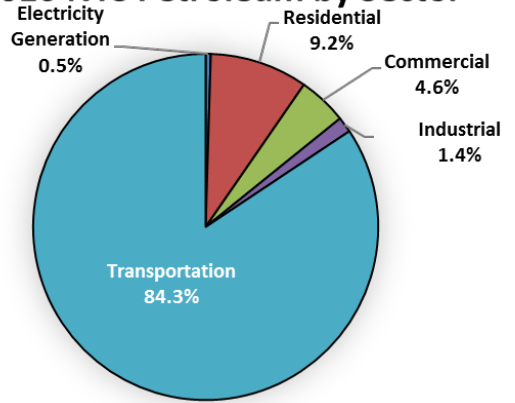
## 2016 NYS Natural Gas by Sector



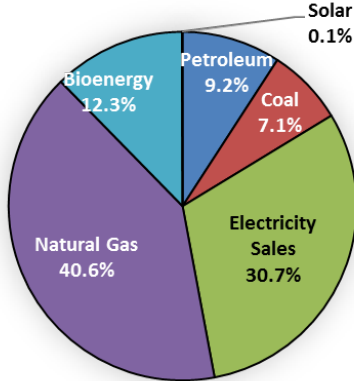
## 2016 NYS Commercial Sector



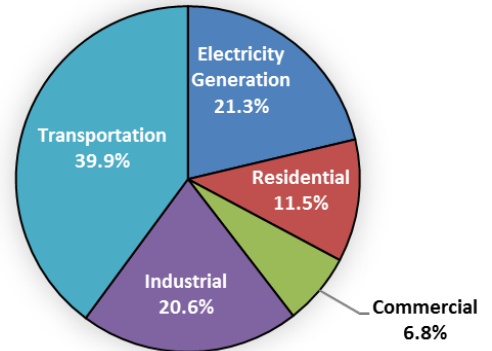
## 2016 NYS Petroleum by Sector



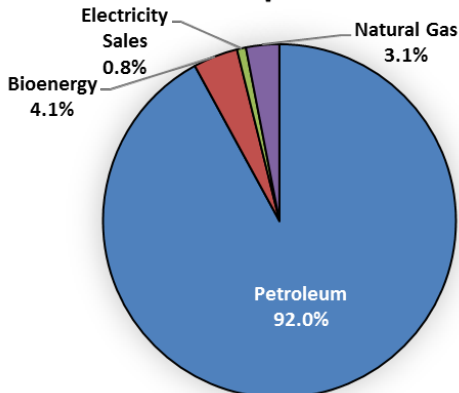
## 2016 NYS Industrial Sector



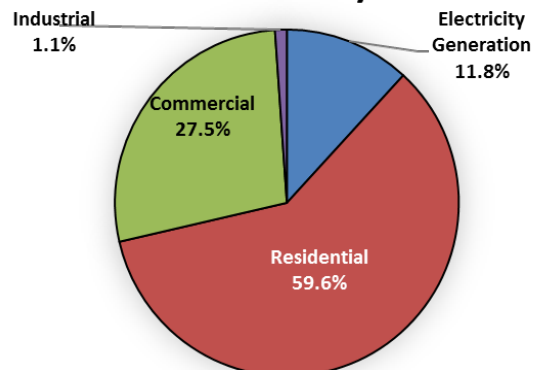
## 2016 NYS Bioenergy by Sector



## 2016 NYS Transportation Sector



## 2016 NYS Solar by Sector



## 2 Energy Profiles and Comparisons for the United States and New York State

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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 State 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.

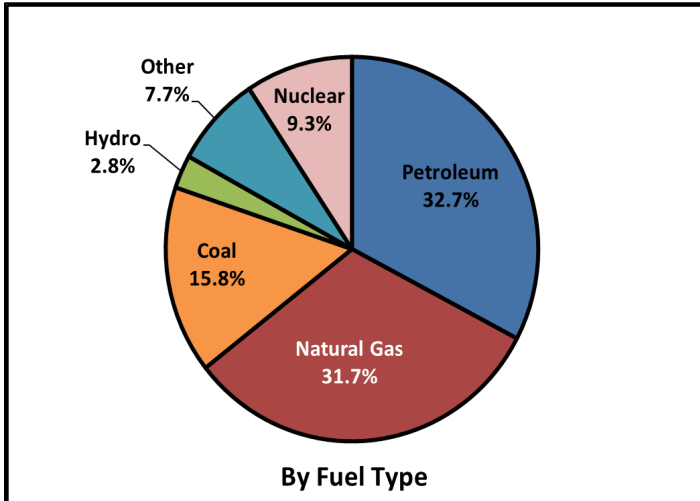
Selected State and national energy consumption and expenditure data series are presented to illustrate regional differences in energy demand and expenditures. The data are derived from the U.S. Department of Energy's (DOE) Energy Information Administration State Energy Data System and the U.S. Department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

### 2.1 Key Observations about 2016 New York State Energy Data

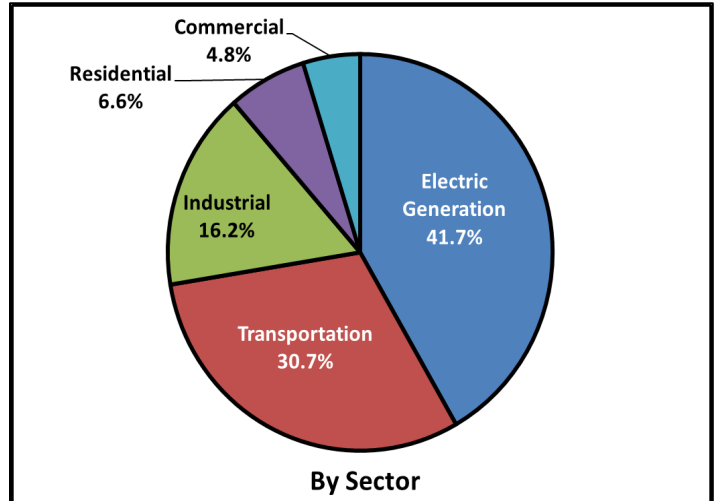
- New York State ranks eighth nationally in energy consumption.
- The State has the second lowest per capita energy usage in the U.S., accounting for 3.8% of the nation's total primary energy consumption. New York State accounts for 6.1% of the nation's population.
- Renewable resources accounted for 10.9% of the State's primary energy consumption compared to 10.5% for the U.S. in 2016.
- Coal consumption represents 0.8% of the State's energy use compared to 15.8% nationally.
- Net energy demand in the State differs from national demand in several respects (as shown in Tables 2-1 and 2-2):
  - Residential net energy use accounts for 27.0% of total energy demand, compared to 16.5% nationally.
  - Commercial net energy use accounts for 23.6% of total energy demand, compared to 13.8% nationally.
  - Industrial net energy use accounts for 7.3% of total energy demand, compared to 27.4% nationally.
  - Transportation net energy use accounts for 42.1% of total energy demand, compared to 42.3% nationally.

**United States  
Primary Consumption of Energy  
by Fuel Type and Sector,  
2016**

**Figure 2-1a. United States Primary Consumption of Energy**



**Figure 2-1b. United States Primary Consumption of Energy**



**Table 2-1 (in trillion Btu)**

	Residential TBtu	Commercial TBtu	Industrial TBtu	Transportation <sup>1</sup> TBtu	Net Consumption TBtu	Electric Generation <sup>2</sup> TBtu	Primary Consumption <sup>3</sup> TBtu	
Coal	0	24	1,206	0	1,230	12,997	14,227	
Natural Gas	4,524	3,231	9,650	770	18,174	10,325	28,499	
Petroleum Products:	877	857	2,053	25,377	29,165	244	29,409	
Distillate	434	326	1,156	6,213	8,129	55	8,184	
Residual	0	4	52	623	680	71	751	
Kerosene	14	2	2	0	18	0	18	
LPG	429	150	581	10	1,170	0	1,170	
Gasoline	0	375	262	16,614	17,251	0	17,251	
Jet Fuel	0	0	0	3,370	3,370	0	3,370	
Other <sup>4</sup>	549	217	1,684	1,453	3,902	979	4,881	
Electric Sales	4,815	4,665	3,333	26	12,838			
Net Consumption	10,764	8,993	17,926	27,626	65,309			
						Hydro Electricity	2,459	2,459
						Nuclear Electricity	8,337	8,337
						Wind Electricity	2,094	2,094
						Primary Consumption	37,434	89,905

<sup>1</sup> 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.

<sup>2</sup> Hydro and wind are excluded from the "Other" category and listed separately.

<sup>3</sup> Excludes petroleum products not used as a form of energy.

<sup>4</sup> Other includes wood, waste, ethanol, landfill gas, solar, geothermal, and biodiesel.

# New York State Primary Consumption of Energy by Fuel Type and Sector, 2016

Figure 2-2a. New York State Primary Consumption of Energy

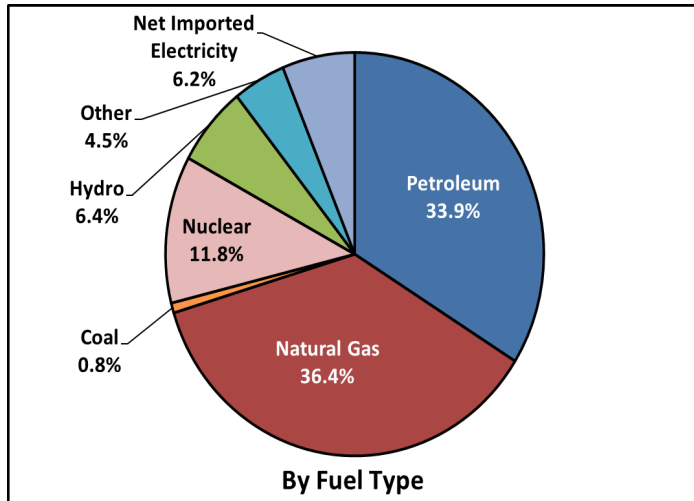


Figure 2-2b. New York State Primary Consumption of Energy

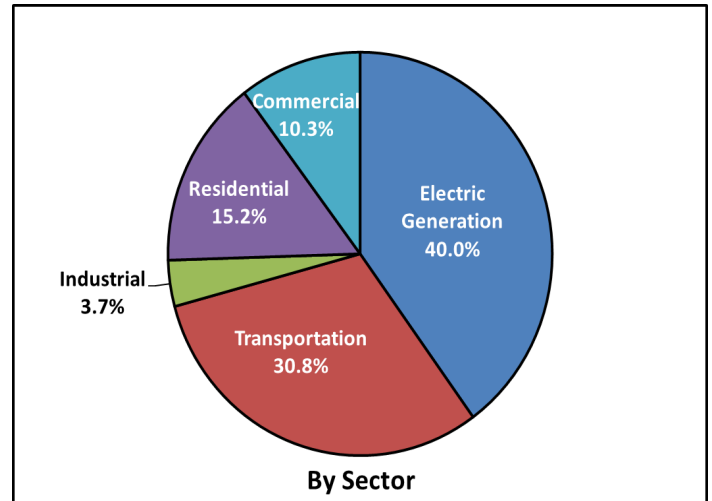


Table 2-2 (in trillion Btu)

	Residential TBtu	Commercial TBtu	Industrial TBtu	Transportation <sup>1</sup> TBtu	Net Consumption TBtu	Electric Generation TBtu	Primary Consumption <sup>1,2</sup> TBtu	
Coal	0.0	0.0	14.0	0.0	14.0	15.6	29.7	
Natural Gas	423.9	310.1	79.8	34.8	848.6	486.5	1,335.1	
Petroleum Products <sup>3</sup> :	114.1	56.9	18.0	1,049.4	1,238.4	5.9	1,244.3	
Distillate	89.5	46.7	10.8	181.2	328.1	2.0	330.1	
Residual	0.0	2.0	2.9	31.2	36.0	3.9	40.0	
Kerosene	3.4	0.3	1.0	0.0	4.7	0.0	4.7	
LPG	21.2	7.9	3.4	0.2	32.7	0.0	32.7	
Gasoline	0.0	0.0	0.0	681.9	681.9	0.0	681.9	
Jet Fuel	0.0	0.0	0.0	201.5	201.5	0.0	201.5	
Other <sup>4</sup>	20.2	11.6	24.3	46.6	102.6	26.2	128.8	
Electric Sales	173.4	261.0	60.4	9.4	504.3			
Net Consumption	731.6	639.6	196.6	1,140.3	2,708.0			
						Hydro Electricity	235.0	235.0
						Nuclear Electricity	434.8	434.8
						Net Imported Electricity	226.1	226.1
						Wind Electricity	36.4	36.4
						Primary Consumption	1,466.5	3,670.2

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

<sup>2</sup> Excludes petroleum products not used as a form of energy.

<sup>3</sup> Petroleum includes petroleum coke used for electric generation.

<sup>4</sup> Other includes wood, waste, ethanol, landfill gas, solar, and geothermal.



**United States and New York State  
Selected Energy Prices  
in Nominal Dollars,  
2002–2016**

**Table 2-3a. United States**

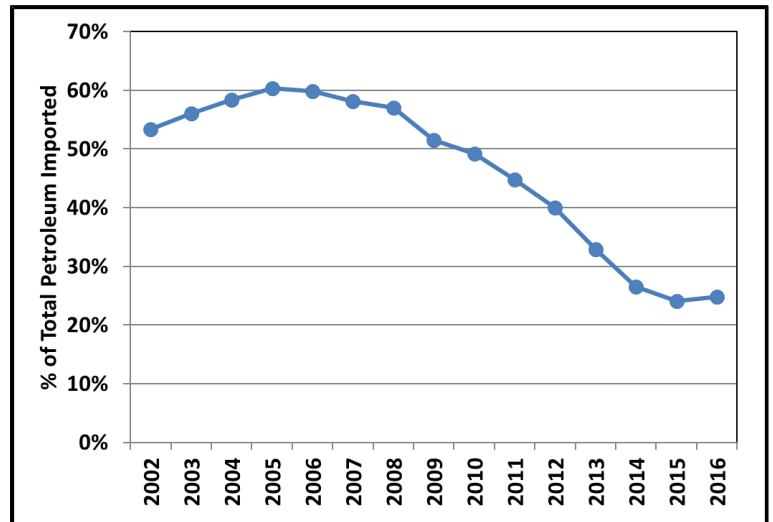
Year	Motor Gasoline	Residential Distillate	Residential Electricity	Residential Natural Gas	Commercial Electricity	Commercial Natural Gas	Industrial Electricity	Industrial Natural Gas
	cents/gal	cents/gal	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf	cents/kWh	\$/Mcf
2002	132.2	119.3	8.4	7.87	7.8	6.64	4.9	4.58
2003	152.8	143.1	8.7	9.45	8.0	8.26	5.1	6.34
2004	182.0	162.6	8.9	10.71	8.2	9.40	5.2	7.18
2005	222.0	215.3	9.4	12.62	8.7	11.23	5.7	9.29
2006	251.6	248.1	10.4	13.66	9.5	11.87	6.1	8.97
2007	272.8	272.1	10.7	12.99	9.6	11.24	6.4	8.48
2008	316.0	337.6	11.3	13.83	10.3	12.16	6.9	10.29
2009	229.4	251.6	11.5	12.08	10.2	9.92	6.8	6.61
2010	272.5	296.7	11.5	11.39	10.2	9.41	6.8	6.31
2011	344.3	356.5	11.7	11.03	10.2	8.99	6.8	6.10
2012	354.5	396.8	11.9	10.62	10.1	8.21	6.7	5.02
2013	344.6	388.5	12.1	10.24	10.3	8.25	6.9	5.59
2014	331.0	378.8	12.5	10.84	10.7	9.00	7.1	6.51
2015	243.2	260.9	12.7	10.19	10.6	7.98	6.9	4.97
2016	216.9	222.7	12.5	9.85	10.4	7.36	6.8	4.48

**Table 2-3b. 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
2002	135.5	126.6	13.5	9.85	11.8	6.42	5.2	5.54
2003	157.0	149.5	14.3	11.60	12.9	8.60	7.1	7.35
2004	187.4	169.6	14.5	12.50	13.0	10.11	7.0	8.05
2005	224.4	219.1	15.7	14.89	14.4	11.80	8.2	10.75
2006	256.7	255.6	16.9	15.35	15.5	11.91	9.4	10.56
2007	276.0	278.0	17.1	15.73	15.9	11.82	8.7	11.43
2008	325.6	342.5	18.3	16.78	16.8	12.87	9.4	12.30
2009	235.3	260.4	17.5	15.05	15.5	10.72	8.4	9.53
2010	277.2	301.0	18.7	14.04	16.3	10.87	8.8	8.54
2011	351.5	355.1	18.3	13.71	15.8	9.33	7.8	8.19
2012	363.9	394.4	17.6	12.96	15.1	7.84	6.7	6.91
2013	354.6	388.4	18.8	12.49	15.4	8.00	6.6	7.44
2014	341.7	379.0	20.1	12.53	16.1	8.31	6.6	8.13
2015	246.5	264.6	18.5	11.20	15.3	6.86	6.3	6.62
2016	218.1	227.2	17.6	10.85	14.4	6.18	6.0	5.92

**United States  
Estimated Sources of Petroleum Products,  
2002–2016**

**Figure 2-4. United States Petroleum Net Imports**



**Table 2-4. United States Sources of Petroleum**

Year	Total Domestic <sup>1</sup>	Total Foreign	OPEC <sup>2</sup>	Non-OPEC <sup>3</sup>
	%	%	%	%
2002	46.6	53.4	23.2	30.1
2003	43.9	56.1	25.7	30.4
2004	41.6	58.4	27.5	31.0
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	26.8
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
2012	60.0	40.0	23.1	16.9
2013	67.1	32.9	19.6	13.3
2014	73.5	26.5	16.9	9.6
2015	75.9	24.1	14.8	9.3
2016	75.2	24.8	17.5	7.3

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

<sup>2</sup> OPEC: Largest contributors are Saudi Arabia, Venezuela, Nigeria, Iraq, and Kuwait.

<sup>3</sup> Non-OPEC: Largest contributors are Canada, Mexico, United Kingdom, Colombia, Brazil, and Russia.

**United States and New York State  
Factors Influencing Energy  
Demand and Expenditures,  
2002–2016**

**Table 2-5a. United States**

Year	Population	Housing Units	Non-Manufacturing <sup>1</sup> Employment	Manufacturing <sup>1</sup> Employment	GDP <sup>2</sup>	Licensed Drivers	Vehicles Registered	Vehicle Miles Traveled
	thousands	thousands	thousands	thousands	B/2016\$	millions	millions	billions
2002	287,625	119,456	115,390	15,259	\$ 14,590	195	230	2,874
2003	290,108	121,077	115,838	14,509	\$ 14,946	196	231	2,909
2004	292,805	122,825	117,472	14,315	\$ 15,518	199	237	2,982
2005	295,517	124,711	119,824	14,227	\$ 16,021	201	242	3,009
2006	298,380	126,500	122,298	14,155	\$ 16,446	203	244	3,034
2007	301,231	128,132	124,120	13,879	\$ 16,729	206	247	3,049
2008	304,094	129,313	123,835	13,406	\$ 16,401	208	248	2,993
2009	306,772	129,970	119,466	11,847	\$ 16,164	210	246	2,976
2010	308,746	131,705	118,834	11,528	\$ 16,501	210	242	2,985
2011	311,580	132,316	120,206	11,726	\$ 16,584	212	253	2,965
2012	313,874	132,452	122,248	11,927	\$ 16,932	212	254	2,969
2013	316,058	132,808	124,361	12,020	\$ 17,293	212	256	2,988
2014	318,386	133,963	126,773	12,185	\$ 17,764	214	260	3,026
2015	320,743	134,794	129,507	12,336	\$ 18,449	218	264	3,095
2016	323,071	135,703	131,998	12,354	\$ 18,707	222	269	3,174

**Table 2-5b. New York State**

Year	Population	Housing Units	Non-Manufacturing <sup>1</sup> Employment	Manufacturing <sup>1</sup> Employment	GSP <sup>3</sup>	Licensed Drivers	Vehicles Registered	Vehicle Miles Traveled
	thousands	thousands	thousands	thousands	MM/2016\$	thousands	thousands	billions
2002	19,138	7,760	7,797	651	\$ 1,183,082	11,022	11,369	133.06
2003	19,176	7,799	7,784	612	\$ 1,180,835	11,357	10,802	135.05
2004	19,172	7,836	7,855	596	\$ 1,213,620	11,247	11,099	137.90
2005	19,133	7,853	7,943	579	\$ 1,247,405	11,081	11,863	137.52
2006	19,105	7,908	8,037	566	\$ 1,275,505	11,146	11,284	141.35
2007	19,132	7,940	8,168	552	\$ 1,283,593	11,369	11,495	136.74
2008	19,212	7,977	8,246	532	\$ 1,225,361	11,285	11,089	134.09
2009	19,307	8,018	8,064	476	\$ 1,289,675	11,329	11,245	133.50
2010	19,378	8,108	8,087	457	\$ 1,336,151	11,286	11,082	131.25
2011	19,520	8,120	8,210	459	\$ 1,318,862	11,211	10,085	127.73
2012	19,603	8,124	8,336	459	\$ 1,382,426	11,249	10,449	128.22
2013	19,674	8,126	8,474	456	\$ 1,396,605	11,211	10,674	129.74
2014	19,719	8,192	8,641	454	\$ 1,447,541	11,318	10,904	129.26
2015	19,747	8,207	8,806	455	\$ 1,506,975	11,690	10,639	127.23
2016	19,745	8,232	8,952	451	\$ 1,540,970	11,948	11,122	122.93

<sup>1</sup> Includes nonfarm jobs only.

<sup>2</sup> Gross domestic product in billions of 2016 dollars.

<sup>3</sup> Gross State product in millions of 2016 dollars.

## Energy Consumption and Expenditure Indicators, State Comparisons, 2016

Table 2-6

States	Primary Energy Use		Primary Energy Use		Primary Energy Use		Energy Expenditures	
	Energy Use	Ranking	per Capita	Ranking	per unit GSP	Ranking	per Capita	Ranking
	TBtu		MMBtu		Btu		Dollars	
Alabama	1,934	17	398	12	9,509	7	\$3,969	8
Alaska	600	39	809	3	12,150	3	\$6,241	2
Arizona	1,471	26	213	43	4,730	33	\$2,758	48
Arkansas	1,057	31	354	17	8,808	9	\$3,448	22
California	7,830	2	199	48	2,938	47	\$2,872	44
Colorado	1,485	25	269	34	4,519	38	\$2,681	49
Connecticut	724	36	202	47	2,750	48	\$3,282	27
Delaware	274	48	287	29	3,880	41	\$3,281	28
D.C.	174	50	255	36	1,339	51	\$2,897	41
Florida	4,240	3	205	46	4,520	37	\$2,525	50
Georgia	2,839	9	275	33	5,273	28	\$3,022	37
Hawaii	283	47	198	49	3,303	45	\$3,526	20
Idaho	529	41	315	23	7,637	17	\$3,374	23
Illinois	3,907	5	304	25	4,862	32	\$2,924	39
Indiana	2,802	10	422	9	8,273	14	\$3,787	15
Iowa	1,530	24	489	5	8,490	12	\$4,052	6
Kansas	1,093	30	376	16	7,025	20	\$3,621	18
Kentucky	1,702	21	384	14	8,729	10	\$3,650	17
Louisiana	4,205	4	897	1	18,446	1	\$5,637	4
Maine	388	44	292	28	6,523	22	\$3,968	9
Maryland	1,359	28	226	41	3,536	44	\$2,925	38
Massachusetts	1,423	27	209	44	2,738	49	\$3,155	31
Michigan	2,752	11	277	32	5,613	26	\$3,082	35
Minnesota	1,807	18	327	20	5,340	27	\$3,319	25
Mississippi	1,166	29	391	13	10,915	6	\$3,949	11
Missouri	1,780	20	292	27	6,014	23	\$3,262	29
Montana	395	43	380	15	8,652	11	\$3,826	14
Nebraska	868	33	455	7	7,467	18	\$3,962	10
Nevada	679	37	231	40	4,535	36	\$2,820	46
New Hampshire	301	46	225	42	3,837	42	\$3,515	21
New Jersey	2,219	14	247	38	3,813	43	\$3,124	32
New Mexico	668	38	320	21	7,348	19	\$3,088	34
<b>New York</b>	<b>3,662</b>	<b>8</b>	<b>185</b>	<b>50</b>	<b>2,376</b>	<b>50</b>	<b>\$2,524</b>	<b>51</b>
North Carolina	2,554	12	251	37	4,926	31	\$2,888	42
North Dakota	586	40	776	4	11,476	4	\$6,072	3
Ohio	3,685	7	317	22	5,934	24	\$3,255	30
Oklahoma	1,636	23	417	11	9,141	8	\$3,759	16
Oregon	978	32	239	39	4,539	35	\$2,885	43
Pennsylvania	3,755	6	294	26	5,182	29	\$3,108	33
Rhode Island	186	49	176	51	3,218	46	\$2,866	45
South Carolina	1,653	22	333	18	7,782	16	\$3,569	19
South Dakota	383	45	445	8	7,902	15	\$4,098	5
Tennessee	2,211	15	333	19	6,608	21	\$3,374	23
Texas	13,184	1	472	6	8,420	13	\$4,004	7
Utah	810	34	266	35	5,144	30	\$2,773	47
Vermont	129	51	206	45	4,079	40	\$3,830	13
Virginia	2,332	13	277	31	4,724	34	\$3,024	36
Washington	2,058	16	283	30	4,181	39	\$2,922	40
West Virginia	766	35	419	10	10,916	5	\$3,910	12
Wisconsin	1,781	19	309	24	5,705	25	\$3,313	26
Wyoming	503	42	860	2	13,976	2	\$6,813	1
United States	97,315		301		5,203		\$3,211	
<b>NYS as a % of U.S.</b>	<b>3.8%</b>		<b>61%</b>		<b>46%</b>		<b>79%</b>	

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, 2016

Table 2-7

States	Residential Primary		Residential Energy		Commercial Primary		Commercial Energy	
	Energy Use <sup>1</sup> per	Ranking	Expenditures per	Ranking	Energy Use <sup>1</sup> per	Ranking	Expenditures Per	Ranking
	Housing Unit		Housing Unit		Non-Manufacturing Employee		Non-Manufacturing Employee	
	MMBtu		Dollars		MMBtu		Dollars	
Alabama	154	27	\$1,960	12	152	19	\$1,764	4
Alaska	148	33	\$2,289	4	183	3	\$2,438	1
Arizona	132	41	\$1,602	38	137	33	\$1,422	22
Arkansas	159	21	\$1,591	40	164	9	\$1,327	34
California	98	50	\$1,489	45	97	49	\$1,395	25
Colorado	147	34	\$1,461	47	118	43	\$1,031	50
Connecticut	150	31	\$2,725	1	125	38	\$1,765	3
Delaware	142	38	\$1,999	11	132	35	\$1,388	26
D.C.	125	45	\$1,382	50	138	32	\$1,471	18
Florida	131	42	\$1,515	44	126	36	\$1,246	38
Georgia	169	11	\$2,039	9	140	30	\$1,370	28
Hawaii	61	51	\$1,430	49	66	51	\$1,426	21
Idaho	163	19	\$1,578	41	140	31	\$1,100	46
Illinois	174	8	\$1,710	31	147	22	\$1,186	42
Indiana	183	2	\$1,795	22	143	28	\$1,214	40
Iowa	165	18	\$1,712	30	142	29	\$1,148	43
Kansas	169	12	\$1,901	14	175	4	\$1,651	6
Kentucky	181	3	\$1,717	28	162	11	\$1,402	24
Louisiana	156	24	\$1,602	37	145	26	\$1,354	30
Maine	122	48	\$2,006	10	109	46	\$1,427	20
Maryland	167	14	\$2,110	7	163	10	\$1,607	9
Massachusetts	138	39	\$2,261	5	119	42	\$1,601	10
Michigan	157	23	\$1,838	19	160	15	\$1,491	17
Minnesota	154	28	\$1,693	33	136	34	\$1,233	39
Mississippi	145	36	\$1,737	24	154	17	\$1,634	8
Missouri	179	6	\$1,827	20	161	13	\$1,363	29
Montana	161	20	\$1,598	39	171	6	\$1,529	16
Nebraska	179	7	\$1,681	35	146	23	\$1,119	44
Nevada	129	43	\$1,562	43	102	48	\$903	51
New Hampshire	144	37	\$2,463	2	117	44	\$1,532	15
New Jersey	151	30	\$1,899	15	148	21	\$1,642	7
New Mexico	123	47	\$1,296	51	154	16	\$1,332	33
<b>New York</b>	<b>126</b>	<b>44</b>	<b>\$1,887</b>	<b>16</b>	<b>124</b>	<b>39</b>	<b>\$1,548</b>	<b>14</b>
North Carolina	152	29	\$1,701	32	150	20	\$1,303	35
North Dakota	183	1	\$1,692	34	208	2	\$1,697	5
Ohio	168	13	\$1,822	21	146	25	\$1,272	37
Oklahoma	165	17	\$1,724	26	166	7	\$1,341	32
Oregon	133	40	\$1,477	46	115	45	\$1,114	45
Pennsylvania	158	22	\$2,039	8	120	41	\$1,078	48
Rhode Island	125	46	\$2,236	6	104	47	\$1,599	12
South Carolina	165	16	\$1,949	13	154	18	\$1,468	19
South Dakota	172	9	\$1,767	23	160	14	\$1,379	27
Tennessee	181	4	\$1,721	27	173	5	\$1,599	11
Texas	155	26	\$1,728	25	144	27	\$1,194	41
Utah	155	25	\$1,567	42	126	37	\$1,071	49
Vermont	109	49	\$2,318	3	90	50	\$1,569	13
Virginia	165	15	\$1,853	18	166	8	\$1,303	36
Washington	146	35	\$1,433	48	123	40	\$1,090	47
West Virginia	180	5	\$1,858	17	162	12	\$1,409	23
Wisconsin	150	32	\$1,675	36	146	24	\$1,352	31
Wyoming	171	10	\$1,717	29	221	1	\$1,845	2
United States	148		\$1,755		136		\$1,355	
<b>NYS as % of U.S.</b>	<b>85%</b>		<b>108%</b>		<b>91%</b>		<b>114%</b>	

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

<sup>1</sup> Use figures include electricity and the associated system losses.

## Energy Consumption and Expenditure Indicators, State Comparisons for the Industrial and Transportation Sectors, 2016

**Table 2-8**

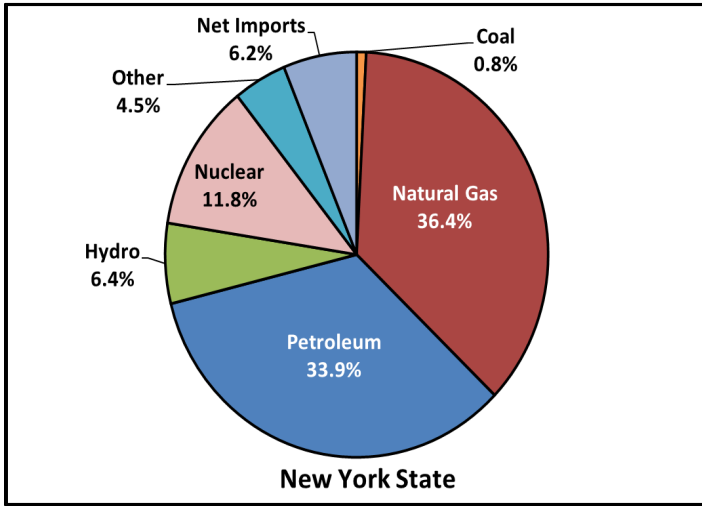
States	Industrial Primary Energy Use <sup>1</sup>		Industrial Energy Expenditures		Transportation Primary Use <sup>1</sup> per Vehicle		Transportation Expenditures per	
	per unit of GSP	Ranking	per unit of GSP	Ranking	Registration	Ranking	Vehicle Registration	Ranking
	Btu		Dollars		MMBtu		Dollars	
Alabama	4,000	8	\$0.0196	7	94	29	\$1,441	41
Alaska	6,660	3	\$0.0151	15	210	2	\$3,007	1
Arizona	776	39	\$0.0062	39	85	39	\$1,514	32
Arkansas	3,173	14	\$0.0183	9	102	22	\$1,613	23
California	695	41	\$0.0052	42	103	18	\$1,882	10
Colorado	1,323	31	\$0.0066	37	81	41	\$1,308	47
Connecticut	301	48	\$0.0033	47	81	43	\$1,454	39
Delaware	1,243	32	\$0.0064	38	69	48	\$1,223	48
D.C.	45	51	\$0.0004	51	63	51	\$1,016	51
Florida	525	43	\$0.0039	45	91	32	\$1,471	37
Georgia	1,435	28	\$0.0078	32	97	27	\$1,569	28
Hawaii	730	40	\$0.0102	23	119	9	\$2,027	8
Idaho	2,432	20	\$0.0161	12	86	38	\$1,497	33
Illinois	1,461	27	\$0.0073	35	98	26	\$1,568	29
Indiana	3,777	9	\$0.0194	8	103	20	\$1,679	20
Iowa	4,405	6	\$0.0196	6	86	37	\$1,423	43
Kansas	2,487	17	\$0.0115	19	104	17	\$1,621	22
Kentucky	3,100	15	\$0.0153	14	111	14	\$1,773	15
Louisiana	12,846	1	\$0.0523	1	177	3	\$2,240	3
Maine	1,765	26	\$0.0108	22	119	10	\$2,129	6
Maryland	286	49	\$0.0024	49	100	23	\$1,766	17
Massachusetts	307	47	\$0.0035	46	93	30	\$1,561	30
Michigan	1,433	29	\$0.0090	28	89	33	\$1,475	36
Minnesota	1,830	23	\$0.0099	24	87	35	\$1,442	40
Mississippi	3,600	10	\$0.0168	10	212	1	\$2,943	2
Missouri	1,059	37	\$0.0075	33	98	25	\$1,598	26
Montana	2,689	16	\$0.0110	20	64	50	\$1,110	50
Nebraska	3,309	12	\$0.0154	13	103	19	\$1,715	19
Nevada	1,151	34	\$0.0090	29	92	31	\$1,627	21
New Hampshire	522	44	\$0.0056	40	76	47	\$1,355	45
New Jersey	441	45	\$0.0032	48	143	5	\$2,201	4
New Mexico	2,460	19	\$0.0093	27	114	11	\$1,833	12
<b>New York</b>	<b>247</b>	<b>50</b>	<b>\$0.0018</b>	<b>50</b>	<b>102</b>	<b>21</b>	<b>\$1,603</b>	<b>25</b>
North Carolina	1,076	36	\$0.0073	34	87	34	\$1,543	31
North Dakota	6,067	4	\$0.0269	3	138	6	\$2,118	7
Ohio	1,920	21	\$0.0109	21	87	36	\$1,458	38
Oklahoma	3,441	11	\$0.0165	11	129	8	\$1,814	13
Oregon	1,199	33	\$0.0082	31	79	45	\$1,476	35
Pennsylvania	1,827	24	\$0.0099	25	84	40	\$1,433	42
Rhode Island	403	46	\$0.0049	43	67	49	\$1,138	49
South Carolina	2,481	18	\$0.0135	17	110	15	\$1,806	14
South Dakota	3,178	13	\$0.0140	16	81	42	\$1,313	46
Tennessee	1,766	25	\$0.0093	26	112	13	\$1,770	16
Texas	4,242	7	\$0.0211	5	150	4	\$2,146	5
Utah	1,407	30	\$0.0072	36	113	12	\$1,836	11
Vermont	561	42	\$0.0086	30	80	44	\$1,477	34
Virginia	895	38	\$0.0053	41	96	28	\$1,582	27
Washington	1,125	35	\$0.0048	44	99	24	\$1,612	24
West Virginia	4,429	5	\$0.0225	4	107	16	\$1,721	18
Wisconsin	1,872	22	\$0.0117	18	78	46	\$1,377	44
Wyoming	7,820	2	\$0.0362	2	134	7	\$1,999	9
United States	1,692		\$0.0091		104		\$1,679	
<b>NYS as % of U.S.</b>	<b>15%</b>		<b>20%</b>		<b>98%</b>		<b>95%</b>	

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

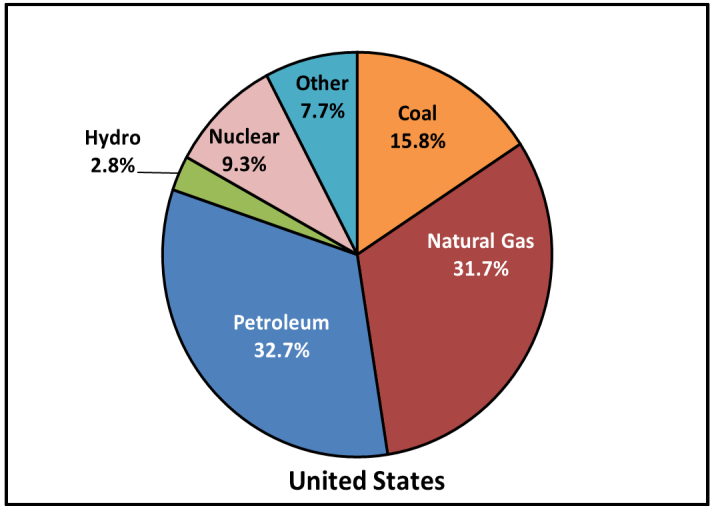
<sup>1</sup> Use figures include electricity and the associated system losses.

**United States and New York State  
Selected Comparisons,  
2016**

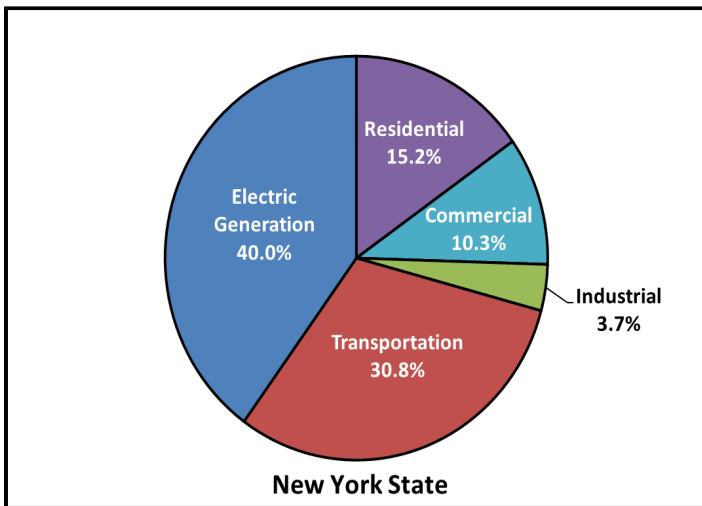
**Figure 2-9a. Primary Consumption by Fuel Type, 2016**



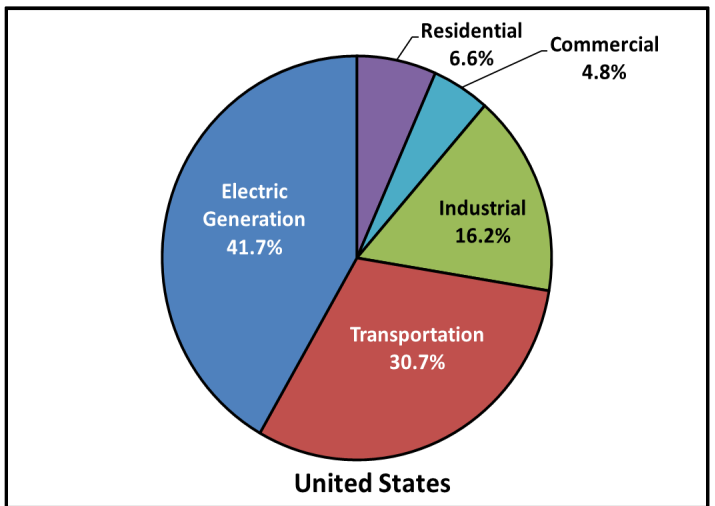
**Figure 2-9b. Primary Consumption by Fuel Type, 2016**



**Figure 2-9c. Primary Consumption by Sector, 2016**

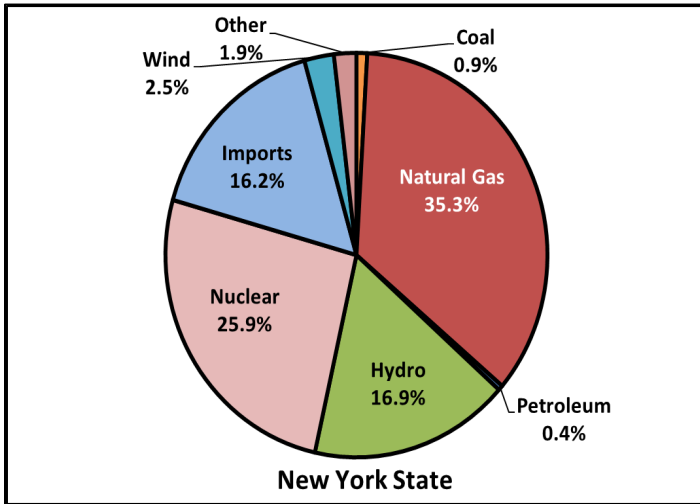


**Figure 2-9d. Primary Consumption by Sector, 2016**

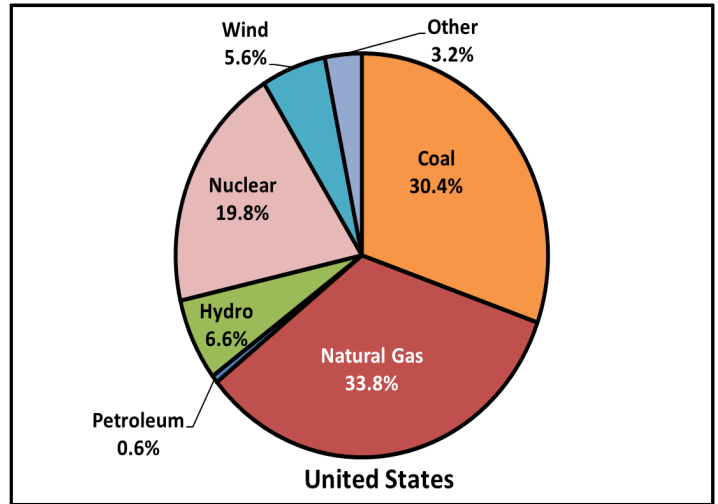


**United States and New York State  
Selected Comparisons,  
2016**

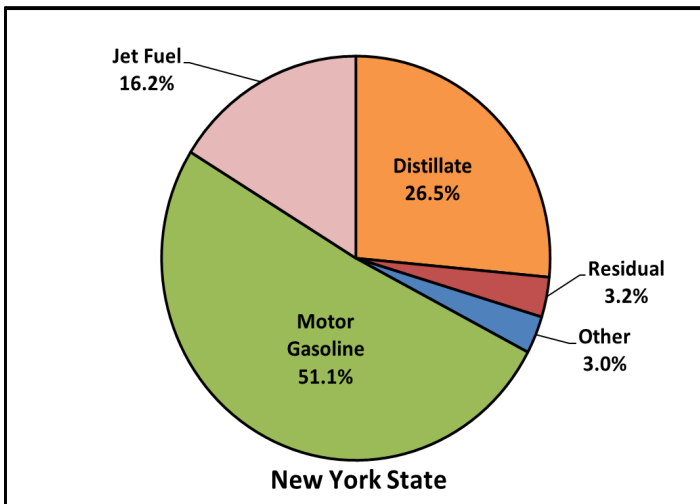
**Figure 2-10a. Electricity Generation by Fuel Type, 2016**



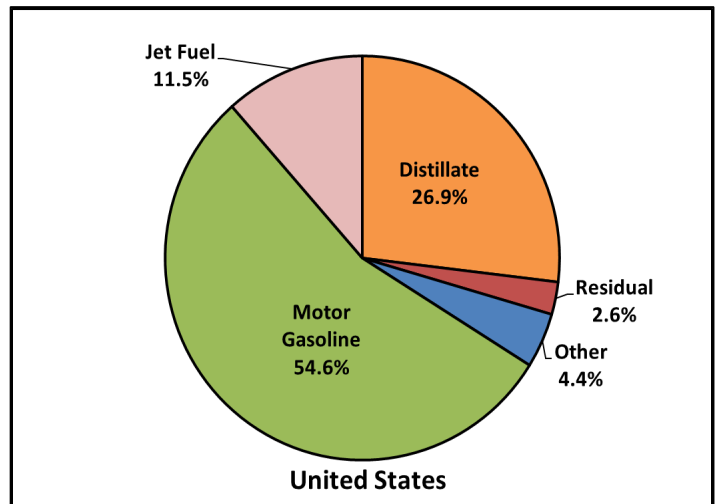
**Figure 2-10b. Electricity Generation by Fuel Type, 2016**



**Figure 2-10c. Primary Consumption of Petroleum Products, 2016<sup>1,2</sup>**



**Figure 2-10d. Primary Consumption of Petroleum Products, 2016<sup>1,2</sup>**



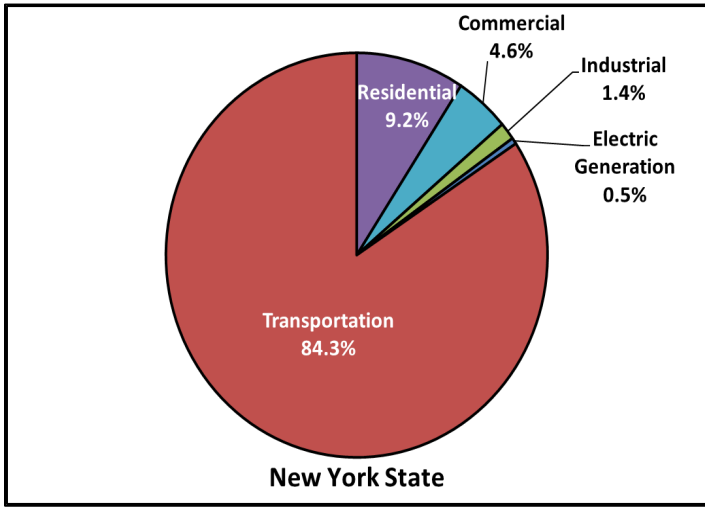
<sup>1</sup> Excludes petroleum products not used as a form of energy.

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

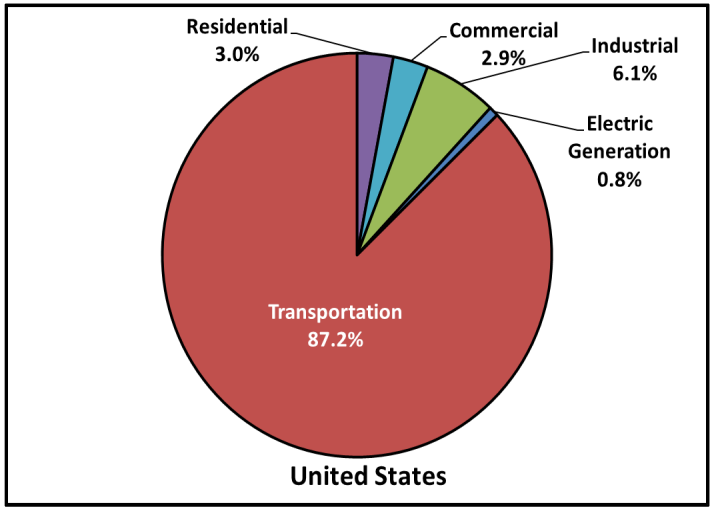


**United States and New York State  
Selected Comparisons,  
2016**

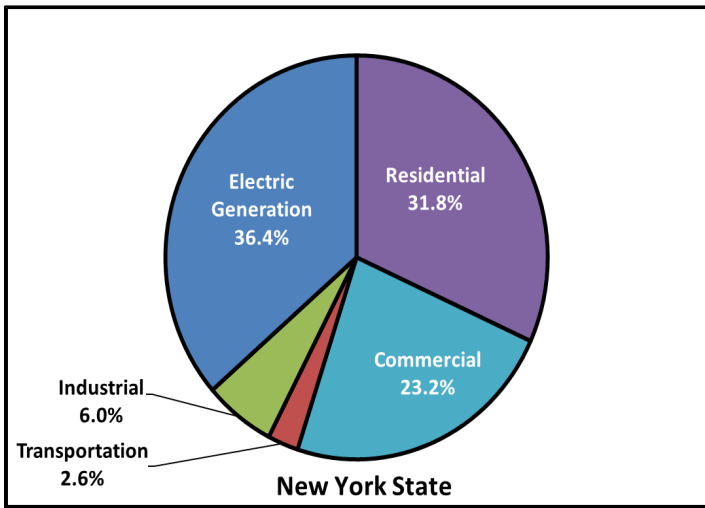
**Figure 2-11a. Petroleum Consumption by Sector, 2016<sup>1</sup>**



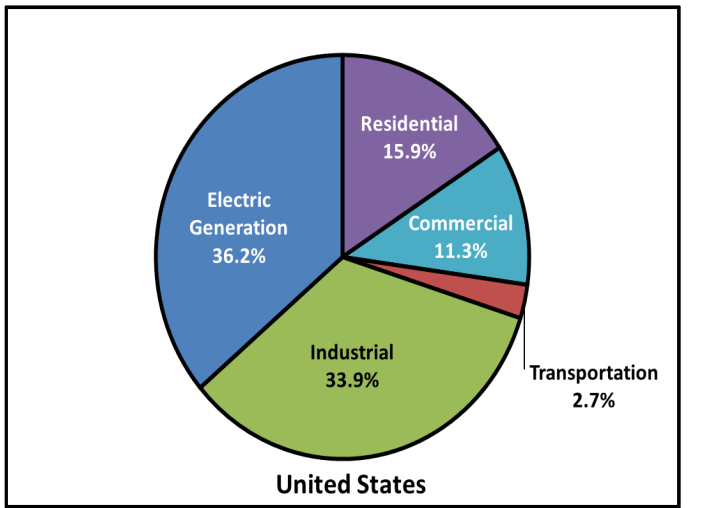
**Figure 2-11b. Petroleum Consumption by Sector, 2016<sup>1</sup>**



**Figure 2-11c. Natural Gas Consumption by Sector, 2016**



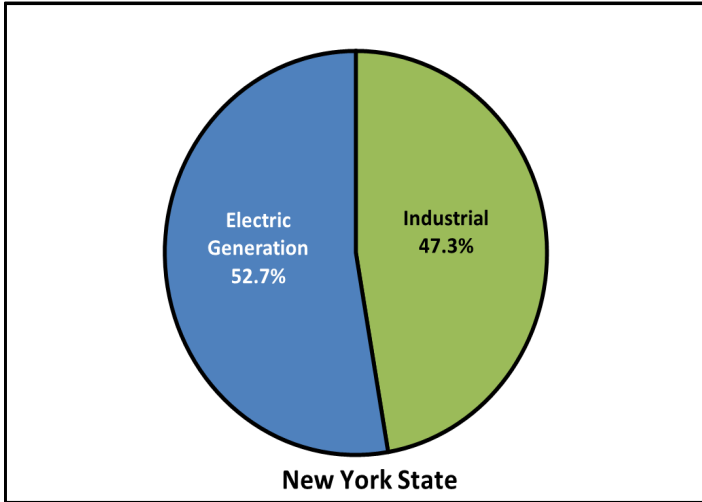
**Figure 2-11d. Natural Gas Consumption by Sector, 2016**



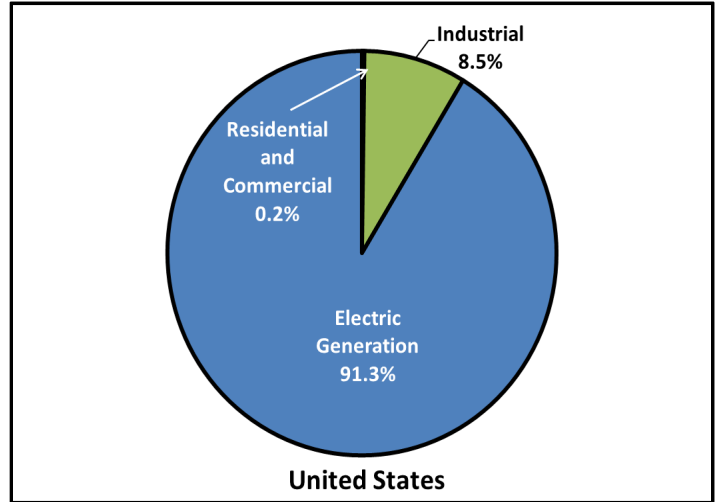
<sup>1</sup> Excludes petroleum products not used as a form of energy.

**United States and New York State  
Selected Comparisons,  
2016**

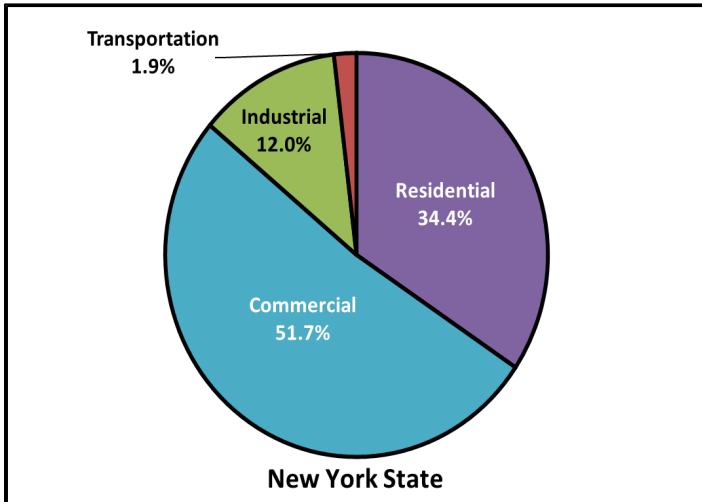
**Figure 2-12a. Coal Consumption by Sector, 2016**



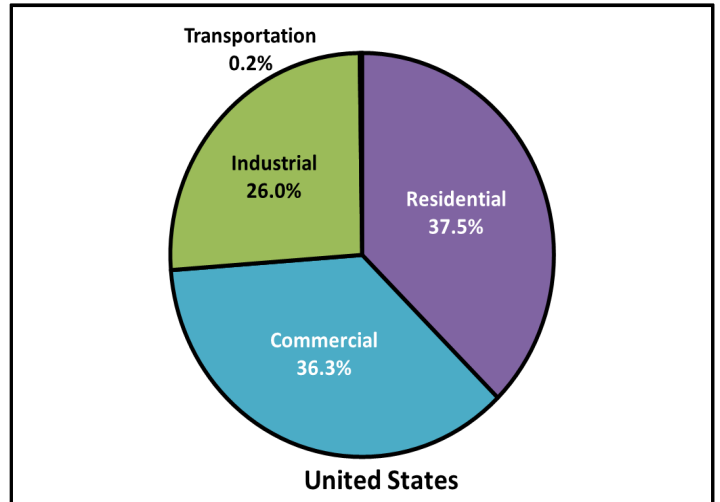
**Figure 2-12b. Coal Consumption by Sector, 2016**



**Figure 2-12c. Electricity Sales by Sector, 2016**



**Figure 2-12d. Electricity Sales by Sector, 2016**

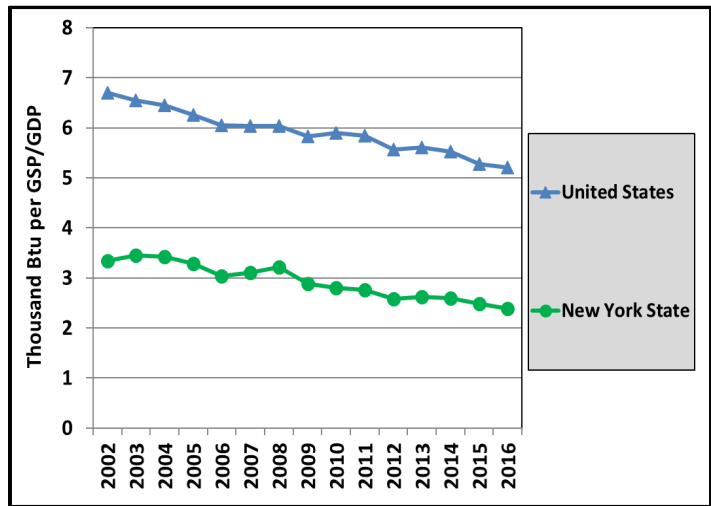


# United States and New York State Selected Energy Indicators, 2002–2016

**Table 2-13a.**  
**Primary Consumption per Dollar of Gross  
State Product/Gross Domestic Product**

Year	NYS	U.S.
	thousand Btu	thousand Btu
2002	3.33	6.69
2003	3.46	6.55
2004	3.43	6.45
2005	3.28	6.25
2006	3.04	6.05
2007	3.11	6.04
2008	3.22	6.03
2009	2.89	5.82
2010	2.80	5.90
2011	2.76	5.83
2012	2.58	5.57
2013	2.62	5.61
2014	2.59	5.53
2015	2.48	5.27
2016	2.38	5.20

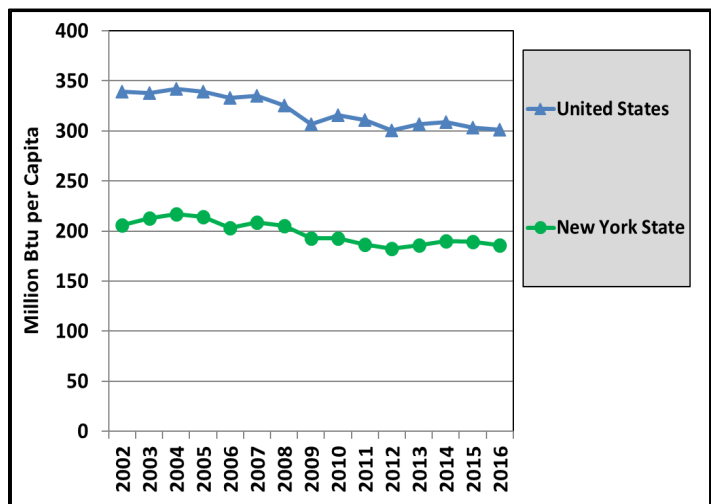
**Figure 2-13a. Primary Consumption per Dollar of  
Gross State Product/Gross Domestic Product**



**Table 2-13b.**  
**Primary Consumption per Capita**

Year	NYS	U.S.
	MMBtu	MMBtu
2002	206.15	339.50
2003	212.76	337.52
2004	216.86	341.86
2005	214.06	339.01
2006	202.98	333.29
2007	208.66	335.26
2008	205.13	325.10
2009	193.09	306.72
2010	192.75	315.50
2011	186.69	310.56
2012	182.25	300.56
2013	185.98	307.03
2014	189.96	308.53
2015	189.08	303.21
2016	185.88	301.22

**Figure 2-13b. Primary Consumption per Capita**

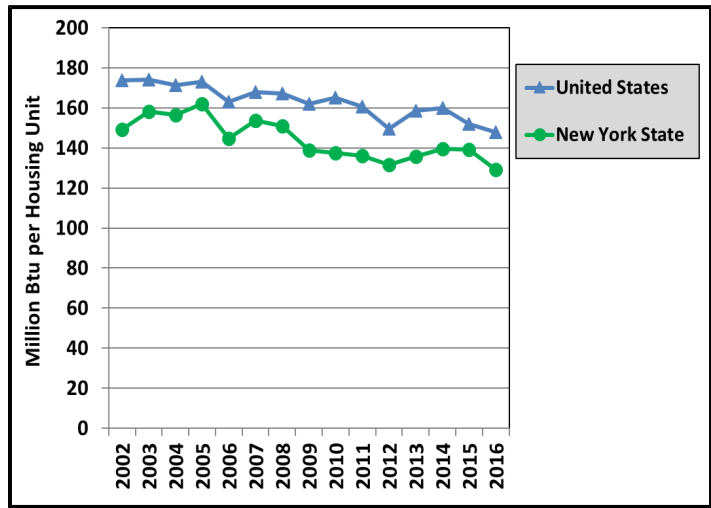


# United States and New York State Selected Energy Indicators, 2002–2016

**Table 2-14a.**  
**Residential Consumption per Housing Unit**

Year	NYS MMBtu	U.S. MMBtu
2002	149.32	173.81
2003	158.25	174.12
2004	156.42	171.32
2005	162.05	172.96
2006	144.61	163.03
2007	153.81	167.71
2008	150.80	167.30
2009	138.95	161.96
2010	137.34	165.22
2011	136.02	160.71
2012	131.62	149.61
2013	135.62	158.39
2014	139.40	159.76
2015	139.26	151.98
2016	129.07	147.75

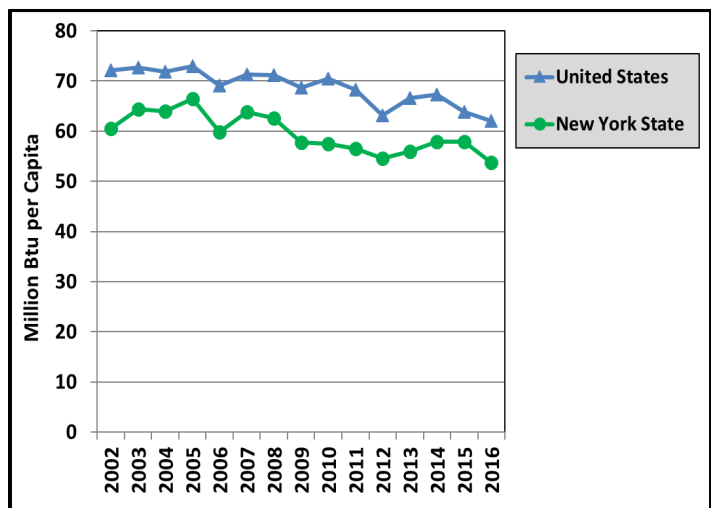
**Figure 2-14a. Residential Consumption per Housing Unit**



**Tablet 2-14b.**  
**Residential Consumption per Capita**

Year	NYS MMBtu	U.S. MMBtu
2002	60.55	72.19
2003	64.36	72.67
2004	63.93	71.86
2005	66.51	72.99
2006	59.86	69.12
2007	63.83	71.34
2008	62.62	71.14
2009	57.70	68.62
2010	57.47	70.48
2011	56.58	68.25
2012	54.54	63.13
2013	56.02	66.56
2014	57.91	67.22
2015	57.88	63.87
2016	53.81	62.06

**Figure 2-14b. Residential Consumption per Capita**

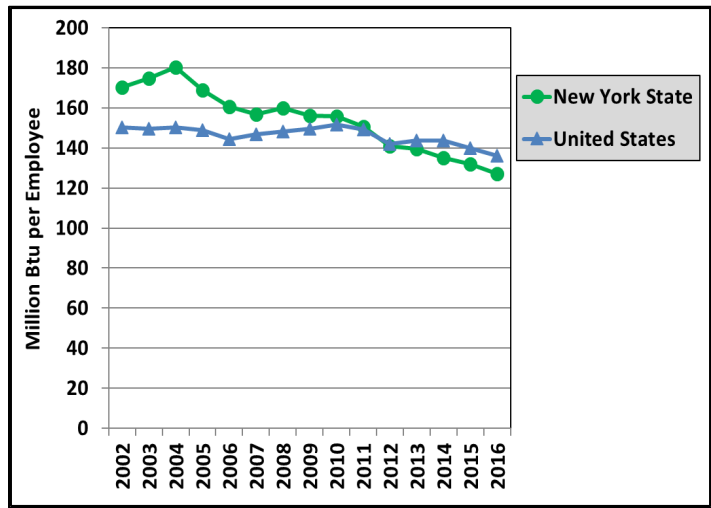


# United States and New York State Selected Energy Indicators, 2002–2016

**Table 2-15a.**  
**Commercial Consumption per  
Nonmanufacturing Employee**

Year	NYS	U.S.
	MMBtu	MMBtu
2002	170.37	150.29
2003	174.62	149.65
2004	180.36	150.23
2005	168.84	148.72
2006	160.78	144.49
2007	156.82	146.71
2008	159.90	148.19
2009	156.22	149.44
2010	155.76	151.61
2011	150.66	149.21
2012	140.88	142.04
2013	139.50	143.79
2014	135.21	143.55
2015	132.11	139.83
2016	127.09	136.24

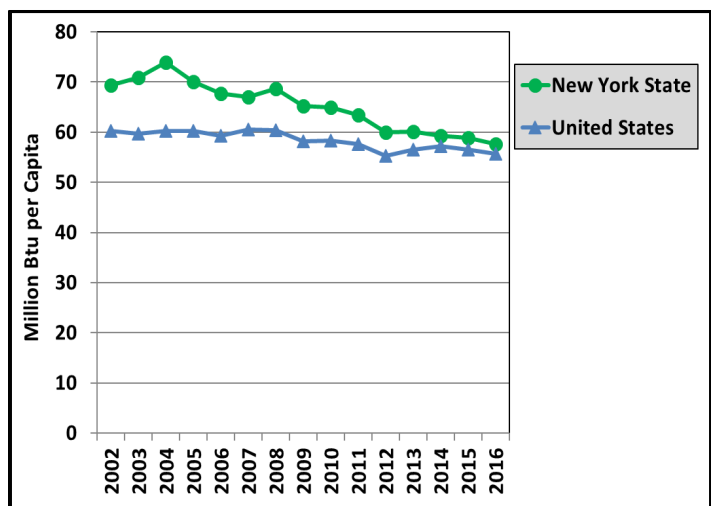
**Figure 2-15a. Commercial Consumption per  
Nonmanufacturing Employee**



**Table 2-15b.**  
**Commercial Consumption per Capita**

Year	NYS	U.S.
	MMBtu	MMBtu
2002	69.41	60.29
2003	70.88	59.75
2004	73.90	60.27
2005	70.10	60.30
2006	67.64	59.22
2007	66.95	60.45
2008	68.63	60.35
2009	65.25	58.20
2010	65.01	58.35
2011	63.37	57.57
2012	59.91	55.32
2013	60.09	56.58
2014	59.25	57.16
2015	58.92	56.46
2016	57.62	55.66

**Figure 2-15b. Commercial Consumption per Capita**

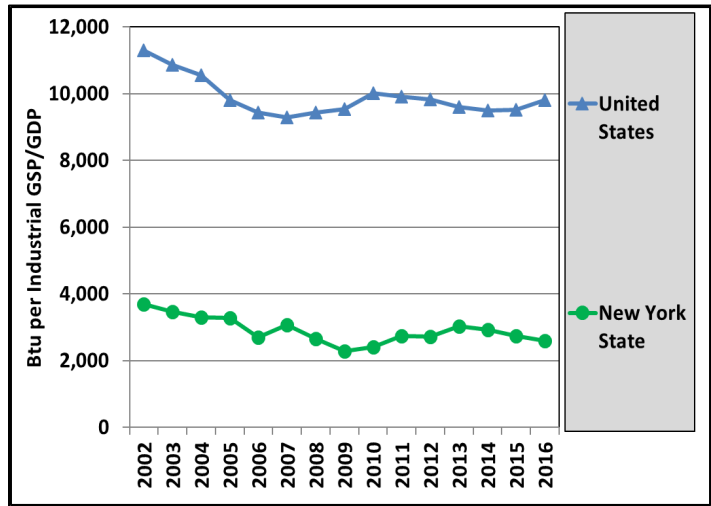


# United States and New York State Selected Energy Indicators, 2002–2016

**Table 2-16a.**  
Industrial Consumption per Dollar of Industrial  
Gross State Product/Gross Domestic Product

Year	NYS	U.S.
	Btu	Btu
2002	3,688	11,293
2003	3,462	10,852
2004	3,292	10,556
2005	3,281	9,802
2006	2,687	9,435
2007	3,073	9,293
2008	2,654	9,425
2009	2,289	9,540
2010	2,413	10,020
2011	2,745	9,896
2012	2,719	9,824
2013	3,033	9,601
2014	2,927	9,488
2015	2,735	9,520
2016	2,600	9,793

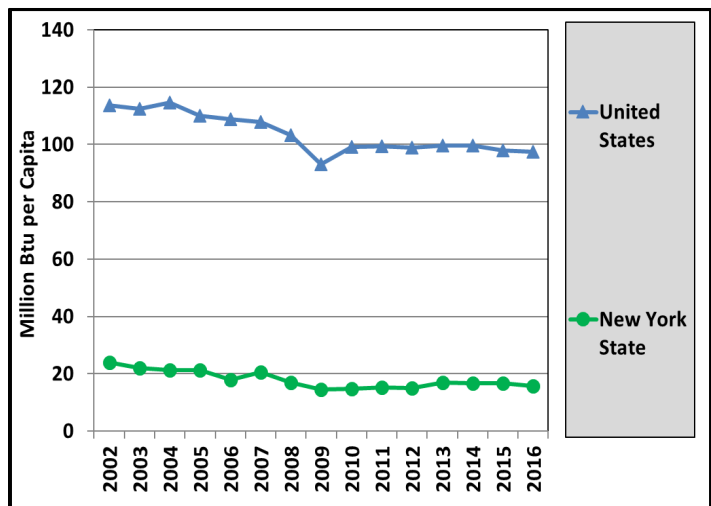
**Figure 2-16a.** Industrial Consumption per Dollar of Industrial  
Gross State Product/Gross Domestic Product



**Table 2-16b.**  
Industrial Consumption per Capita

Year	NYS	U.S.
	MMBtu	MMBtu
2002	23.93	113.68
2003	21.92	112.35
2004	21.16	114.61
2005	21.21	110.02
2006	17.87	108.78
2007	20.46	107.77
2008	16.87	103.28
2009	14.62	93.02
2010	14.78	99.10
2011	15.35	99.27
2012	14.93	98.78
2013	16.89	99.57
2014	16.71	99.63
2015	16.59	97.89
2016	15.80	97.36

**Figure 2-16b.** Industrial Consumption per Capita

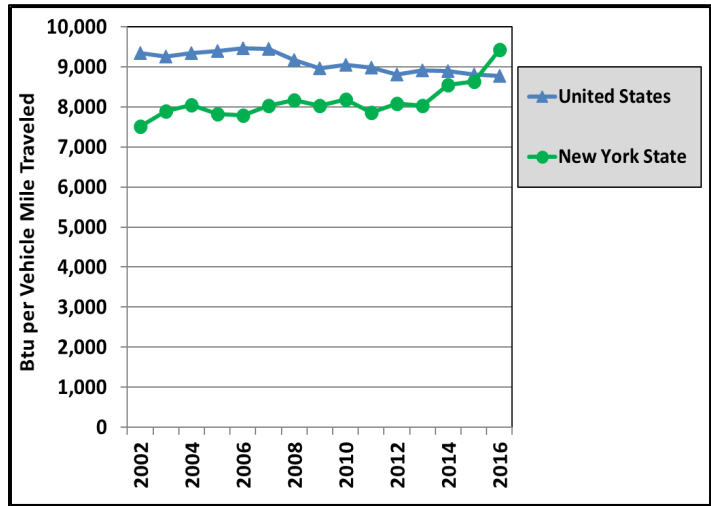


# United States and New York State Selected Energy Indicators, 2002–2016

**Table 2-17a.**  
**Transportation Consumption  
per Vehicle Mile Traveled**

Year	NYS Btu	U.S. Btu
2002	7,517	9,343
2003	7,896	9,250
2004	8,046	9,339
2005	7,825	9,397
2006	7,788	9,459
2007	8,034	9,455
2008	8,169	9,179
2009	8,028	8,957
2010	8,194	9,058
2011	7,853	8,983
2012	8,082	8,809
2013	8,035	8,919
2014	8,557	8,894
2015	8,644	8,806
2016	9,422	8,767

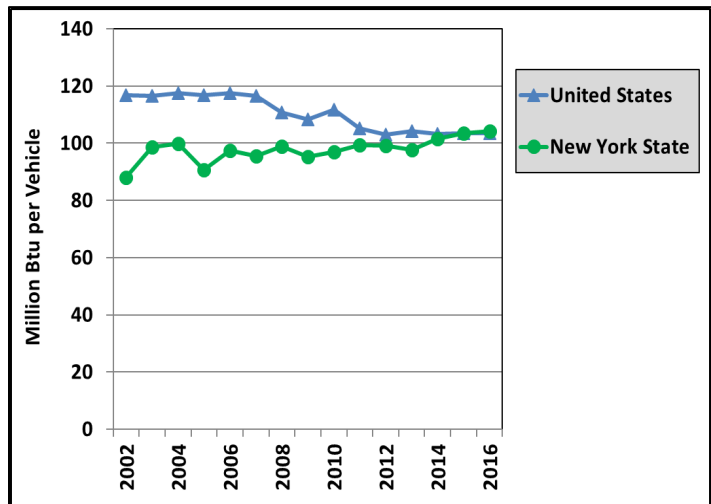
**Figure 2-17a. Transportation Consumption  
per Vehicle Mile Traveled**



**Table 2-17b.**  
**Transportation Consumption per  
Registered Motor Vehicle**

Year	NYS MMBtu	U.S. MMBtu
2002	87.97	116.73
2003	98.72	116.48
2004	99.96	117.50
2005	90.71	116.85
2006	97.55	117.61
2007	95.57	116.59
2008	98.78	110.69
2009	95.31	108.22
2010	97.04	111.70
2011	99.46	105.18
2012	99.17	103.11
2013	97.66	104.16
2014	101.44	103.36
2015	103.38	103.41
2016	104.13	103.53

**Figure 2-17b. Transportation Consumption per  
Registered Motor Vehicle**



## 3 New York State Energy Consumption

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This section presents data on primary and net energy consumption in New York by sector and fuel type from 2002 through 2016. Primary consumption of energy is shown by fuel type in physical units, such as tons, cubic feet, gigawatt-hours (GWh), barrels, and 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 reported does not include generator 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 kilowatt-hour [kWh] generated) for fossil-fueled power plants. The current year heat rate can be found in Appendix G Conversion Factors.

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.

### 3.1 Key Observations about 2016 New York State Energy Consumption Data

- Total primary energy consumption was 3,670 TBtu, a 1.7% decrease from 2015.
- Primary consumption of natural gas (1,335 TBtu) exceeded petroleum (1,244 TBtu) for the sixth year in a row as the largest energy source for NYS energy consumption, representing 36.4% of total primary energy consumption.
- Cumulative heating degree-days were 9.0% lower in 2016 compared to 2015.
- Primary consumption of energy from solar, electricity imports, hydropower, and petroleum increased 38.1%, 16.7%, 1.2%, and 0.5%, respectively in 2016, while use of coal, nuclear power, natural gas, bioenergy and wind decreased 28.0%, 6.8%, 4.4%, 1.9%, and 1.8%, respectively.
- Total consumption of petroleum products was 1,244 TBtu, or 230 million barrels, representing 33.9% of total primary energy consumption.
- In 2016, statewide distillate oil use decreased by 9.1% from 2015 levels. Statewide motor gasoline use increased 3.7% and residual fuel use decreased by 16.1% from 2015 to 2016. Total statewide petroleum fuels use increased by 0.5% from 2015 to 2016.



- Sales of natural gas totaled 1,295 billion cubic feet in 2016, which was 4.3% below the 1,353 billion cubic feet sold in 2015.
- Sales of natural gas by sector were 31.7% for the residential sector, 23.2% for the commercial sector, 6.0% for the industrial sector, 2.6% for the transportation sector, and 36.5% for the electric generation sector.
- Natural gas and nuclear power accounted for 35.3% and 25.9% of the State's electricity requirements in 2016, respectively.
- Energy used for electricity generation accounted for 40.0% of primary energy use.
- Sales of electricity to ultimate customers decreased by 0.7% between 2015 and 2016.
- Total residential net energy consumption was 732 TBtu, which was 9.6% lower than 2015 levels. The residential sector accounted for 27.0% of total net energy consumption.
- Total net energy consumption in the commercial sector was 640 TBtu, or 23.6% of total net energy consumption. The sector's total energy use decreased 3.1% below the 2015 level while sales of electricity in the sector decreased by 0.6%.
- Industrial net energy consumption was 197 TBtu, or 7.3% of total net consumption. The sector's total energy use decreased 6.1% from the 2015 level.
- Transportation energy consumption was 1,140 TBtu, or up 5.4% from 2015. The sector accounted for 42.1% of total net energy consumption in 2016.

# New York State Primary Consumption of Energy by Fuel Type, 2002–2016

Figure 3-1

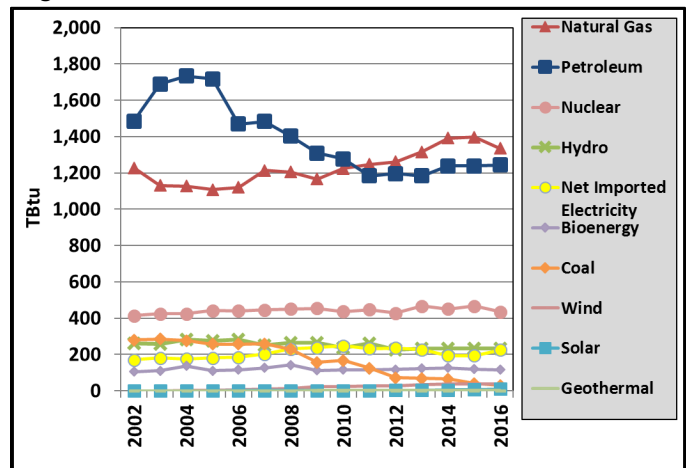


Table 3-1a. (in physical units)

Year	Coal	Natural Gas	Petroleum Products <sup>1</sup>	Hydro	Nuclear	Net Imported Electricity	Solar	Wind
	Mtons	Bcf	Mbbl	GWh	GWh	GWh	GWh	GWh
2002	10,908	1,200	269,952	26,213	39,617	17,088	n.a.	82
2003	11,314	1,102	303,838	25,798	40,679	18,163	n.a.	41
2004	11,335	1,098	308,484	28,153	40,640	17,646	n.a.	116
2005	10,739	1,080	305,998	27,583	42,443	18,115	n.a.	103
2006	10,979	1,097	265,458	28,422	42,224	18,569	n.a.	655
2007	11,058	1,187	268,635	25,557	42,453	20,708	n.a.	833
2008	10,157	1,180	255,171	27,501	43,209	23,899	n.a.	1,251
2009	7,032	1,143	238,763	27,945	43,485	25,009	n.a.	2,266
2010	7,367	1,198	233,379	25,103	41,870	26,517	n.a.	2,596
2011	5,604	1,217	217,628	28,355	42,695	25,201	n.a.	2,828
2012	3,137	1,223	219,857	25,303	40,775	26,180	n.a.	2,992
2013	3,041	1,273	217,828	26,397	44,756	25,694	n.a.	3,539
2014	2,867	1,349	228,280	26,823	43,041	22,103	421	3,986
2015	1,761	1,353	228,218	26,704	44,620	22,273	689	3,984
2016	1,175	1,295	229,868	27,150	41,638	26,117	1,014	3,943

Table 3-1b. (in trillion Btu)

Year	Coal	Natural Gas	Petroleum Products <sup>1</sup>	Hydro	Nuclear	Net Imported Electricity	Solar	Wind	Geothermal	Bioenergy <sup>2</sup>	Total <sup>3</sup>
	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu	Tbtu
2002	280.6	1,227.2	1,485.7	260.8	413.7	170.0	0.6	0.8	0.4	105.4	3,945.3
2003	286.2	1,131.4	1,688.4	257.1	424.0	181.0	0.6	0.4	0.5	110.4	4,079.9
2004	276.5	1,126.6	1,732.5	281.6	423.8	176.5	0.7	1.2	0.5	137.6	4,157.6
2005	256.9	1,107.2	1,717.2	276.4	442.9	181.5	0.8	1.0	0.6	110.9	4,095.6
2006	256.3	1,120.2	1,468.5	282.4	440.6	184.5	1.0	6.5	0.7	117.1	3,877.9
2007	258.5	1,214.4	1,484.0	250.1	445.3	202.7	1.2	8.2	0.7	127.1	3,992.1
2008	229.0	1,205.1	1,401.7	265.3	451.6	230.6	1.3	12.3	0.8	143.3	3,941.1
2009	156.0	1,166.6	1,309.4	265.8	454.8	237.8	1.5	22.1	1.0	113.0	3,727.9
2010	167.1	1,224.5	1,276.6	235.7	437.6	248.9	1.7	25.3	1.1	116.6	3,735.1
2011	125.2	1,247.8	1,184.5	260.7	446.8	231.7	2.1	27.5	1.3	116.6	3,644.1
2012	72.9	1,261.0	1,196.6	228.0	427.3	235.9	3.2	28.5	1.2	118.0	3,572.5
2013	68.7	1,315.3	1,184.0	233.6	467.7	227.4	3.9	33.8	1.2	123.6	3,659.0
2014	64.7	1,392.4	1,238.7	234.7	450.1	193.4	5.3	37.7	1.2	127.5	3,745.7
2015	41.2	1,396.7	1,238.0	232.3	466.5	193.7	7.7	37.1	1.2	119.3	3,733.7
2016	29.7	1,335.1	1,244.3	235.0	434.8	226.1	10.6	36.4	1.2	117.0	3,670.2

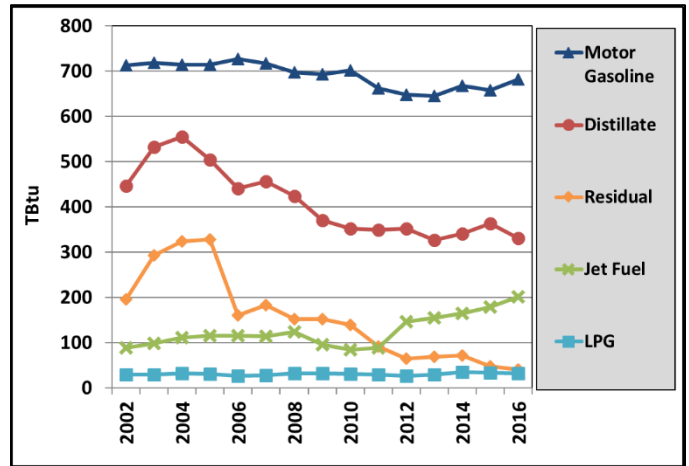
<sup>1</sup> Includes petroleum coke used for electric generation.

<sup>2</sup> Includes primarily wood, waste, landfill gas, and ethanol; ethanol values are embedded in motor gasoline, but are excluded from the petroleum products total.

<sup>3</sup> Excludes nonfuel uses.

**New York State  
Primary Consumption  
of Refined Petroleum Products,  
2002–2016**

**Figure 3-2**



**Table 3-2a. (in thousand barrels)**

Year	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Motor Gasoline	Jet Fuel <sup>2</sup>	Total <sup>3</sup>
	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl
2002	76,684	31,110	2,373	7,613	136,664	15,603	269,952
2003	91,548	46,578	3,195	7,771	138,010	17,286	303,838
2004	95,300	51,469	3,182	8,639	137,391	19,526	308,484
2005	86,630	52,151	3,632	8,261	137,355	20,291	305,998
2006	75,871	25,526	2,579	7,153	140,020	20,366	265,458
2007	78,850	28,975	1,777	7,346	139,140	20,162	268,635
2008	73,289	24,203	830	8,536	136,105	21,812	255,171
2009	64,154	24,060	1,218	8,344	135,921	16,790	238,763
2010	60,987	22,233	1,701	8,138	138,087	14,808	233,379
2011	60,439	14,517	1,058	7,688	130,718	15,497	217,628
2012	61,030	10,262	569	6,870	127,902	25,864	219,857
2013	56,594	11,032	506	7,657	127,461	27,337	217,828
2014	59,002	11,396	879	9,229	131,943	29,033	228,280
2015	62,971	7,582	613	8,609	129,909	31,407	228,218
2016	57,242	6,358	835	8,517	134,799	35,550	229,868

**Table 3-2b. (in trillion Btu)**

Year	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Motor Gasoline	Jet Fuel <sup>2</sup>	Total <sup>3</sup>
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	446.2	195.6	13.5	28.9	712.2	88.4	1,485.7
2003	532.7	292.8	18.1	29.4	718.1	98.0	1,688.4
2004	554.5	323.6	18.0	32.7	714.6	110.6	1,732.5
2005	504.0	327.9	20.6	31.0	714.0	114.9	1,717.2
2006	440.3	160.5	14.6	26.9	726.8	115.5	1,468.5
2007	456.1	182.2	10.1	27.8	717.3	114.2	1,484.0
2008	423.6	152.2	4.7	32.5	697.7	123.6	1,401.7
2009	370.9	151.3	6.9	31.8	693.3	95.2	1,309.4
2010	352.3	139.8	9.6	31.2	701.2	83.9	1,276.6
2011	349.0	91.3	6.0	29.5	662.5	87.8	1,184.5
2012	352.2	64.5	3.2	26.4	647.6	146.6	1,196.6
2013	326.5	69.4	2.9	29.4	645.2	155.0	1,184.0
2014	340.3	71.6	5.0	35.4	667.6	164.6	1,238.7
2015	363.2	47.7	3.5	33.0	657.3	178.0	1,238.0
2016	330.1	40.0	4.7	32.7	681.9	201.5	1,244.3

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

<sup>2</sup> Kerosene-type jet fuel and aviation gasoline.

<sup>3</sup> 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,<sup>1</sup>  
2002–2016**

Figure 3-3a

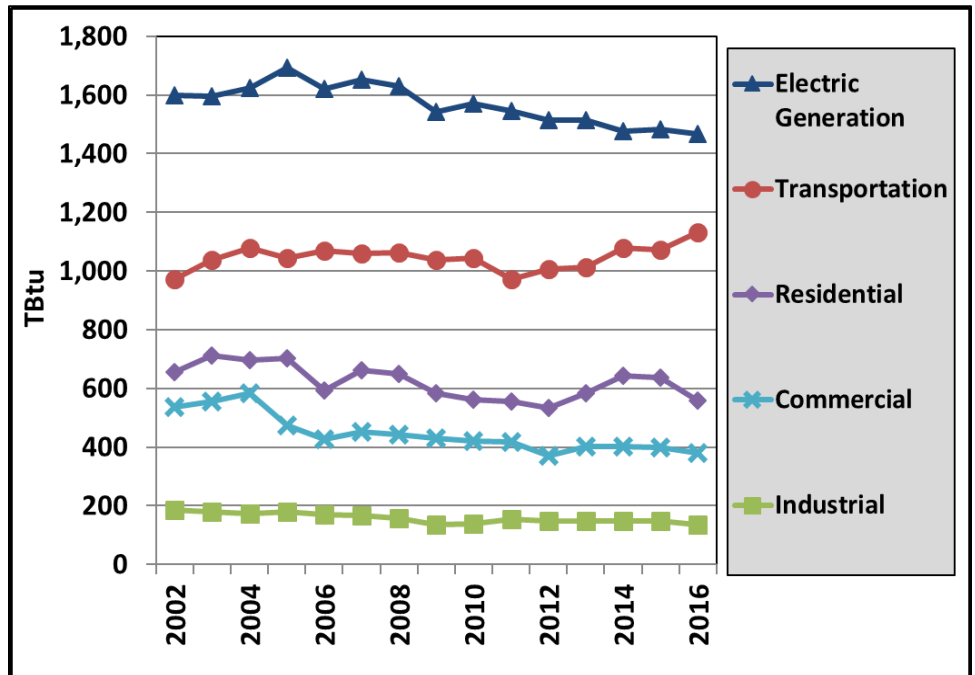


Table 3-3a. (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Electric Generation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	655.3	535.2	185.4	971.6	1,597.7	3,945.3
2003	712.0	555.9	179.3	1,036.6	1,596.2	4,079.9
2004	695.7	584.8	174.4	1,079.9	1,622.8	4,157.5
2005	702.8	475.0	180.8	1,044.1	1,692.9	4,095.6
2006	592.0	426.4	170.7	1,068.8	1,619.9	3,877.9
2007	660.7	451.6	165.9	1,060.6	1,653.3	3,992.1
2008	648.4	442.8	158.1	1,062.4	1,629.4	3,941.1
2009	582.8	430.1	134.6	1,038.5	1,541.9	3,727.9
2010	560.4	420.6	140.0	1,043.7	1,570.4	3,735.1
2011	554.3	416.7	155.6	971.0	1,546.5	3,644.1
2012	533.1	370.3	147.7	1,007.2	1,514.2	3,572.5
2013	582.1	400.3	148.8	1,013.1	1,514.7	3,659.0
2014	641.5	402.0	149.2	1,077.5	1,475.4	3,745.7
2015	635.4	397.2	147.7	1,071.8	1,481.7	3,733.7
2016	558.1	378.6	136.2	1,130.9	1,466.5	3,670.2

<sup>1</sup> Customer-sited generation is included in specific end-use sectors. All other electric generation and associated losses are included in the electric generation sector.

**New York State  
Primary Consumption  
of Energy by Sector,<sup>1</sup>  
2002–2016**

Figure 3-3b

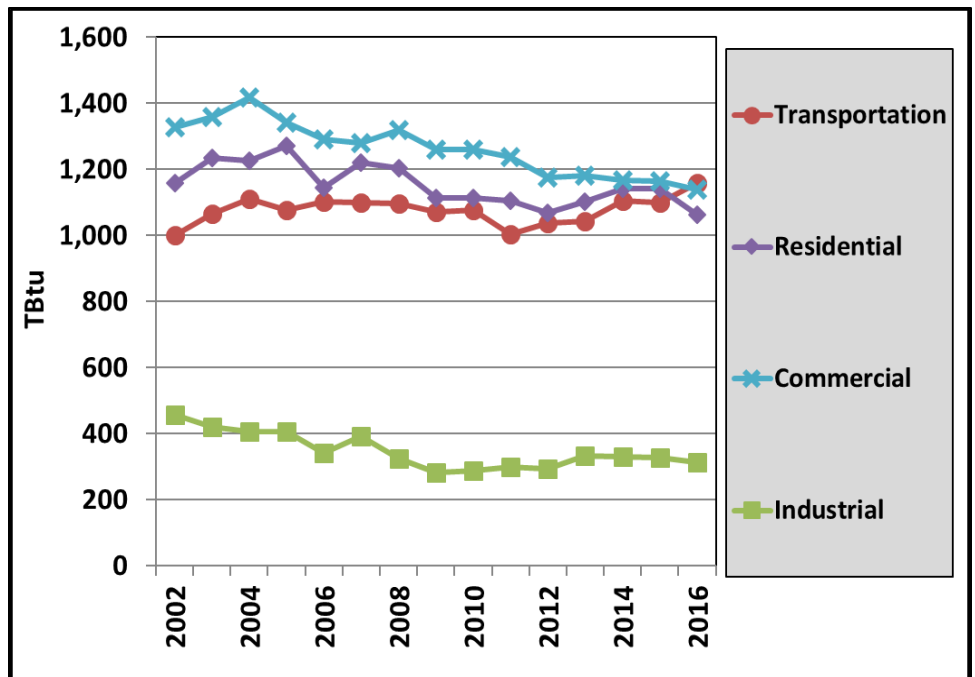


Table 3-3b. (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu
2002	1,158.8	1,328.4	457.9	1,000.1	3,945.3
2003	1,234.1	1,359.2	420.3	1,066.4	4,079.9
2004	1,225.6	1,416.8	405.7	1,109.5	4,157.5
2005	1,272.6	1,341.1	405.7	1,076.1	4,095.6
2006	1,143.5	1,292.3	341.3	1,100.8	3,877.9
2007	1,221.3	1,280.9	391.5	1,098.5	3,992.1
2008	1,203.0	1,318.5	324.2	1,095.4	3,941.1
2009	1,114.1	1,259.7	282.4	1,071.8	3,728.0
2010	1,113.6	1,259.7	286.4	1,075.4	3,735.1
2011	1,104.4	1,237.0	299.6	1,003.0	3,644.1
2012	1,069.2	1,174.4	292.7	1,036.3	3,572.5
2013	1,102.1	1,182.1	332.3	1,042.5	3,659.0
2014	1,141.9	1,168.3	329.5	1,106.1	3,745.7
2015	1,143.0	1,163.4	327.5	1,099.8	3,733.7
2016	1,062.5	1,137.7	311.9	1,158.2	3,670.2

<sup>1</sup> All electric generation and associated losses are included in the end-use sectors. Electricity systems losses are apportioned by the percentage of electricity sales for each end-use sector.

# New York State Energy Services and Losses of Energy by Sector,<sup>1</sup> 2002–2016

Figure 3-3c-1: Energy Services by Sector

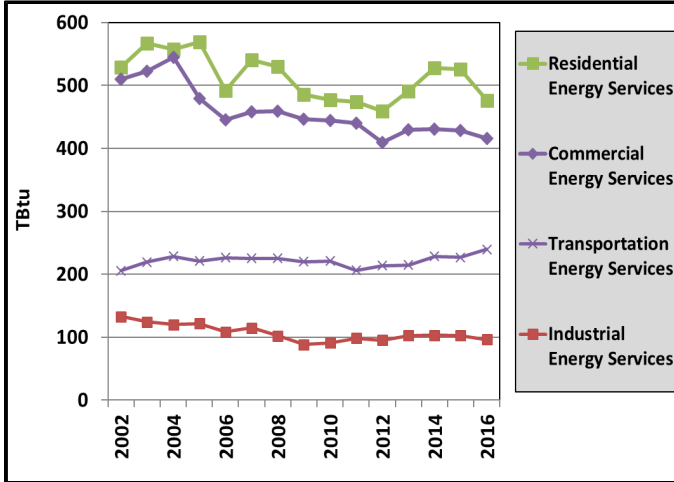


Figure 3-3c-2: Energy Losses by Sector

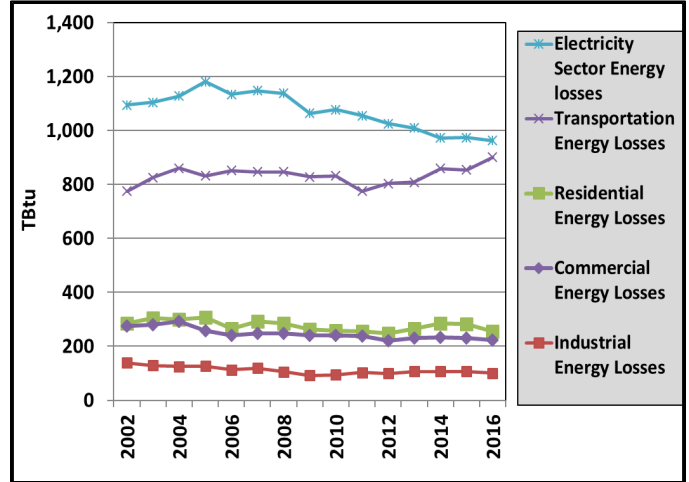


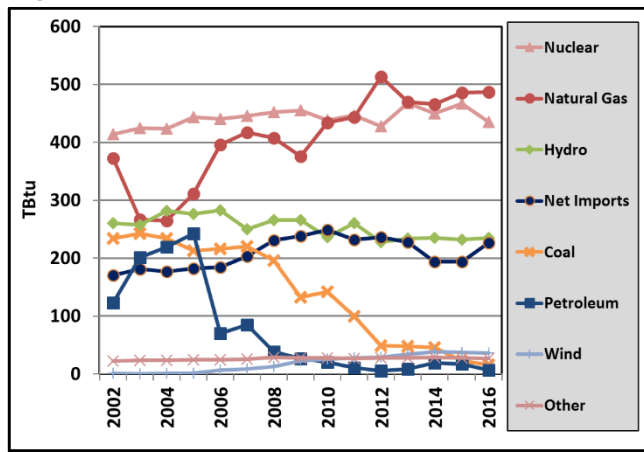
Table 3-3c. (in trillion Btu)

Year	Residential		Commercial		Industrial		Transportation		Elec. Gen.	Total		Energy
	Services	Losses	Services	Losses	Services	Losses	Services	Losses	Losses	Services	Losses	
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	529.0	284.8	510.2	274.7	132.9	138.3	205.9	774.6	1,094.6	1,378.1	2,567.2	3,945.3
2003	567.3	305.5	522.1	281.1	124.2	129.3	219.6	826.1	1,104.7	1,433.2	2,646.7	4,079.9
2004	557.3	300.1	545.1	293.5	120.0	124.9	228.7	860.2	1,127.8	1,451.1	2,706.5	4,157.6
2005	568.9	306.3	479.1	258.0	122.0	126.9	221.3	832.5	1,180.6	1,391.2	2,704.3	4,095.6
2006	492.2	265.0	445.8	240.0	108.7	113.1	226.5	851.9	1,134.6	1,273.2	2,604.7	3,877.9
2007	540.9	291.2	458.4	246.8	115.1	119.8	225.2	847.1	1,147.7	1,339.5	2,652.6	3,992.1
2008	530.2	285.5	459.5	247.4	102.0	106.2	225.2	847.2	1,137.9	1,317.0	2,624.2	3,941.1
2009	485.9	261.6	446.7	240.5	88.4	92.0	220.2	828.6	1,064.1	1,241.2	2,486.8	3,727.9
2010	477.3	257.0	444.8	239.5	91.1	94.8	221.3	832.4	1,076.9	1,234.4	2,500.7	3,735.1
2011	473.9	255.2	440.3	237.1	98.7	102.7	206.1	775.2	1,055.0	1,219.0	2,425.1	3,644.1
2012	458.9	247.1	409.3	220.4	95.3	99.2	213.5	803.1	1,025.8	1,177.0	2,395.5	3,572.5
2013	491.0	264.4	429.5	231.3	102.9	107.1	214.8	808.1	1,010.0	1,238.1	2,420.8	3,659.0
2014	527.8	284.2	431.1	232.1	103.2	107.4	228.3	858.9	972.6	1,290.4	2,455.3	3,745.7
2015	526.1	283.3	429.0	231.0	102.6	106.8	227.1	854.3	973.6	1,284.8	2,449.0	3,733.7
2016	475.5	256.0	415.7	223.9	96.3	100.3	239.5	900.8	962.2	1,227.1	2,443.2	3,670.2

<sup>1</sup> Electricity losses are calculated as the difference between energy input for electricity generation and energy from retail electricity sales. Energy losses for the end-use sectors are based on the following estimated end-use efficiency factors from the Lawrence Livermore National Laboratory, 65% for the residential sector, 65% for the commercial sector, 49% for the industrial sector, and 21% for the transportation sector. Totals may not equal the sum of components due to rounding. Energy services are the ultimate end-use of mechanical energy to run an appliance, power a light bulb, turn the axle of a vehicle, heat or cool a building, etc. Energy losses are the energy that is not used in these mechanical processes and is burned off or rejected as waste energy. A system or process becomes more energy efficient with a higher percentage of energy services to losses.

**New York State  
Primary Consumption of Energy  
for Electric Generation,  
2002–2016**

**Figure 3-4**



**Table 3-4a. (in physical units)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Total Petroleum <sup>2</sup>	Conventional Hydro <sup>3</sup>	Pumped Storage Hydro	Nuclear	Net Imported Electricity	Wind	Solar	Other <sup>4</sup>
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	GWh	GWh	GWh	GWh	GWh	GWh	GWh
2002	9,154	366	2,229	17,473	19,702	24,612	1,601	39,617	17,088	82	n/a	2,282
2003	9,646	261	2,410	29,821	32,230	24,207	1,591	40,679	18,163	41	n/a	2,302
2004	9,702	259	1,740	33,236	34,977	26,745	1,408	40,640	17,646	116	n/a	2,303
2005	9,069	304	1,574	37,320	38,894	26,204	1,379	42,443	18,115	103	n/a	2,481
2006	9,417	388	622	10,614	11,236	27,110	1,312	42,224	18,569	655	n/a	2,488
2007	9,613	408	1,372	12,224	13,596	24,184	1,373	42,453	20,708	833	n/a	2,555
2008	8,885	399	809	4,935	6,106	25,711	1,790	43,209	23,899	1,251	n/a	2,996
2009	6,108	368	736	3,261	4,296	26,420	1,525	43,485	25,009	2,266	n/a	2,888
2010	6,384	425	637	1,790	3,340	24,214	889	41,870	26,517	2,596	n/a	2,916
2011	4,591	434	331	1,026	1,826	27,634	721	42,695	25,201	2,828	7	2,823
2012	2,228	499	392	459	851	24,572	731	40,775	26,180	2,992	53	2,945
2013	2,225	456	503	882	1,385	25,631	766	44,756	25,694	3,539	67	3,003
2014	2,154	453	833	2,228	3,061	25,974	849	43,041	22,103	3,986	71	3,194
2015	1,038	472	835	1,942	2,778	25,879	825	44,620	22,273	3,984	101	3,028
2016	654	472	344	624	968	26,314	836	41,638	26,117	3,943	140	2,881

**Table 3-4b. (in trillion Btu)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Total Petroleum <sup>2</sup>	Hydro <sup>3</sup>	Nuclear	Net Imports <sup>3</sup>	Wind	Solar	Other <sup>3,4</sup>	Total <sup>5</sup>
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	234.3	372.5	13.0	108.4	122.8	260.8	413.7	170.0	0.8	0.0	22.7	1597.7
2003	242.1	267.1	14.0	186.3	201.5	257.1	424.0	181.0	0.4	0.0	22.9	1596.2
2004	233.6	264.2	10.1	205.7	218.8	281.6	423.8	176.5	1.2	0.0	23.0	1622.8
2005	213.0	310.6	9.2	220.4	242.5	276.4	442.9	181.5	1.0	0.0	24.9	1692.9
2006	215.8	395.5	3.6	61.3	69.9	282.4	440.6	184.5	6.5	0.0	24.7	1619.9
2007	220.6	416.9	7.9	73.7	84.5	250.1	445.3	202.7	8.2	0.0	25.0	1653.3
2008	195.6	407.3	4.7	31.0	37.8	265.3	451.6	230.6	12.3	0.0	28.9	1629.4
2009	131.8	375.6	4.3	20.5	26.5	265.8	454.8	237.8	22.1	0.0	27.5	1541.9
2010	141.6	433.7	3.7	11.3	20.2	235.7	437.6	248.9	25.3	0.0	27.4	1570.4
2011	99.2	443.6	1.9	6.4	11.0	260.7	446.8	231.7	27.5	0.1	26.0	1546.5
2012	48.7	513.6	2.3	2.9	5.2	228.0	427.3	235.9	28.5	0.5	26.5	1514.2
2013	47.2	469.5	2.9	5.5	8.4	233.6	467.7	227.4	33.8	0.6	26.6	1514.7
2014	45.9	466.0	4.8	14.0	18.8	234.7	450.1	193.4	37.7	0.7	28.0	1475.4
2015	22.0	486.0	4.8	12.2	17.0	232.3	466.5	193.7	37.1	0.9	26.3	1481.7
2016	15.6	486.5	2.0	3.9	5.9	235.0	434.8	226.1	36.4	1.3	24.9	1466.5

<sup>1</sup> Includes small quantities of kerosene-type jet fuel.  
<sup>2</sup> Includes petroleum coke used for electric generation.  
<sup>3</sup> Converts to TBtu by applying a three-year statewide weighted average annual heat rate for fossil-fueled power plants.  
<sup>4</sup> Includes primarily waste, methane, and wood. See Table 3-5 for a breakout of energy output.  
<sup>5</sup> Excludes utility consumption of fuels used in the production of steam distributed for space heating. Excludes customer-sited generation.

**New York State  
Electric Generation  
by Fuel Type,  
2002–2016**

Figure 3-5

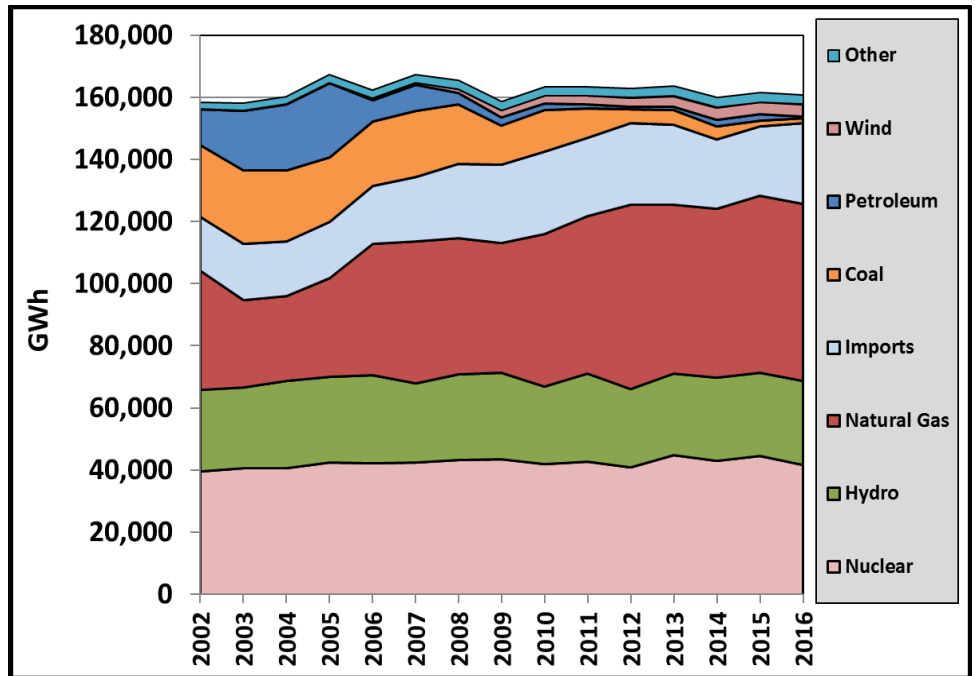


Table 3-5. (in gigawatt-hours)

Year	Coal GWh	Natural Gas GWh	Petroleum Products GWh	Conv. Hydro GWh	PS Hydro GWh	Nuclear GWh	Net Imports GWh	Other <sup>1,2</sup>					Solar <sup>3</sup> GWh	Total Load Served GWh
								Waste GWh	LFG GWh	Wood GWh	Wind GWh			
2002	23,239	38,451	11,534	24,612	1,601	39,617	17,088	1,878	198	206	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	1,883	209	211	116	0	160,211	
2005	20,598	31,873	24,013	26,204	1,379	42,443	18,115	1,899	329	253	103	0	167,208	
2006	20,968	42,134	6,778	27,110	1,312	42,224	18,569	1,902	326	260	655	0	162,238	
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	23,899	1,903	533	560	1,251	0	165,612	
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	25,201	1,878	735	210	2,828	7	163,329	
2012	4,551	59,462	580	24,572	731	40,775	26,180	1,897	736	311	2,992	53	162,840	
2013	4,697	54,354	1,007	25,631	766	44,756	25,694	1,799	828	377	3,539	67	163,514	
2014	4,325	54,380	2,136	25,974	849	43,041	22,103	1,866	789	539	3,986	71	160,059	
2015	2,046	56,923	1,892	25,879	825	44,620	22,273	1,862	745	422	3,984	101	161,572	
2016	1,493	56,793	643	26,314	836	41,638	26,117	1,841	748	293	3,943	140	160,798	

<sup>1</sup> Includes primarily waste, landfill gas, and wood.

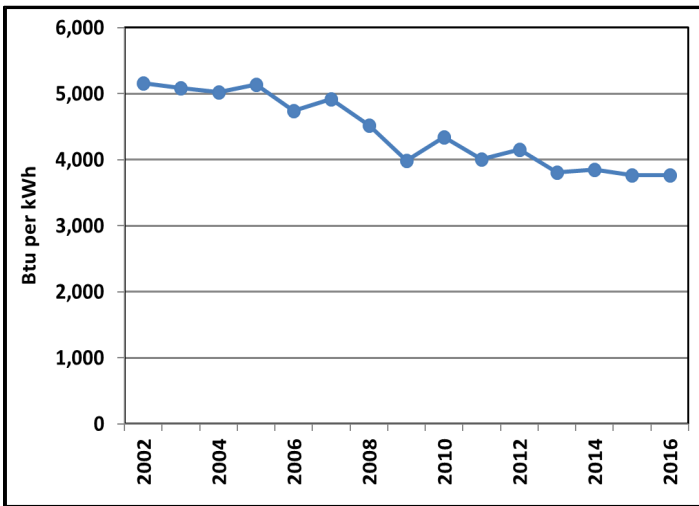
<sup>2</sup> Data for disaggregation prior to 2001 are not available.

<sup>3</sup> Solar powered electric generation is utility-scale solar electric and does not include customer-sited solar electric energy. Estimated customer-sited solar photovoltaic generation for 2016 was 874 GWh (86.2% of total solar) with 547 GWh (62.6%) in the residential sector, 314 GWh (35.9%) in the commercial sector, and 13 GWh (1.5%) in the industrial sector.

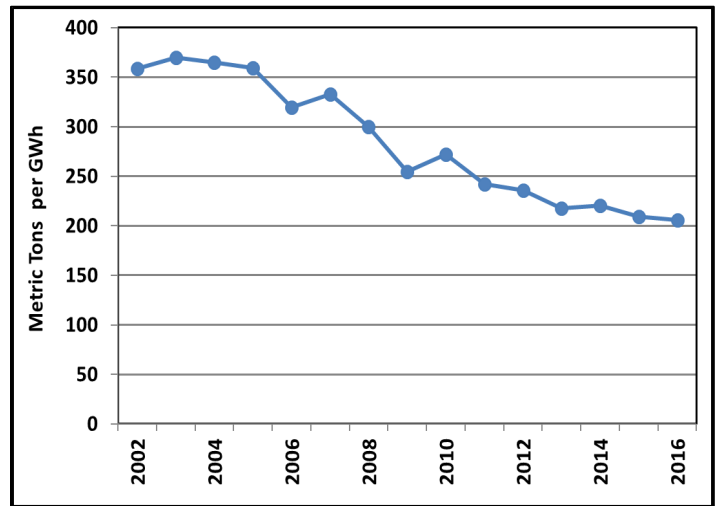


**New York State  
Fossil Fuel<sup>1</sup> for Electric Generation Trends,  
2002–2016**

**Figure 3-6a. Fossil Fuel Used per kWh of in-State Generation**



**Figure 3-6b. Metric Tons Emitted of CO<sub>2</sub> Equivalent per GWh of in-State Generation**



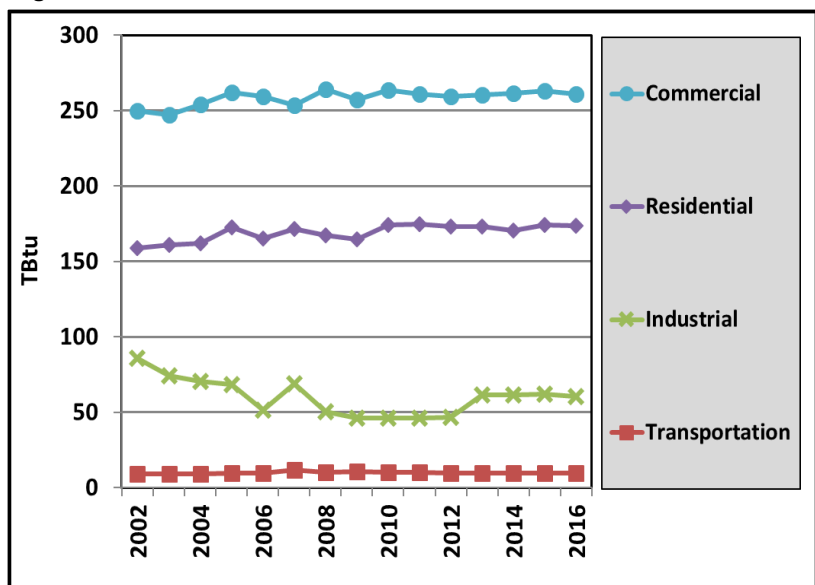
**Table 3-6. Fossil Fuel Use for Electricity Trends**

Year	Total Fossil Fuel Use	Fossil Fuel per kWh of in-State Generation	CO <sub>2e</sub> Emitted per GWh of in-State Generation
	TBtu	Btu	Metric Tons of CO <sub>2e</sub>
2002	730	5,159	358
2003	711	5,082	370
2004	717	5,026	365
2005	766	5,139	359
2006	681	4,741	320
2007	722	4,924	333
2008	641	4,521	300
2009	534	3,991	255
2010	595	4,347	272
2011	554	4,009	242
2012	568	4,153	236
2013	525	3,810	217
2014	531	3,847	221
2015	525	3,769	209
2016	508	3,772	206

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

**New York State  
Sales of Electricity  
to Ultimate Consumers,  
2002–2016**

**Figure 3-7**



**Table 3-7a. (in gigawatt-hours)**

Year	Residential	Commercial	Industrial	Transportation	Total
	GWh	GWh	GWh	GWh	GWh
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
2012	50,692	76,018	13,705	2,748	143,163
2013	50,777	76,342	17,911	2,864	147,895
2014	49,975	76,541	18,003	2,853	147,372
2015	51,013	77,006	18,079	2,816	148,914
2016	50,831	76,507	17,709	2,756	147,803

**Table 3-7b. (in trillion Btu)**

Year	Residential	Commercial	Industrial	Transportation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu
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
2012	173.0	259.4	46.8	9.4	488.5
2013	173.3	260.5	61.1	9.8	504.6
2014	170.5	261.2	61.4	9.7	502.8
2015	174.1	262.7	61.7	9.6	508.1
2016	173.4	261.0	60.4	9.4	504.3

**New York State  
Net Consumption  
of Energy by Sector,  
2002–2016**

Figure 3-8

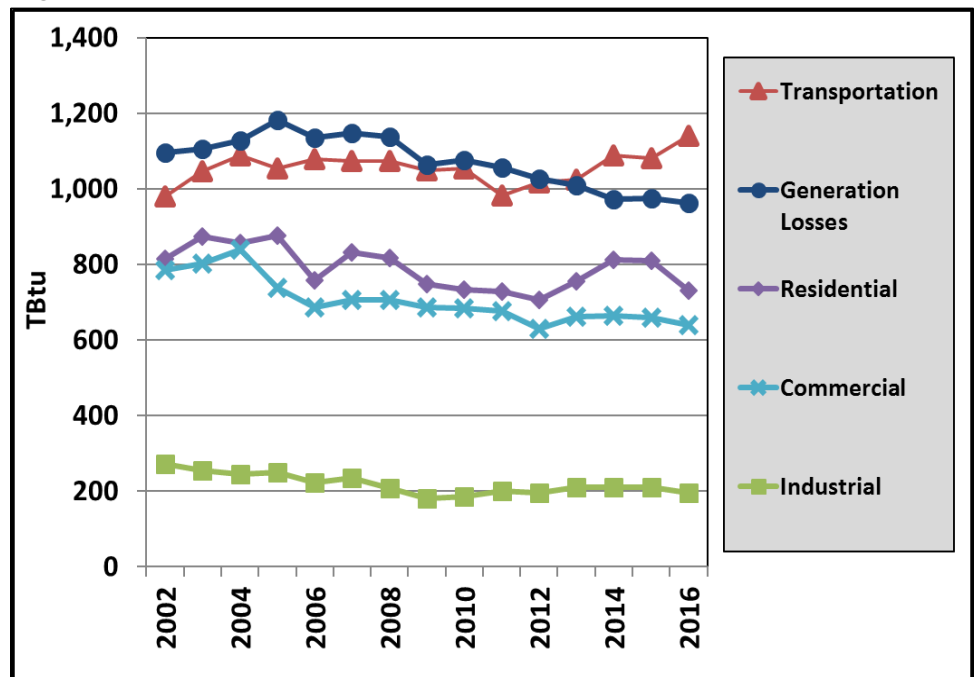


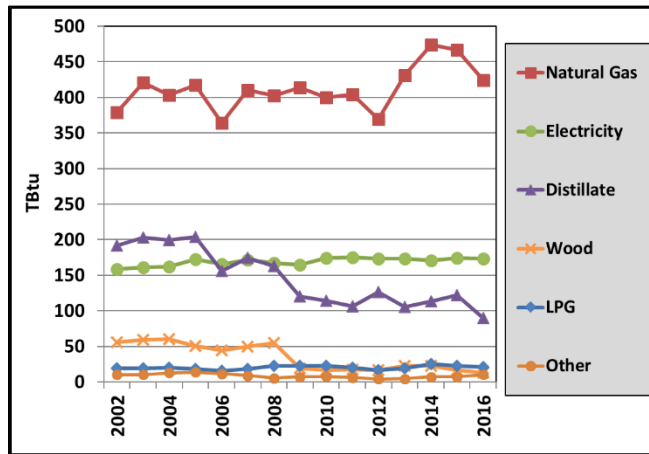
Table 3-8. (in trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Net Consumption	Generation Losses <sup>1</sup>	Primary Consumption
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	813.9	785.0	271.2	980.6	2,850.6	1,094.6	3,945.3
2003	872.7	803.3	253.5	1,045.7	2,975.2	1,104.7	4,079.9
2004	857.3	838.6	244.9	1,088.9	3,029.8	1,127.8	4,157.6
2005	875.2	737.1	248.9	1,053.8	2,915.0	1,180.6	4,095.6
2006	757.3	685.8	221.8	1,078.4	2,743.3	1,134.6	3,877.9
2007	832.1	705.2	234.9	1,072.2	2,844.4	1,147.7	3,992.1
2008	815.7	707.0	208.2	1,072.4	2,803.2	1,137.9	3,941.1
2009	747.5	687.2	180.4	1,048.8	2,663.9	1,064.1	3,727.9
2010	734.2	684.3	186.0	1,053.7	2,658.2	1,076.9	3,735.1
2011	729.1	677.4	201.4	981.2	2,589.1	1,055.0	3,644.1
2012	706.0	629.7	194.5	1,016.6	2,546.8	1,025.8	3,572.5
2013	755.4	660.7	209.9	1,022.9	2,648.9	1,010.0	3,659.0
2014	812.0	663.2	210.6	1,087.3	2,773.1	972.6	3,745.7
2015	809.4	659.9	209.3	1,081.4	2,760.1	973.6	3,733.7
2016	731.6	639.6	196.6	1,140.3	2,708.0	962.2	3,670.2

<sup>1</sup> Conversion and transmission losses.

**New York State  
Net Residential Consumption  
of Energy by Fuel Type  
2002–2016**

**Figure 3-9**



**Table 3-9a. (in physical units)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Kerosene	LPG	Total Petroleum	Wood	Utility-Scale Electricity	Customer-Sited Solar PV
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh
2002	5	370	32,893	1,642	4,987	39,522	2,796	46,457	n.a.
2003	11	410	34,876	1,639	4,933	41,448	2,943	47,116	n.a.
2004	16	393	34,262	2,065	5,119	41,446	3,017	47,379	n.a.
2005	13	406	35,054	2,203	4,661	41,918	2,518	50,533	n.a.
2006	13	356	26,797	1,803	4,155	32,755	2,233	48,427	n.a.
2007	13	400	30,101	1,318	4,771	36,190	2,468	50,241	n.a.
2008	0	394	28,139	661	5,885	34,685	2,762	49,034	n.a.
2009	0	405	20,755	973	5,940	27,668	967	48,246	n.a.
2010	0	390	19,781	999	5,781	26,561	844	50,946	n.a.
2011	0	394	18,454	726	5,146	24,326	864	51,240	n.a.
2012	0	358	21,943	365	4,381	26,689	806	50,692	n.a.
2013	0	416	18,199	394	5,051	23,644	1,113	50,777	n.a.
2014	0	458	19,682	672	6,463	26,817	1,126	49,975	162
2015	0	452	21,140	458	5,849	27,447	836	51,013	319
2016	0	411	15,511	602	5,529	21,642	670	50,831	547

**Table 3-9b. (in trillion Btu)**

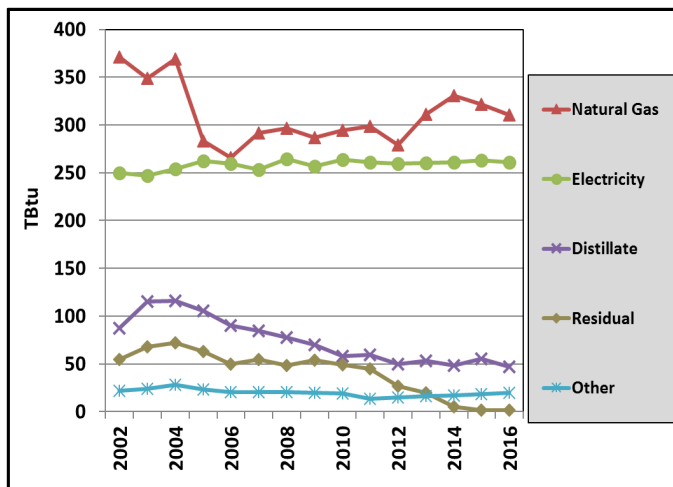
Year	Coal	Natural Gas	Distillate <sup>1</sup>	Kerosene	LPG	Total Petroleum	Wood	Electricity	Solar <sup>2</sup>	Geothermal	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	0.1	378.8	191.4	9.3	19.1	219.8	55.9	158.5	0.5	0.1	813.9
2003	0.3	421.0	202.9	9.3	18.9	231.2	58.9	160.8	0.6	0.1	872.7
2004	0.4	403.5	199.3	11.7	19.6	230.7	60.3	161.7	0.7	0.1	857.3
2005	0.3	416.9	203.9	12.5	17.9	234.3	50.4	172.4	0.8	0.1	875.2
2006	0.3	364.3	155.5	10.2	15.9	181.7	44.7	165.2	1.0	0.1	757.3
2007	0.3	409.9	174.1	7.5	18.3	199.9	49.4	171.4	1.1	0.2	832.1
2008	0.0	402.7	162.6	3.7	22.6	189.0	55.2	167.3	1.3	0.2	815.7
2009	0.0	413.6	120.0	5.5	22.8	148.3	19.3	164.6	1.3	0.2	747.5
2010	0.0	399.7	114.3	5.7	22.2	142.1	16.9	173.8	1.5	0.3	734.2
2011	0.0	404.3	106.6	4.1	19.7	130.4	17.3	174.8	1.6	0.7	729.1
2012	0.0	369.2	126.6	2.1	16.8	145.5	16.1	173.0	1.8	0.4	706.0
2013	0.0	430.8	105.0	2.2	19.4	126.6	22.3	173.3	2.0	0.4	755.4
2014	0.0	473.6	113.5	3.8	24.8	142.1	22.5	170.5	2.8	0.4	812.0
2015	0.0	467.0	121.9	2.6	22.4	147.0	16.7	174.1	4.3	0.4	809.4
2016	0.0	423.9	89.5	3.4	21.2	114.1	13.4	173.4	6.3	0.4	731.6

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

<sup>2</sup> Includes customer-sited solar electric and thermal energy.

**New York State  
Net Commercial Consumption  
of Energy by Fuel Type,  
2002–2016**

**Figure 3-10**



**Table 3-10a. (in physical units)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Total Petroleum	Wood	Utility-Scale Electricity	Customer-Sited Solar PV
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh
2002	40	362	15,032	8,678	493	1,415	25,618	496	73,198	n.a.
2003	73	339	19,782	10,784	665	1,408	32,639	517	72,495	n.a.
2004	145	359	19,907	11,441	745	1,893	33,986	505	74,378	n.a.
2005	147	276	18,086	10,066	759	1,108	30,019	404	76,822	n.a.
2006	127	260	15,602	7,941	354	1,145	25,042	375	76,029	n.a.
2007	119	285	14,606	8,723	244	1,276	24,849	398	74,326	n.a.
2008	68	290	13,447	7,685	128	1,641	22,901	420	77,416	n.a.
2009	22	281	12,062	8,571	169	1,724	22,526	137	75,347	n.a.
2010	3	287	10,050	7,835	154	1,718	19,757	135	77,276	n.a.
2011	4	291	10,310	7,089	168	1,797	19,364	130	76,406	n.a.
2012	0	270	8,602	4,237	60	1,558	14,457	114	76,018	n.a.
2013	0	301	9,223	3,139	28	1,693	14,083	132	76,342	n.a.
2014	0	320	8,434	846	54	1,776	11,110	137	76,541	183
2015	0	311	9,634	312	28	1,892	11,866	144	77,006	259
2016	0	301	8,095	312	57	2,061	10,525	151	76,507	314

**Table 3-10b. (in trillion Btu)**

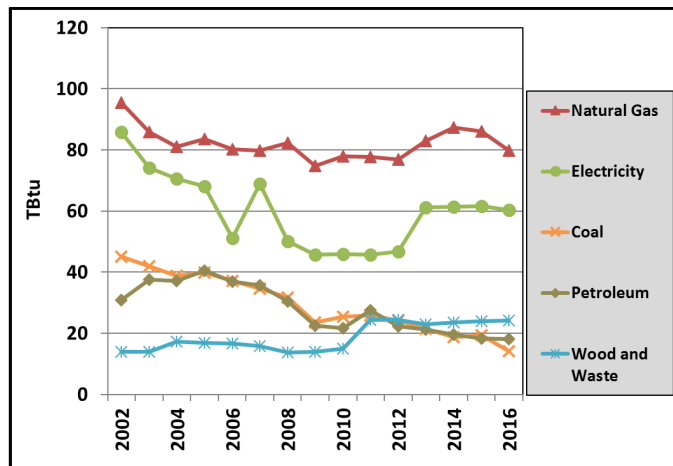
Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Total Petroleum	Wood	Waste	Electricity	Solar <sup>2</sup>	Geothermal	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	1.0	371.3	87.5	54.6	2.8	5.4	150.3	9.9	2.5	249.8	0.0	0.3	785.0
2003	1.8	348.8	115.1	67.8	3.8	5.4	192.1	10.3	2.4	247.4	0.0	0.4	803.3
2004	3.6	368.9	115.8	71.9	4.2	7.3	199.2	10.1	2.5	253.8	0.0	0.4	838.6
2005	3.7	283.0	105.2	63.3	4.3	4.2	177.1	8.1	2.6	262.1	0.0	0.5	737.1
2006	3.2	265.7	90.5	49.9	2.0	4.4	146.9	7.5	2.6	259.4	0.1	0.5	685.8
2007	3.0	291.9	84.5	54.8	1.4	4.9	145.6	8.0	2.5	253.6	0.1	0.6	705.2
2008	1.7	296.4	77.7	48.3	0.7	6.3	133.1	8.4	2.5	264.1	0.1	0.6	707.0
2009	0.6	286.8	69.7	53.9	1.0	6.6	131.2	2.7	2.3	257.1	0.1	0.7	687.2
2010	0.1	294.1	58.1	49.3	0.9	6.6	114.8	2.7	2.3	263.7	0.2	0.8	684.3
2011	0.1	298.9	59.5	44.6	1.0	6.9	111.9	2.6	2.1	260.7	0.4	0.6	677.4
2012	0.0	278.9	49.6	26.6	0.3	6.0	82.6	2.3	4.9	259.4	0.9	0.8	629.7
2013	0.0	311.2	53.2	19.7	0.2	6.5	79.6	2.6	4.9	260.5	1.2	0.8	660.7
2014	0.0	330.9	48.6	5.3	0.3	6.8	61.1	2.7	4.8	261.2	1.7	0.8	663.2
2015	0.0	321.4	55.6	2.0	0.2	7.3	64.9	2.9	4.8	262.7	2.4	0.8	659.9
2016	0.0	310.1	46.7	2.0	0.3	7.9	56.9	3.0	4.9	261.0	2.9	0.8	639.6

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

<sup>2</sup> Includes customer-sited solar electric and thermal energy.

**New York State  
Net Industrial Consumption  
of Energy by Fuel Type,  
2002–2016**

**Figure 3-11**



**Table 3-11a. (in physical units)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Total Petroleum	Wood	Utility-Scale Electricity	Customer-Sited Solar PV
	MTons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh
2002	1,708	93	2,889	1,362	238	1,145	5,634	676	25,148	n.a.
2003	1,583	84	3,050	1,584	891	1,375	6,900	669	21,745	n.a.
2004	1,472	79	3,481	1,483	372	1,561	6,897	837	20,675	n.a.
2005	1,510	81	3,371	1,337	670	2,417	7,795	822	19,947	n.a.
2006	1,422	78	3,463	1,301	422	1,754	6,940	771	14,976	n.a.
2007	1,313	78	3,625	1,461	215	1,243	6,544	735	20,213	n.a.
2008	1,205	81	3,409	1,247	41	753	5,450	613	14,685	n.a.
2009	902	73	2,931	485	76	583	4,075	578	13,417	n.a.
2010	979	76	2,274	514	548	582	3,918	818	13,480	n.a.
2011	1,008	76	2,809	1,244	164	686	4,903	925	13,420	n.a.
2012	909	75	2,502	578	144	865	4,089	953	13,705	n.a.
2013	816	80	2,274	711	84	854	3,923	939	17,911	n.a.
2014	714	85	2,001	552	153	940	3,646	929	18,003	5
2015	723	83	2,031	431	127	819	3,408	926	18,079	10
2016	521	77	1,872	457	176	878	3,383	936	17,709	13

**Table 3-11b. (in trillion Btu)**

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Residual	Kerosene	LPG	Total Petroleum	Wood	Waste	Electricity	Solar <sup>2</sup>	Total <sup>3,4</sup>
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	45.2	95.4	16.8	8.6	1.4	4.1	30.8	13.5	0.5	85.8	0.0	271.2
2003	41.9	85.8	17.7	10.0	5.0	4.9	37.6	13.4	0.5	74.2	0.0	253.5
2004	38.9	81.1	20.3	9.3	2.1	5.5	37.2	16.7	0.5	70.5	0.0	244.9
2005	39.9	83.6	19.6	8.4	3.8	8.6	40.4	16.4	0.5	68.1	0.0	248.9
2006	37.1	80.2	20.1	8.2	2.4	6.2	36.9	15.4	1.2	51.1	0.0	221.8
2007	34.6	79.8	21.0	9.2	1.2	4.4	35.8	14.7	1.3	69.0	0.0	234.9
2008	31.6	82.4	19.7	7.8	0.2	2.6	30.4	12.3	1.3	50.1	0.0	208.2
2009	23.6	74.8	16.9	3.0	0.4	2.0	22.4	11.6	1.5	45.8	0.0	180.4
2010	25.4	77.8	13.1	3.2	3.1	2.2	21.7	16.4	1.5	46.0	0.0	186.0
2011	25.9	77.7	16.2	7.8	0.9	2.6	27.6	18.5	5.9	45.8	0.0	201.4
2012	24.2	77.0	14.4	3.6	0.8	3.3	22.2	19.1	5.3	46.8	0.0	194.5
2013	21.6	82.9	13.1	4.5	0.5	3.3	21.3	18.8	4.2	61.1	0.0	209.9
2014	18.7	87.4	11.5	3.5	0.9	3.6	19.5	18.6	5.0	61.4	0.0	210.6
2015	19.3	86.1	11.7	2.7	0.7	3.1	18.3	18.5	5.4	61.7	0.1	209.3
2016	14.0	79.8	10.8	2.9	1.0	3.4	18.0	18.7	5.4	60.4	0.1	196.6

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

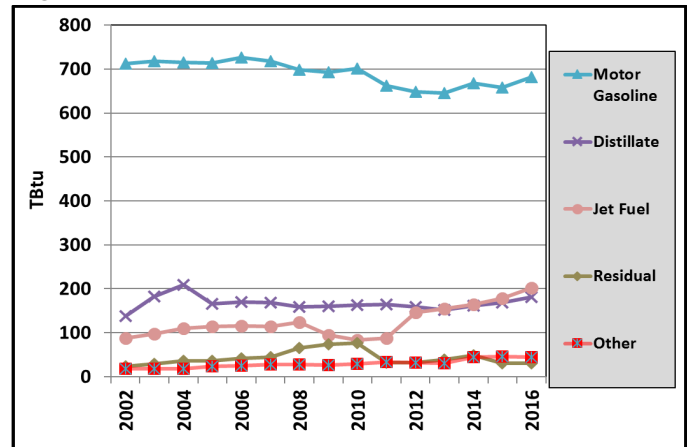
<sup>2</sup> Includes customer-sited solar electric and thermal energy.

<sup>3</sup> Excludes nonfuel uses (e.g., feedstock).

<sup>4</sup> Includes fuels used by industry to generate electricity and process steam.

**New York State  
Net Transportation Consumption  
of Energy by Fuel Type,  
2002–2016**

**Figure 3-12**



**Table 3-12a. (in physical units)**

Year	Natural Gas	Distillate <sup>1</sup>	Residual	Motor Gasoline	Jet Fuel <sup>2</sup>	LPG	Total Petroleum	Ethanol	Electricity
	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	GWh
2002	9	23,641	3,826	136,664	15,603	66	179,705	95	2,637
2003	8	31,431	4,583	138,010	17,286	55	190,816	549	2,689
2004	9	35,910	5,823	137,391	19,526	66	191,692	7,024	2,650
2005	13	28,545	5,684	137,355	20,291	75	189,628	2,322	2,846
2006	14	29,388	6,530	140,020	20,366	99	190,346	6,057	2,806
2007	16	29,146	7,063	139,140	20,162	56	187,952	7,615	3,397
2008	16	27,485	10,336	136,105	21,812	257	186,029	9,966	2,918
2009	15	27,670	11,743	135,921	16,790	97	180,198	12,023	3,025
2010	19	28,245	12,094	138,087	14,808	57	179,803	13,488	2,922
2011	23	28,534	5,158	130,718	15,497	59	167,208	12,758	2,981
2012	21	27,591	4,988	127,902	25,864	66	173,771	12,640	2,748
2013	20	26,395	6,300	127,461	27,337	59	174,793	12,759	2,864
2014	33	28,052	7,770	131,943	29,033	50	183,646	13,202	2,853
2015	35	29,331	4,897	129,909	31,407	49	182,719	12,874	2,816
2016	34	31,420	4,965	134,799	35,550	49	193,350	13,433	2,756

**Table 3-12b. (in trillion Btu)**

Year	Natural Gas	Distillate <sup>1</sup>	Residual	Motor Gasoline	Jet Fuel <sup>2</sup>	LPG	Total Petroleum	Ethanol <sup>3</sup>	Electricity	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2002	9.2	137.6	24.1	712.2	88.4	0.3	962.1	0.3	9.0	980.6
2003	8.6	182.9	28.8	718.1	98.0	0.2	1,026.1	1.9	9.2	1,045.7
2004	8.9	208.9	36.6	714.6	110.6	0.3	1,046.6	24.4	9.0	1,088.9
2005	13.1	166.1	35.7	714.0	114.9	0.3	1,022.9	8.1	9.7	1,053.8
2006	14.5	170.5	41.1	726.8	115.5	0.4	1,033.3	21.0	9.6	1,078.4
2007	16.0	168.6	44.4	717.3	114.2	0.2	1,018.3	26.4	11.6	1,072.2
2008	16.3	158.9	65.0	697.7	123.6	1.0	1,011.5	34.6	10.0	1,072.4
2009	15.8	160.0	73.8	693.3	95.2	0.4	981.1	41.6	10.3	1,048.8
2010	19.2	163.2	76.0	701.2	83.9	0.2	977.8	46.8	10.0	1,053.7
2011	23.3	164.8	32.4	662.5	87.8	0.2	903.5	44.2	10.2	981.2
2012	22.2	159.2	31.4	647.6	146.6	0.3	941.2	43.8	9.4	1,016.6
2013	20.8	152.3	39.6	645.2	155.0	0.2	948.0	44.3	9.8	1,022.9
2014	34.5	161.8	48.8	667.6	164.6	0.2	997.2	45.8	9.7	1,087.3
2015	36.2	169.2	30.8	657.3	178.0	0.2	990.8	44.7	9.6	1,081.4
2016	34.8	181.2	31.2	681.9	201.5	0.2	1,049.4	46.6	9.4	1,140.3

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

<sup>2</sup> Consists of aviation gasoline and kerosene-type jet fuel.

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

## 4 New York Energy Prices

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This section presents data on retail energy prices for the 15-year period from 2002 through 2016. Energy prices are provided by fuel type in nominal dollars per physical unit and per MMBtu 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 2016 (real) dollars. To convert energy prices from nominal to constant 2016 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 DOE's Energy Information Administration.

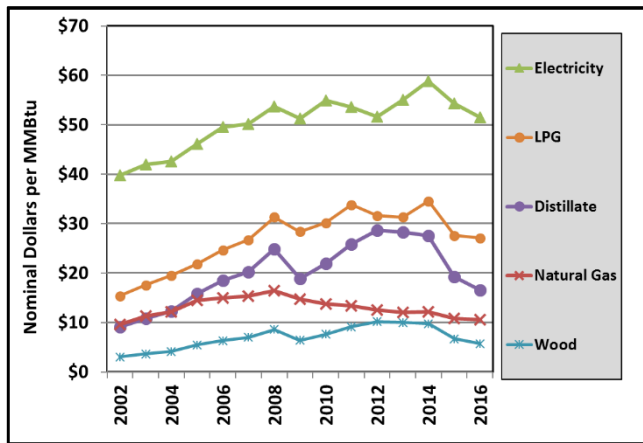
### 4.1 Key Observations about 2016 New York State Energy Price Data

- Residential sector statewide average nominal fuel prices:
  - Home heating oil prices decreased by 14.1% from an average \$2.65 per gallon in 2015 to \$2.27 per gallon in 2016.
  - Natural gas prices decreased by 3.1% from an average \$11.20 per thousand cubic feet in 2015 to \$10.85 per thousand cubic feet in 2016.
  - Electricity prices decreased by 5.2% from 18.5¢ per kWh in 2015 to 17.6¢ in 2016.
- Commercial sector statewide average nominal fuel prices:
  - Distillate fuel prices averaged \$1.57 per gallon in 2016, which was a 21.0% decrease from 2015 prices.
  - Residual oil prices averaged \$38.35 per barrel in 2016, which was a 22.1% decrease from 2015 prices.
  - Electricity prices averaged 14.4¢ per kWh, which was a 5.6% decrease from 2015 prices.
  - Natural gas prices averaged \$6.18 per thousand cubic feet, which was a 9.9% decrease from 2015 prices.
- Industrial sector statewide average nominal fuel prices:
  - Residual oil prices averaged \$38.35 per barrel in 2016, which was a 22.1% decrease from 2015 prices.
  - Natural gas prices averaged \$5.92 per thousand cubic feet, which was a 10.5% decrease from 2015 prices.
  - Electricity prices averaged 6.0¢ per kWh, which was a 4.4% decrease from 2015 prices.
- The average retail price for all grades of gasoline was \$2.18 per gallon, down \$0.28 per gallon (11.5%) from the average price in 2015.



**New York State  
Residential Energy Prices  
in Nominal Dollars,  
2002–2016**

**Figure 4-1**



**Table 4-1a. (in physical units)**

Year	Coal	Distillate <sup>1</sup>	Kerosene	Propane	Natural Gas	Electricity	Wood	GDP Deflator <sup>2</sup>
	\$/Ton	Cents/Gal.	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	\$/Cord	2016=1
2002	91.09	126.63	106.92	132.22	9.85	13.55	60.60	0.750
2003	86.19	149.49	134.60	151.73	11.60	14.31	72.80	0.767
2004	89.97	169.55	162.14	168.06	12.50	14.54	82.80	0.787
2005	129.55	219.14	214.92	188.07	14.89	15.72	109.60	0.814
2006	118.33	255.61	260.15	211.43	15.35	16.89	126.20	0.840
2007	118.61	278.05	289.85	244.32	15.73	17.10	139.40	0.864
2008	N/A	342.53	365.31	286.15	16.78	18.31	171.80	0.897
2009	N/A	260.42	281.21	259.39	15.05	17.50	128.00	0.894
2010	N/A	301.01	320.90	275.10	14.04	18.74	152.20	0.909
2011	N/A	355.09	379.76	308.89	13.71	18.26	183.00	0.937
2012	N/A	394.42	399.87	288.43	12.96	17.62	203.60	0.957
2013	N/A	388.37	400.68	285.78	12.49	18.79	199.40	0.971
2014	N/A	378.96	402.84	315.37	12.53	20.07	194.40	0.986
2015	N/A	264.60	224.78	251.81	11.20	18.54	134.00	0.988
2016	N/A	227.23	179.15	247.33	10.85	17.58	114.40	1.000

**Table 4-1b. (in \$/million Btu)**

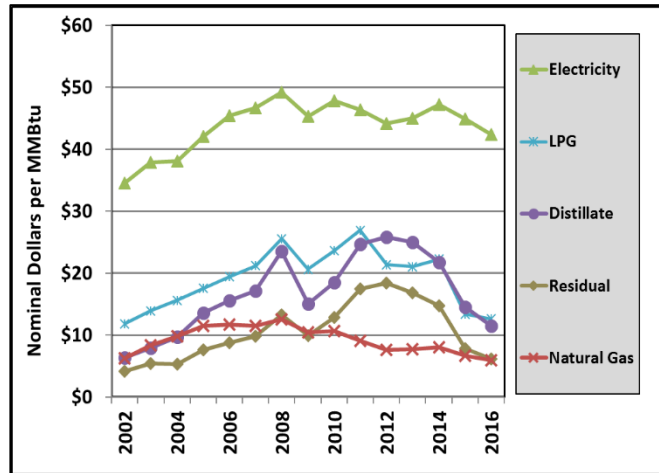
Year	Coal	Distillate <sup>1</sup>	Kerosene	Propane	Natural Gas	Electricity	Wood	GDP Deflator <sup>2</sup>
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2016=1
2002	3.63	9.14	7.92	15.37	9.61	39.71	3.03	0.750
2003	3.42	10.79	9.97	17.56	11.28	41.94	3.64	0.767
2004	3.60	12.24	12.01	19.51	12.17	42.62	4.14	0.787
2005	5.18	15.82	15.92	21.82	14.51	46.08	5.48	0.814
2006	4.76	18.50	19.27	24.64	15.02	49.51	6.31	0.840
2007	4.76	20.19	21.47	26.75	15.36	50.11	6.97	0.864
2008	N/A	24.89	27.06	31.33	16.42	53.66	8.59	0.897
2009	N/A	18.92	20.83	28.40	14.73	51.29	6.40	0.894
2010	N/A	21.88	23.77	30.12	13.72	54.93	7.61	0.909
2011	N/A	25.82	28.13	33.82	13.35	53.52	9.15	0.937
2012	N/A	28.69	29.62	31.58	12.56	51.63	10.18	0.957
2013	N/A	28.25	29.68	31.29	12.07	55.08	9.97	0.971
2014	N/A	27.57	29.84	34.53	12.13	58.83	9.72	0.986
2015	N/A	19.26	16.65	27.57	10.84	54.33	6.70	0.988
2016	N/A	16.54	13.27	27.08	10.51	51.51	5.72	1.000

<sup>1</sup> Home heating oil.

<sup>2</sup> To convert prices to 2016 dollars, divide the selected price by the deflator factor in the same row.

**New York State  
Commercial Energy Prices  
in Nominal Dollars,  
2002–2016**

**Figure 4-2**



**Table 4-2a. (in physical units)**

Year	Coal	Distillate <sup>1</sup>	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator <sup>2</sup>
	\$/Ton	Cents/Gal.	\$/bbl	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	2016=1
2002	45.11	88.39	25.90	106.92	101.68	6.42	11.79	0.750
2003	41.35	109.87	34.20	134.60	120.53	8.60	12.93	0.767
2004	43.94	134.78	33.70	162.14	134.47	10.11	12.98	0.787
2005	48.87	188.53	47.59	214.92	151.09	11.80	14.36	0.814
2006	67.67	215.40	55.26	260.15	166.73	11.91	15.51	0.840
2007	64.85	236.32	61.74	289.85	193.44	11.82	15.92	0.864
2008	105.50	324.51	83.43	365.31	233.36	12.87	16.79	0.897
2009	136.28	206.74	62.49	281.21	188.33	10.72	15.48	0.894
2010	138.86	254.51	81.10	320.90	215.73	10.87	16.31	0.909
2011	135.81	340.10	109.46	379.76	245.96	9.33	15.81	0.937
2012	N/A	354.55	115.43	399.87	195.09	7.84	15.06	0.957
2013	N/A	344.10	105.87	400.68	192.17	8.00	15.35	0.971
2014	N/A	299.51	92.73	402.84	203.22	8.31	16.12	0.986
2015	N/A	199.07	49.23	224.78	122.48	6.86	15.31	0.988
2016	N/A	157.30	38.35	179.15	115.17	6.18	14.45	1.000

**Table 4-2b. (in \$/million Btu)**

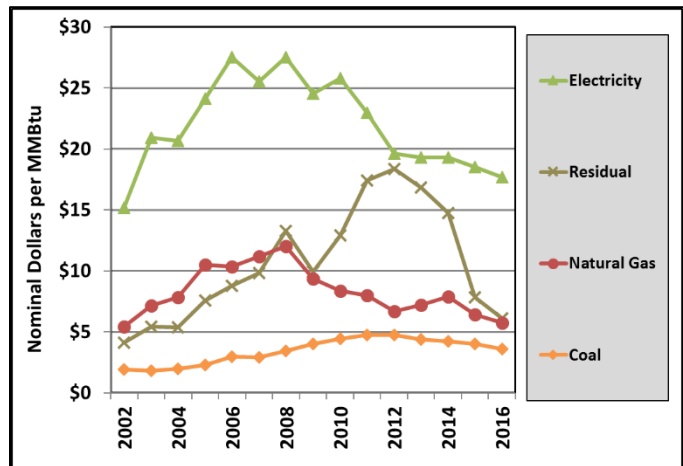
Year	Coal	Distillate <sup>1</sup>	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator <sup>2</sup>
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2016=1
2002	1.92	6.38	4.12	7.92	11.82	6.26	34.55	0.750
2003	1.76	7.93	5.44	9.97	13.95	8.37	37.89	0.767
2004	1.87	9.73	5.36	12.01	15.61	9.84	38.04	0.787
2005	2.08	13.61	7.57	15.92	17.53	11.50	42.08	0.814
2006	2.88	15.59	8.79	19.27	19.43	11.65	45.46	0.840
2007	2.76	17.16	9.82	21.47	21.18	11.54	46.65	0.864
2008	4.49	23.58	13.27	27.06	25.55	12.59	49.22	0.897
2009	5.80	15.02	9.94	20.83	20.62	10.49	45.36	0.894
2010	5.91	18.50	12.90	23.77	23.62	10.63	47.79	0.909
2011	5.78	24.73	17.41	28.13	26.93	9.08	46.33	0.937
2012	N/A	25.79	18.36	29.62	21.36	7.60	44.13	0.957
2013	N/A	25.03	16.84	29.68	21.04	7.73	45.00	0.971
2014	N/A	21.79	14.75	29.84	22.25	8.04	47.25	0.986
2015	N/A	14.49	7.83	16.65	13.41	6.64	44.86	0.988
2016	N/A	11.45	6.10	13.27	12.61	5.99	42.35	1.000

<sup>1</sup> Home heating oil.

<sup>2</sup> To convert prices to 2016 dollars, divide the selected price by the deflator factor in the same row.

**New York State  
Industrial Energy Prices  
in Nominal Dollars,  
2002–2016**

**Figure 4-3**



**Table 4-3a. (in physical units)**

Year	Coal	Distillate <sup>1</sup>	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator <sup>2</sup>
	\$/Ton	Cents/Gal.	\$/bbl	Cents/Gal.	Cents/Gal.	\$/Mcf	Cents/kWh	2016=1
2002	51.26	88.53	25.90	81.41	105.90	5.54	5.18	0.750
2003	48.42	107.93	34.20	109.76	130.56	7.35	7.14	0.767
2004	52.50	127.44	33.70	137.97	147.39	8.05	7.04	0.787
2005	59.97	190.19	47.59	181.85	160.92	10.75	8.23	0.814
2006	77.95	218.86	55.26	213.17	177.71	10.56	9.39	0.840
2007	76.91	238.52	61.74	243.27	220.66	11.43	8.71	0.864
2008	90.61	327.12	83.43	306.86	264.41	12.30	9.39	0.897
2009	105.75	197.66	62.49	204.39	217.46	9.53	8.37	0.894
2010	116.04	263.59	81.10	251.24	225.50	8.54	8.79	0.909
2011	123.02	324.56	109.46	331.56	260.39	8.19	7.83	0.937
2012	133.00	342.04	115.43	346.55	200.75	6.91	6.69	0.957
2013	120.89	332.42	105.87	351.41	197.28	7.44	6.59	0.971
2014	117.10	312.98	92.73	332.64	210.25	8.13	6.58	0.986
2015	110.68	206.62	49.23	194.54	115.72	6.62	6.31	0.988
2016	100.05	154.69	38.35	152.28	107.13	5.92	6.03	1.000

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

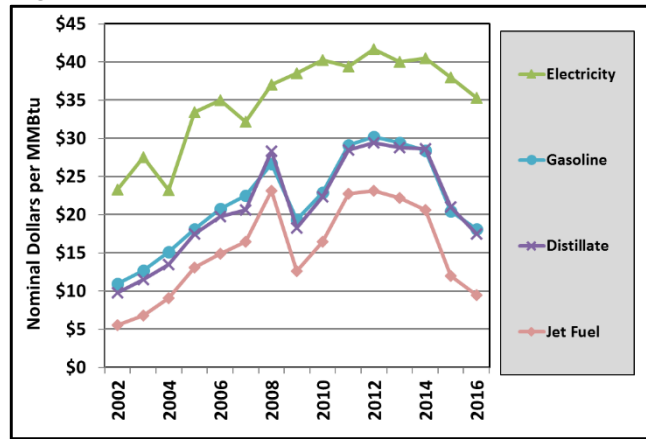
Year	Coal	Distillate <sup>1</sup>	Residual	Kerosene	Propane	Natural Gas	Electricity	GDP Deflator <sup>2</sup>
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2016=1
2002	1.92	6.39	4.12	6.03	12.31	5.40	15.17	0.750
2003	1.81	7.79	5.44	8.13	15.11	7.15	20.92	0.767
2004	1.96	9.20	5.36	10.22	17.11	7.84	20.63	0.787
2005	2.27	13.73	7.57	13.47	18.67	10.48	24.11	0.814
2006	2.97	15.84	8.79	15.79	20.71	10.33	27.53	0.840
2007	2.91	17.32	9.82	18.02	24.16	11.16	25.53	0.864
2008	3.44	23.77	13.27	22.73	28.95	12.04	27.53	0.897
2009	4.01	14.36	9.94	15.14	23.81	9.32	24.54	0.894
2010	4.44	19.16	12.90	18.61	24.69	8.35	25.76	0.909
2011	4.74	23.60	17.41	24.56	28.51	7.97	22.96	0.937
2012	4.73	24.88	18.36	25.67	21.98	6.70	19.62	0.957
2013	4.37	24.18	16.84	26.03	21.60	7.19	19.30	0.971
2014	4.24	22.77	14.75	24.64	23.02	7.87	19.28	0.986
2015	4.02	15.04	7.83	14.41	12.67	6.41	18.49	0.988
2016	3.60	11.26	6.10	11.28	11.73	5.74	17.67	1.000

<sup>1</sup> Home heating oil.

<sup>2</sup> To convert prices to 2016 dollars, divide the selected price by the deflator factor in the same row.

**New York State  
Transportation Energy Prices  
in Nominal Dollars,  
2002–2016**

**Figure 4-4**



**Table 4-4a. (in physical units)**

Year	Motor Gasoline	Distillate <sup>1</sup>	Jet Fuel <sup>2</sup>	Residual <sup>3</sup>	Electricity <sup>4</sup>	GDP Deflator <sup>5</sup>
	Cents/Gal.	Cents/Gal.	Cents/Gal.	\$/bbl	Cents/kWh	2016=1
2002	135.49	135.92	74.79	21.82	7.95	0.750
2003	156.96	159.19	91.26	28.48	9.38	0.767
2004	187.36	186.73	122.31	29.61	7.92	0.787
2005	224.38	242.14	176.85	42.63	11.40	0.814
2006	256.71	273.29	201.02	49.10	11.94	0.840
2007	276.04	284.38	222.21	49.35	10.97	0.864
2008	325.62	389.19	312.26	75.95	12.64	0.897
2009	235.25	251.34	170.64	51.80	13.13	0.894
2010	277.23	307.06	221.81	68.28	13.74	0.909
2011	351.50	391.94	307.40	93.11	13.45	0.937
2012	363.93	404.59	312.66	96.82	14.20	0.957
2013	354.58	395.93	299.03	97.57	13.65	0.971
2014	341.67	393.66	278.24	82.93	13.82	0.986
2015	246.49	288.77	161.87	46.90	12.96	0.988
2016	218.14	240.55	128.12	35.21	12.05	1.000

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

Year	Motor Gasoline	Distillate <sup>1</sup>	Jet Fuel <sup>2</sup>	Residual <sup>3</sup>	Electricity <sup>4</sup>	GDP Deflator <sup>5</sup>
	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	\$/MMBtu	2016=1
2002	10.92	9.81	5.54	3.47	23.29	0.750
2003	12.67	11.49	6.76	4.53	27.49	0.767
2004	15.13	13.48	9.06	4.71	23.21	0.787
2005	18.13	17.48	13.10	6.78	33.40	0.814
2006	20.77	19.78	14.89	7.81	34.98	0.840
2007	22.49	20.65	16.46	7.85	32.14	0.864
2008	26.68	28.28	23.13	12.08	37.05	0.897
2009	19.37	18.26	12.64	8.24	38.49	0.894
2010	22.93	22.32	16.43	10.86	40.28	0.909
2011	29.13	28.50	22.77	14.81	39.41	0.937
2012	30.19	29.43	23.16	15.40	41.63	0.957
2013	29.42	28.80	22.15	15.52	40.01	0.971
2014	28.36	28.64	20.61	13.19	40.49	0.986
2015	20.46	21.02	11.99	7.46	37.97	0.988
2016	18.11	17.51	9.49	5.60	35.33	1.000

<sup>1</sup> Diesel

<sup>2</sup> Kerosene-based

<sup>3</sup> Bunker fuel

<sup>4</sup> Railroad use

<sup>5</sup> To convert prices to 2016 dollars, divide the selected price by the deflator factor in the same row.

## 5 New York State Energy Expenditures

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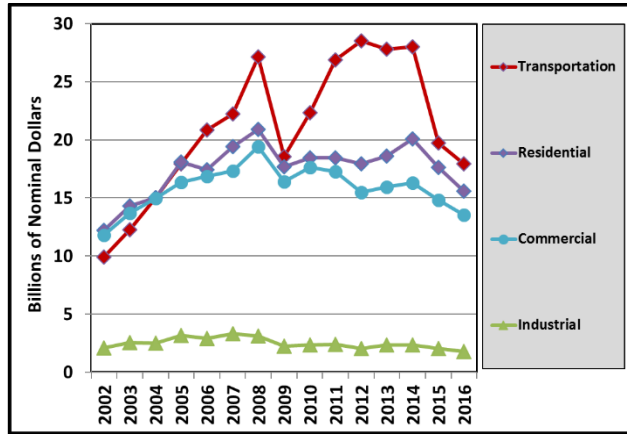
This section presents the estimated costs of net energy consumed by sector and fuel type in nominal and constant 2016 dollars for the following selected years: 2002, 2007, and 2012 through 2016. Estimated costs were derived by multiplying quantities of fuels consumed, in TBtu, by their respective prices. Out-of-State energy expenditure estimates by fuel type are provided for 2002 through 2016 in both nominal and constant 2016 dollars.

### 5.1 Key Observations about 2016 New York State Energy Expenditures Data

- Cumulative heating degree-days were 9.0% lower in 2016 compared to 2015.
- In nominal dollars, the State's 2016 estimated energy bill of \$48.8 billion decreased 10.0% from 2015, but it is 35.4% more than the \$36.1 billion spent in 2002.
- In constant 2016 dollars, the State's estimated energy bill decreased \$6.1 billion (11.1%) from 2015 and was \$0.7 billion (1.5%) greater than in 2002.
- State residents spent \$15.6 billion for household energy, which was a 11.8% decrease from the 2015 level in nominal dollars and 12.9% lower in constant 2016 dollars.
- The total commercial customer energy bill was \$13.6 billion, which was 8.6% lower than 2015 in nominal dollars and 9.7% lower in constant 2016 dollars.
- Industrial customers paid \$1.8 billion for energy, which was a 12.4% decrease from 2015 levels in nominal dollars and 13.5% lower in constant 2016 dollars.
- The annual energy bill for transporting people and goods was \$17.9 billion, a 9.1% decrease from 2015 levels in nominal dollars and 10.2% lower in constant 2016 dollars.
- From 2015 to 2016, statewide expenditures decreased 12.7% for petroleum, 6.0% for electricity and 12.6% for natural gas in nominal dollars.
- In nominal dollars, the 2016 out-of-State estimated energy bill of \$22.3 billion decreased 12.2% from 2015, and the estimate is 35.3% more than the \$16.5 billion spent in 2002.
- In constant 2016 dollars, the out-of-State estimated energy bill decreased \$3.4 billion (13.3%) from 2015 and was \$0.3 billion (1.4%) greater than in 2002.

**New York State  
Energy Expenditure Estimates  
by Fuel Type and Sector  
in Nominal Dollars,  
2002–2016**

**Figure 5-1**

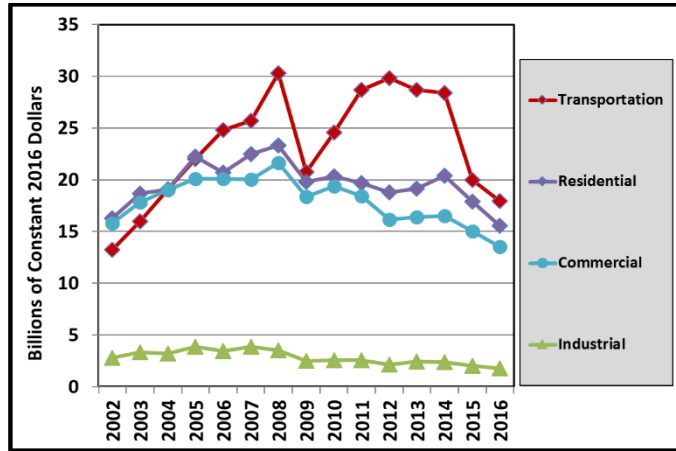


**Table 5-1. (in million dollars)**

	2002	2007	2012	2013	2014	2015	2016
<b>Residential</b>							
Coal	\$0.5	\$1.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Petroleum	\$2,117.2	\$4,165.2	\$4,225.1	\$3,638.5	\$4,099.6	\$3,010.4	\$2,099.2
Distillate	\$1,749.4	\$3,515.2	\$3,633.0	\$2,965.9	\$3,129.9	\$2,348.5	\$1,479.5
Kerosene	\$73.8	\$160.4	\$61.4	\$66.4	\$113.6	\$43.2	\$45.3
LPG	\$294.0	\$489.6	\$530.7	\$606.2	\$856.1	\$618.6	\$574.4
Natural Gas	\$3,640.4	\$6,295.4	\$4,637.7	\$5,199.9	\$5,745.0	\$5,062.2	\$4,455.0
Electricity	\$6,294.5	\$8,590.1	\$8,929.9	\$9,542.7	\$10,031.3	\$9,456.4	\$8,933.7
Wood	\$169.5	\$344.1	\$164.1	\$221.9	\$219.0	\$112.0	\$76.7
<b>Total</b>	<b>\$12,222.0</b>	<b>\$19,396.3</b>	<b>\$17,956.8</b>	<b>\$18,603.1</b>	<b>\$20,095.0</b>	<b>\$17,641.0</b>	<b>\$15,564.6</b>
<b>Commercial</b>							
Coal	\$1.9	\$8.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Petroleum	\$869.1	\$2,121.6	\$1,907.0	\$1,805.5	\$1,299.2	\$920.5	\$650.5
Distillate	\$558.1	\$1,449.7	\$1,280.3	\$1,331.8	\$1,060.0	\$805.2	\$534.5
Residual	\$224.8	\$538.5	\$489.0	\$332.3	\$78.5	\$15.4	\$12.0
Kerosene	\$22.2	\$29.8	\$10.0	\$4.7	\$9.1	\$2.6	\$4.3
LPG	\$64.1	\$103.7	\$127.6	\$136.7	\$151.6	\$97.3	\$99.7
Natural Gas	\$2,324.1	\$3,368.1	\$2,120.0	\$2,405.7	\$2,660.1	\$2,134.2	\$1,857.7
Electricity	\$8,628.9	\$11,830.5	\$11,446.1	\$11,721.6	\$12,339.7	\$11,786.7	\$11,055.1
<b>Total</b>	<b>\$11,824.1</b>	<b>\$17,328.4</b>	<b>\$15,473.1</b>	<b>\$15,932.8</b>	<b>\$16,299.0</b>	<b>\$14,841.3</b>	<b>\$13,563.3</b>
<b>Industrial</b>							
Coal	\$86.7	\$100.6	\$114.3	\$94.2	\$79.3	\$77.5	\$50.6
Petroleum	\$200.9	\$581.1	\$519.9	\$475.6	\$418.4	\$247.5	\$189.9
Distillate	\$107.4	\$363.1	\$359.2	\$317.2	\$262.8	\$176.2	\$121.6
Residual	\$35.3	\$90.2	\$66.7	\$75.3	\$51.2	\$21.2	\$17.5
Kerosene	\$8.1	\$22.0	\$21.0	\$12.4	\$21.4	\$10.4	\$11.3
LPG	\$50.0	\$105.8	\$73.0	\$70.7	\$83.0	\$39.8	\$39.5
Natural Gas	\$515.4	\$890.6	\$515.6	\$596.3	\$687.9	\$551.7	\$458.2
Electricity	\$1,301.7	\$1,760.7	\$917.5	\$1,179.5	\$1,184.3	\$1,140.6	\$1,067.7
<b>Total</b>	<b>\$2,104.6</b>	<b>\$3,332.9</b>	<b>\$2,067.4</b>	<b>\$2,345.6</b>	<b>\$2,369.9</b>	<b>\$2,017.3</b>	<b>\$1,766.3</b>
<b>Transportation</b>							
Petroleum	\$9,702.3	\$21,846.1	\$28,120.4	\$27,419.8	\$27,608.8	\$19,371.9	\$17,612.3
Distillate	\$1,349.5	\$3,481.2	\$4,686.1	\$4,385.4	\$4,634.1	\$3,556.1	\$3,172.8
Residual	\$83.5	\$348.6	\$482.9	\$614.7	\$644.3	\$229.7	\$174.8
Motor Gasoline	\$7,776.7	\$16,131.4	\$19,550.0	\$18,982.0	\$18,934.0	\$13,449.2	\$12,350.1
Jet Fuel	\$489.5	\$1,879.8	\$3,395.8	\$3,432.7	\$3,391.9	\$2,134.6	\$1,912.5
LPG	\$3.1	\$5.1	\$5.6	\$4.9	\$4.4	\$2.4	\$2.2
Electricity	\$209.5	\$372.6	\$390.3	\$391.1	\$394.2	\$364.8	\$332.2
<b>Total</b>	<b>\$9,911.9</b>	<b>\$22,218.7</b>	<b>\$28,510.7</b>	<b>\$27,810.8</b>	<b>\$28,003.0</b>	<b>\$19,736.7</b>	<b>\$17,944.5</b>
<b>Total</b>							
Coal	\$89.1	\$110.4	\$114.3	\$94.2	\$79.3	\$77.5	\$50.6
Petroleum	\$12,889.5	\$28,714.0	\$34,772.4	\$33,339.4	\$33,426.0	\$23,550.3	\$20,551.9
Distillate	\$3,764.4	\$8,809.2	\$9,958.7	\$9,000.3	\$9,086.9	\$6,886.0	\$5,308.4
Residual	\$343.5	\$977.3	\$1,038.7	\$1,022.3	\$774.0	\$266.2	\$204.3
Motor Gasoline	\$7,776.7	\$16,131.4	\$19,550.0	\$18,982.0	\$18,934.0	\$13,449.2	\$12,350.1
Kerosene	\$104.0	\$212.1	\$92.4	\$83.5	\$144.1	\$56.2	\$60.9
Jet Fuel	\$489.5	\$1,879.8	\$3,395.8	\$3,432.7	\$3,391.9	\$2,134.6	\$1,912.5
LPG	\$411.3	\$704.2	\$736.8	\$818.6	\$1,095.1	\$758.1	\$715.7
Natural Gas	\$6,479.9	\$10,554.1	\$7,273.3	\$8,201.9	\$9,093.0	\$7,748.1	\$6,770.9
Electricity	\$16,434.6	\$22,553.8	\$21,683.8	\$22,834.8	\$23,949.5	\$22,748.4	\$21,388.7
Wood	\$169.5	\$344.1	\$164.1	\$221.9	\$219.0	\$112.0	\$76.7
<b>Total</b>	<b>\$36,062.6</b>	<b>\$62,276.4</b>	<b>\$64,008.0</b>	<b>\$64,692.2</b>	<b>\$66,766.8</b>	<b>\$54,236.3</b>	<b>\$48,838.7</b>

**New York State  
Energy Expenditure Estimates  
by Fuel Type and Sector  
in Constant 2016 Dollars,  
2002–2016**

**Figure 5-2**

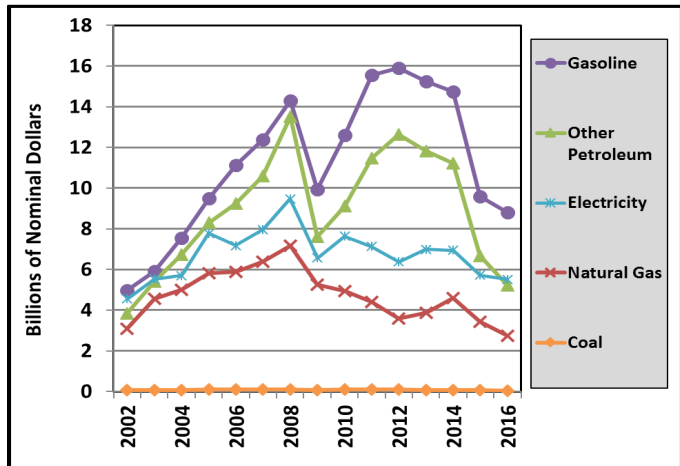


**Table 5-2. (in million dollars)**

	2002	2007	2012	2013	2014	2015	2016
<b>Residential</b>							
Coal	\$0.7	\$1.8	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Petroleum	\$2,824.6	\$4,821.4	\$4,416.7	\$3,748.7	\$4,156.3	\$3,048.3	\$2,099.2
Distillate	\$2,333.9	\$4,069.0	\$3,797.8	\$3,055.7	\$3,173.2	\$2,378.2	\$1,479.5
Kerosene	\$98.4	\$185.7	\$64.2	\$68.4	\$115.2	\$43.8	\$45.3
LPG	\$392.3	\$566.7	\$554.7	\$624.6	\$867.9	\$626.4	\$574.4
Natural Gas	\$4,856.7	\$7,287.2	\$4,848.1	\$5,357.2	\$5,824.4	\$5,126.1	\$4,455.0
Electricity	\$8,397.5	\$9,943.3	\$9,334.9	\$9,831.5	\$10,169.9	\$9,575.7	\$8,933.7
Wood	\$226.1	\$398.3	\$171.5	\$228.7	\$222.0	\$113.4	\$76.7
<b>Total</b>	<b>\$16,305.6</b>	<b>\$22,452.1</b>	<b>\$18,771.2</b>	<b>\$19,166.1</b>	<b>\$20,372.6</b>	<b>\$17,863.5</b>	<b>\$15,564.6</b>
<b>Commercial</b>							
Coal	\$2.5	\$9.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Petroleum	\$1,159.5	\$2,455.9	\$1,993.5	\$1,860.1	\$1,317.1	\$932.1	\$650.5
Distillate	\$744.5	\$1,678.0	\$1,338.4	\$1,372.1	\$1,074.6	\$815.3	\$534.5
Residual	\$299.9	\$623.4	\$511.2	\$342.4	\$79.6	\$15.5	\$12.0
Kerosene	\$29.6	\$34.4	\$10.5	\$4.9	\$9.2	\$2.7	\$4.3
LPG	\$85.6	\$120.0	\$133.4	\$140.8	\$153.7	\$98.5	\$99.7
Natural Gas	\$3,100.6	\$3,898.7	\$2,216.1	\$2,478.5	\$2,696.9	\$2,161.1	\$1,857.7
Electricity	\$11,512.0	\$13,694.3	\$11,965.3	\$12,076.3	\$12,510.2	\$11,935.3	\$11,055.1
<b>Total</b>	<b>\$15,774.7</b>	<b>\$20,058.4</b>	<b>\$16,174.9</b>	<b>\$16,415.0</b>	<b>\$16,524.2</b>	<b>\$15,028.5</b>	<b>\$13,563.3</b>
<b>Industrial</b>							
Coal	\$115.7	\$116.4	\$119.5	\$97.0	\$80.4	\$78.5	\$50.6
Petroleum	\$268.0	\$672.7	\$543.5	\$490.0	\$424.2	\$250.7	\$189.9
Distillate	\$143.3	\$420.3	\$375.5	\$326.8	\$266.5	\$178.4	\$121.6
Residual	\$47.1	\$104.4	\$69.8	\$77.6	\$51.9	\$21.5	\$17.5
Kerosene	\$10.9	\$25.4	\$22.0	\$12.8	\$21.7	\$10.5	\$11.3
LPG	\$66.7	\$122.5	\$76.3	\$72.9	\$84.1	\$40.3	\$39.5
Natural Gas	\$687.6	\$1,030.9	\$539.0	\$614.3	\$697.4	\$558.7	\$458.2
Electricity	\$1,736.6	\$2,038.1	\$959.1	\$1,215.2	\$1,200.7	\$1,155.0	\$1,067.7
<b>Total</b>	<b>\$2,807.8</b>	<b>\$3,858.0</b>	<b>\$2,161.1</b>	<b>\$2,416.5</b>	<b>\$2,402.6</b>	<b>\$2,042.8</b>	<b>\$1,766.3</b>
<b>Transportation</b>							
Petroleum	\$12,944.0	\$25,287.8	\$29,395.8	\$28,249.6	\$27,990.3	\$19,616.3	\$17,612.3
Distillate	\$1,800.4	\$4,029.6	\$4,898.6	\$4,518.2	\$4,698.1	\$3,601.0	\$3,172.8
Residual	\$111.4	\$403.5	\$504.8	\$633.3	\$653.2	\$232.6	\$174.8
Motor Gasoline	\$10,375.0	\$18,672.7	\$20,436.7	\$19,556.4	\$19,195.6	\$13,618.8	\$12,350.1
Jet Fuel	\$653.1	\$2,175.9	\$3,549.8	\$3,536.6	\$3,438.8	\$2,161.5	\$1,912.5
LPG	\$4.2	\$6.0	\$5.8	\$5.1	\$4.5	\$2.4	\$2.2
Electricity	\$279.6	\$431.3	\$408.0	\$402.9	\$399.6	\$369.4	\$332.2
<b>Total</b>	<b>\$13,223.6</b>	<b>\$25,719.0</b>	<b>\$29,803.8</b>	<b>\$28,652.5</b>	<b>\$28,389.9</b>	<b>\$19,985.7</b>	<b>\$17,944.5</b>
<b>Total</b>							
Coal	\$118.9	\$127.7	\$119.5	\$97.0	\$80.4	\$78.5	\$50.6
Petroleum	\$17,196.1	\$33,237.7	\$36,349.4	\$34,348.4	\$33,887.8	\$23,847.4	\$20,551.9
Distillate	\$5,022.2	\$10,197.0	\$10,410.3	\$9,272.7	\$9,212.4	\$6,972.9	\$5,308.4
Residual	\$458.3	\$1,131.3	\$1,085.8	\$1,053.2	\$784.7	\$269.6	\$204.3
Motor Gasoline	\$10,375.0	\$18,672.7	\$20,436.7	\$19,556.4	\$19,195.6	\$13,618.8	\$12,350.1
Kerosene	\$138.8	\$245.5	\$96.6	\$86.0	\$146.1	\$56.9	\$60.9
Jet Fuel	\$653.1	\$2,175.9	\$3,549.8	\$3,536.6	\$3,438.8	\$2,161.5	\$1,912.5
LPG	\$548.7	\$815.1	\$770.2	\$843.3	\$1,110.2	\$767.6	\$715.7
Natural Gas	\$8,644.9	\$12,216.8	\$7,603.2	\$8,450.1	\$9,218.7	\$7,845.8	\$6,770.9
Electricity	\$21,925.6	\$26,106.9	\$22,667.3	\$23,525.9	\$24,280.4	\$23,035.4	\$21,388.7
Wood	\$226.1	\$398.3	\$171.5	\$228.7	\$222.0	\$113.4	\$76.7
<b>Total</b>	<b>\$48,111.7</b>	<b>\$72,087.5</b>	<b>\$66,911.0</b>	<b>\$66,650.0</b>	<b>\$67,689.3</b>	<b>\$54,920.5</b>	<b>\$48,838.7</b>

**New York Out-of-State  
Energy Expenditure Estimates  
by Fuel Type  
in Nominal and  
Constant 2016 Dollars  
2002–2016**

**Figure 5-3**



**Table 5-3a. (in million nominal dollars)**

Year	Coal	Natural Gas	Gasoline	Other Petroleum	Electricity	Total
2002	\$ 75.8	\$ 3,072.9	\$ 4,962.2	\$ 3,834.6	\$ 4,558.8	\$ 16,504.4
2003	\$ 68.1	\$ 4,561.4	\$ 5,913.9	\$ 5,410.8	\$ 5,530.9	\$ 21,485.1
2004	\$ 71.8	\$ 4,992.1	\$ 7,548.6	\$ 6,740.9	\$ 5,699.0	\$ 25,052.3
2005	\$ 84.8	\$ 5,822.3	\$ 9,496.5	\$ 8,302.0	\$ 7,766.1	\$ 31,471.7
2006	\$ 102.6	\$ 5,886.8	\$ 11,139.2	\$ 9,242.1	\$ 7,171.9	\$ 33,542.6
2007	\$ 93.8	\$ 6,384.4	\$ 12,382.5	\$ 10,601.3	\$ 7,954.7	\$ 37,416.7
2008	\$ 99.0	\$ 7,180.7	\$ 14,283.0	\$ 13,510.8	\$ 9,473.9	\$ 44,547.4
2009	\$ 83.1	\$ 5,241.5	\$ 9,940.7	\$ 7,607.6	\$ 6,570.3	\$ 29,443.2
2010	\$ 96.4	\$ 4,932.1	\$ 12,587.9	\$ 9,104.0	\$ 7,628.8	\$ 34,349.2
2011	\$ 104.8	\$ 4,402.7	\$ 15,569.0	\$ 11,477.2	\$ 7,124.4	\$ 38,678.2
2012	\$ 97.2	\$ 3,592.3	\$ 15,907.9	\$ 12,630.3	\$ 6,369.1	\$ 38,596.8
2013	\$ 80.1	\$ 3,866.8	\$ 15,249.7	\$ 11,807.0	\$ 6,988.4	\$ 37,992.0
2014	\$ 67.4	\$ 4,592.9	\$ 14,748.2	\$ 11,205.9	\$ 6,944.5	\$ 37,558.8
2015	\$ 65.9	\$ 3,422.9	\$ 9,577.6	\$ 6,656.6	\$ 5,708.4	\$ 25,431.4
2016	\$ 43.0	\$ 2,750.6	\$ 8,799.2	\$ 5,235.4	\$ 5,505.2	\$ 22,333.3

**Table 5-3b. (in million constant 2016 dollars)**

Year	Coal	Natural Gas	Gasoline	Other Petroleum	Electricity	Total
2002	\$ 101.1	\$ 4,099.6	\$ 6,620.2	\$ 5,115.8	\$ 6,082.0	\$ 22,018.7
2003	\$ 88.8	\$ 5,949.8	\$ 7,714.0	\$ 7,057.8	\$ 7,214.4	\$ 28,024.8
2004	\$ 91.2	\$ 6,342.7	\$ 9,590.9	\$ 8,564.6	\$ 7,240.8	\$ 31,830.2
2005	\$ 104.2	\$ 7,155.1	\$ 11,670.3	\$ 10,202.5	\$ 9,543.8	\$ 38,676.0
2006	\$ 122.1	\$ 7,008.3	\$ 13,261.4	\$ 11,002.8	\$ 8,538.2	\$ 39,932.8
2007	\$ 108.6	\$ 7,390.2	\$ 14,333.2	\$ 12,271.5	\$ 9,207.9	\$ 43,311.4
2008	\$ 110.4	\$ 8,004.6	\$ 15,921.8	\$ 15,061.1	\$ 10,560.9	\$ 49,658.8
2009	\$ 92.9	\$ 5,863.8	\$ 11,120.8	\$ 8,510.8	\$ 7,350.4	\$ 32,938.7
2010	\$ 106.1	\$ 5,428.6	\$ 13,855.1	\$ 10,020.5	\$ 8,396.7	\$ 37,807.1
2011	\$ 111.9	\$ 4,697.6	\$ 16,611.9	\$ 12,246.0	\$ 7,601.7	\$ 41,269.1
2012	\$ 101.6	\$ 3,755.2	\$ 16,629.4	\$ 13,203.2	\$ 6,658.0	\$ 40,347.3
2013	\$ 82.5	\$ 3,983.8	\$ 15,711.3	\$ 12,164.3	\$ 7,199.8	\$ 39,141.7
2014	\$ 68.4	\$ 4,656.3	\$ 14,951.9	\$ 11,360.7	\$ 7,040.4	\$ 38,077.8
2015	\$ 66.7	\$ 3,466.1	\$ 9,698.4	\$ 6,740.5	\$ 5,780.5	\$ 25,752.2
2016	\$ 43.0	\$ 2,750.6	\$ 8,799.2	\$ 5,235.4	\$ 5,505.2	\$ 22,333.3



## 6 New York State's Sources of Energy

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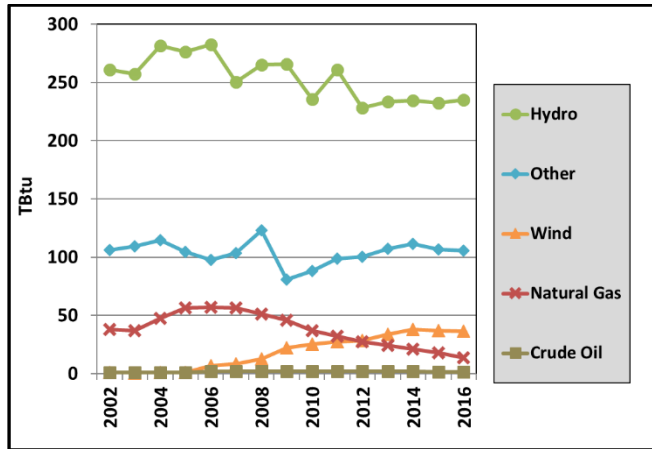
New York is the eighth largest energy user of all the states. Nevertheless, households, businesses, industries, and electric utilities in the State rely largely on fuels produced elsewhere. Nearly 11% of the total primary energy requirements were met from in-State resources in 2016. Hydroelectric power is produced at various locations throughout the State and in 2016, New York produced more hydroelectric power than any other state east of the Rocky Mountains. New York is currently the 13th largest state in the U.S. in installed wind power through the end of 2017 with a capacity of more than 1,827 MW. 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.

### 6.1 Key Observations about New York State Sources of Energy in 2016

- In-State resources produced 10.7% of the State's total primary energy requirement, including 6.4% from hydropower and 2.5% from biofuels including ethanol, waste, wood, and landfill gas, collectively. Wind, solar, and geothermal renewable resources met 1.3% of the State's total primary energy requirement. Petroleum and natural gas production accounted for 0.4% of the total primary energy requirement.
- Hydroelectric power and energy collectively from biofuels including ethanol, waste, wood, and landfill gas account for 60.0% and 23.9%, respectively, of the State's primary energy production. Wind, solar, and geothermal resources accounted for 12.3% of the primary energy production while crude oil and natural gas constitute the remaining 3.8%.
- In-state crude oil and natural gas production represent less than 0.1% and 0.4%, respectively, of the State's use of these fuels. Consumers rely on external sources for 100% of refined petroleum fuel products because there are no petroleum refineries in the State.
- Production of natural gas decreased 22.4% from 2015 to 2016. In 2016, natural gas production was 13.4 billion cubic feet, and accounted for 0.4% of the State's total primary energy use.
- Energy production from solar resources increased 38.1% from 2015 to 2016 while collective production of biofuels including ethanol, waste, wood, and landfill gas decreased 4.2%.

**New York State  
Primary Energy Production  
by Fuel Type,<sup>1</sup>  
2002–2016**

**Figure 6-1**



**Table 6-1a. (in physical units)**

Year	Hydro Electricity <sup>2</sup>	Natural Gas	Crude Oil	Ethanol	Distributed Solar	Utility Solar	Total Solar
	GWh	Bcf	Mbbl	Mbbl	GWh	GWh	GWh
2002	26,213	37.1	164	0	n.a.	n.a.	n.a.
2003	25,798	36.0	143	0	n.a.	n.a.	n.a.
2004	28,153	46.9	170	0	n.a.	n.a.	n.a.
2005	27,583	55.2	202	0	n.a.	n.a.	n.a.
2006	28,422	55.2	312	0	n.a.	n.a.	n.a.
2007	25,557	54.9	379	100	n.a.	n.a.	n.a.
2008	27,501	50.3	387	2,064	n.a.	n.a.	n.a.
2009	27,945	44.8	333	1,189	n.a.	n.a.	n.a.
2010	25,103	35.8	381	2,672	n.a.	n.a.	n.a.
2011	28,355	31.1	375	4,011	n.a.	7	7
2012	25,303	26.4	362	3,798	n.a.	53	53
2013	26,397	23.5	366	3,991	n.a.	67	67
2014	26,823	20.2	356	4,086	350	71	421
2015	26,704	17.3	284	4,062	588	101	689
2016	27,150	13.4	222	4,110	874	140	1,014

**Table 6-1b. (in trillion Btu)**

Year	Hydro Electricity <sup>2</sup>	Natural Gas	Crude Oil	Biofuels <sup>3,4,5</sup>	Wind	Solar <sup>4</sup>	Geothermal <sup>4</sup>	Total Production
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu		TBtu
2002	260.8	37.7	1.0	105.1	0.8	0.6	0.4	406.3
2003	257.1	37.1	0.8	108.5	0.4	0.6	0.5	405.0
2004	281.6	47.2	1.0	113.2	1.2	0.7	0.5	445.5
2005	276.4	56.6	1.2	102.8	1.0	0.8	0.6	439.5
2006	282.4	57.2	1.8	96.1	6.5	1.0	0.7	445.7
2007	250.1	56.2	2.2	101.3	8.2	1.2	0.7	419.9
2008	265.3	51.4	2.2	120.7	12.3	1.3	0.8	454.1
2009	265.8	45.8	1.9	78.2	22.1	1.5	1.0	416.2
2010	235.7	36.6	2.2	85.2	25.3	1.7	1.1	387.8
2011	260.7	31.9	2.2	95.4	27.5	2.1	1.3	421.0
2012	228.0	27.2	2.1	95.9	28.5	3.2	1.2	386.1
2013	233.6	24.2	2.1	102.1	33.8	3.9	1.2	400.8
2014	234.7	20.8	2.1	104.9	37.7	5.3	1.2	406.7
2015	232.3	17.9	1.6	97.7	37.1	7.7	1.2	395.4
2016	235.0	13.9	1.3	93.6	36.4	10.6	1.2	391.9

<sup>1</sup> Includes energy produced from resources indigenous to New York State.

<sup>2</sup> Includes both conventional and pumped storage hydro.

<sup>3</sup> Includes primarily wood, waste, landfill gas, and ethanol.

<sup>4</sup> Consumption used as proxy.

<sup>5</sup> Ethanol TBtu are based on biomass inputs (feedstock) to produce fuel ethanol.

# 7 Appendices

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# Appendix A-1

## New York State Estimated Greenhouse Gas Emissions<sup>1</sup> from Fuel Combustion, 1990, 2002–2016

Figure A-1. Annual New York State GHG Emissions from Fuel Combustion

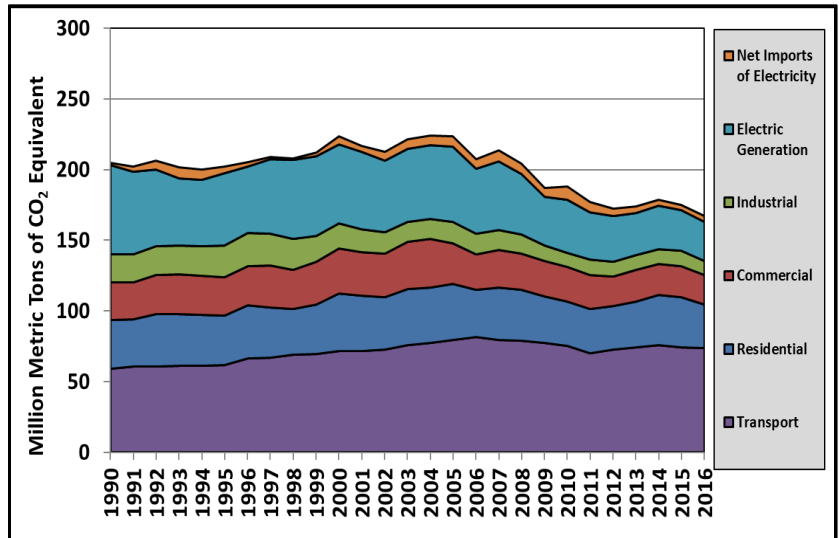


Table A-1. GHG Emissions by Sector (in million metric tons carbon dioxide equivalent)<sup>2,3,4</sup>

Year	Residential	Commercial	Industrial	Transportation	Electric Generation	Net Imports of Electricity <sup>5</sup>	Total <sup>6</sup>
1990	34.3	26.5	20.0	59.4	63.0	1.7	205.0
.....							
2002	36.7	31.1	14.9	72.8	50.7	6.6	212.8
2003	39.9	33.1	14.1	75.8	51.8	7.0	221.7
2004	38.9	34.9	14.0	77.4	52.0	6.8	223.9
2005	39.8	28.7	14.9	79.4	53.6	7.4	223.8
2006	33.1	25.4	14.5	81.6	46.0	7.0	207.6
2007	36.9	26.7	14.0	79.6	48.8	7.7	213.6
2008	35.7	25.9	13.7	79.1	42.5	7.6	204.4
2009	32.9	25.1	11.4	77.2	34.1	6.3	186.9
2010	31.7	24.2	10.3	75.1	37.3	9.2	187.8
2011	31.1	24.2	11.1	70.1	33.4	7.3	177.3
2012	30.4	21.0	10.8	72.9	32.2	5.1	172.3
2013	32.3	22.4	10.2	74.4	29.9	4.6	173.9
2014	35.6	22.1	10.4	75.7	30.4	4.2	178.5
2015	35.6	21.9	10.8	74.1	29.1	3.4	174.9
2016	30.9	20.7	10.2	73.7	27.7	3.8	167.0
% Change 1990-2016	-9.8%	-22.2%	-48.9%	24.2%	-56.0%	120.0%	-18.5%

<sup>1</sup> Total greenhouse gas (GHG) emissions from fuel combustion include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).  
<sup>2</sup> Total GHG emissions are expressed in millions of metric tons of carbon dioxide equivalent. One ton equals approximately 2,204 pounds. “MM” equals one million. To convert emissions to short tons, multiply by a factor of 1.1023.  
<sup>3</sup> Emissions levels for 1990 form the basis of the U.S. GHG inventory and it was the base year for the United Nations Framework Convention on Climate Change’s Kyoto Protocol. Data for 1991–2000 can be found by clicking on the table above.  
<sup>4</sup> 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 (<https://energyplan.ny.gov/>).  
<sup>5</sup> 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.  
<sup>6</sup> In 2016 GHG emissions from fuel combustion represented 81% of total GHG emissions.

# Appendix A-2

## New York State Estimated CO<sub>2</sub> Emissions by Fuel Type<sup>1,2,3</sup> from Fuel Combustion, 2016

Figure A-2. CO<sub>2</sub> Emissions from Fuel Combustion by Fuel Type<sup>1,2</sup>

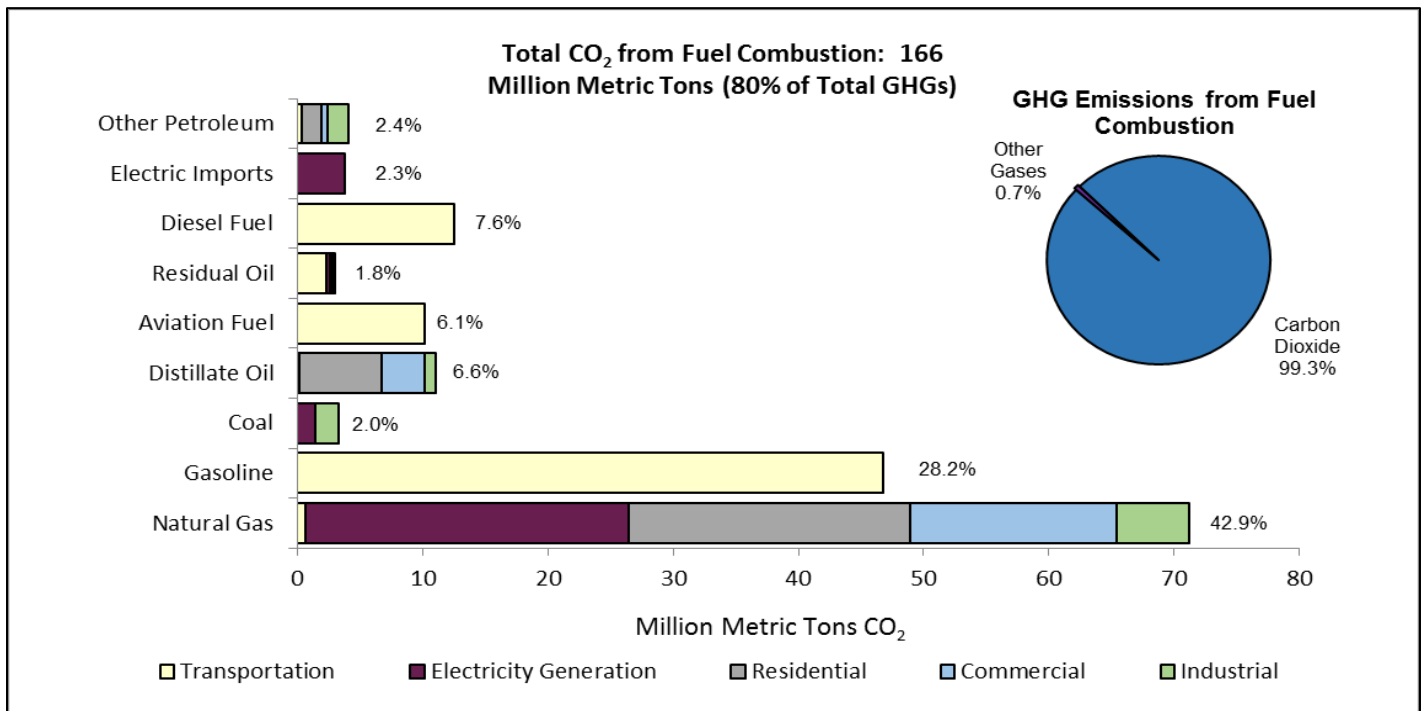


Table A-2. CO<sub>2</sub> Emissions from Fuel Combustion by Fuel Type (in million metric tons carbon dioxide)<sup>4</sup>

Fuel Type	Transportation	Electricity Generation	Residential	Commercial	Industrial	Total CO <sub>2</sub> Emissions	Percent of Total CO <sub>2</sub> Emissions
	(million metric tons CO <sub>2</sub> )						(%)
Other Petroleum	0.40	N/A	1.56	0.51	1.59	4.06	2.4
Net Imports of Electricity	N/A	3.80	N/A	N/A	N/A	3.80	2.3
Diesel Fuel (Distillate)	12.57	N/A	N/A	N/A	N/A	12.57	7.6
Residual Oil	2.34	0.29	N/A	0.15	0.22	3.00	1.8
Jet Fuel	10.19	N/A	N/A	N/A	N/A	10.19	6.1
Heating Oil (Distillate)	N/A	0.15	6.62	3.45	0.80	11.01	6.6
Coal	N/A	1.45	0.00	0.00	1.82	3.26	2.0
Gasoline	46.81	N/A	N/A	N/A	N/A	46.81	28.2
Natural Gas	0.67	25.81	22.49	16.45	5.73	71.15	42.9

<sup>1</sup> Emissions from fuel combustion by fuel type only include carbon dioxide (CO<sub>2</sub>) emissions. These emissions comprise 99% of total GHG emissions from fuel combustion.

<sup>2</sup> In 2016 GHG emissions from fuel combustion represented 81% of total GHG emissions.

<sup>3</sup> Additional information on GHG emissions can be found in the Climate Action Plan (<http://www.dec.ny.gov/energy/80930.html>) and State Energy Plan (<https://energyplan.ny.gov/>).

<sup>4</sup> CO<sub>2</sub> emissions are expressed in millions of metric tons of carbon dioxide equivalent. One ton equals approximately 2,204 pounds. "MM" equals one million. To convert emissions to short tons, multiply by a factor of 1.1023.

# Appendix B

## New York State Household Consumption and Expenditures by End Use, 2015<sup>1</sup>

Table B-1. Total Household Energy

	Households <sup>2</sup> (MM)	Average per household using the fuel	
		Consumption	Expenditure
Electricity	7.2	6,716 kWh	\$1,186
Natural Gas	5.8	61 Mcf	\$671
Fuel Oil/Kerosene	1.9	434 gallons	\$1,146
Propane/LPG	0.5	198 gallons	\$552
Wood	0.4	Q	Q

Table B-2. Space-Heating<sup>3</sup>

	Households <sup>2</sup> (MM)	Average per Household using the fuel as main heating source	
		Consumption	Expenditure
Electricity	0.6	2,449 kWh	\$431
Natural Gas	4.4	55 Mcf	\$600
Fuel Oil/Kerosene	1.6	374 gallons	\$1,147
Propane	0.1	463 gallons	\$1,196

Table B-3. Water-Heating

	Households <sup>2</sup> (MM)	Average per Household using the fuel as water heating source	
		Consumption	Expenditure
Electricity	1.6	2,894 kWh	\$489
Natural Gas	4.2	18 Mcf	\$206
Fuel Oil	1	144 gallons	\$391
Propane/LPG	0.2	178 gallons	\$519

Table B-4. Electric Air Conditioning

	Households <sup>2</sup> (MM)	Average per Household	
		Consumption	Expenditure
Central Air	1.4	765 kWh	\$154
Room/Wall	4.9		

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Some households may use multiple heating fuels. Averages include main (primary) and secondary space heating applications. 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 DOE's Energy Information Administration's Residential Energy Consumption Survey.

# Appendix C

## Estimated Annual Gasoline Sales by County in New York State, 2014–2016

Table C-1. (in thousand gallons)

County	2014	2015	2016
<b>New York State</b>	<b>5,561,069</b>	<b>5,520,551</b>	<b>5,734,254</b>
<b>New York City</b>	<b>1,015,641</b>	<b>1,029,969</b>	<b>1,101,658</b>
<b>Rest of State</b>	<b>4,545,428</b>	<b>4,490,582</b>	<b>4,632,596</b>
Albany	133,346	129,617	131,898
Alleghany	14,710	14,875	15,542
Broome	100,444	97,336	100,367
Cattaraugus	23,038	23,698	23,157
Cayuga	35,070	33,368	31,577
Chautauqua	35,898	36,371	44,023
Chemung	32,281	32,924	33,869
Chenango	20,906	21,586	23,591
Clinton	45,376	45,980	44,217
Columbia	35,291	33,670	40,589
Cortland	25,576	26,840	25,931
Delaware	22,069	20,985	20,794
Dutchess	104,094	101,794	106,405
Erie	352,098	360,650	364,977
Essex	20,394	20,356	20,640
Franklin	17,403	17,338	17,924
Fulton	25,897	22,611	25,509
Genesee	54,871	54,576	53,029
Greene	28,080	27,843	28,123
Hamilton	2,811	3,191	3,139
Herkimer	26,672	28,236	28,319
Jefferson	55,607	54,744	57,906
Lewis	12,792	12,377	14,129
Livingston	38,373	36,266	34,593
Madison	19,009	19,897	19,753
Monroe	280,493	274,338	275,923
Montgomery	40,514	36,850	38,330
Nassau	497,316	496,762	528,544
Niagara	75,881	71,696	71,759
Oneida	100,915	99,762	103,976
Onondaga	236,568	227,662	223,439
Ontario	62,288	60,388	59,779
Orange	164,798	159,407	158,057
Orleans	12,021	11,541	11,138
Oswego	52,038	49,358	50,450
Otsego	30,252	28,859	29,829
Putnam	48,540	45,616	49,024
Rensselaer	74,604	71,457	71,066
Rockland	50,915	51,801	56,006
St. Lawrence	43,907	44,359	43,818
Saratoga	110,111	102,139	100,677
Schenectady	71,920	70,208	70,892
Schoharie	13,614	13,276	13,875
Schuyler	8,537	8,598	8,680
Seneca	27,000	28,691	32,571
Steuben	51,575	53,224	54,810
Suffolk	660,495	655,777	689,418
Sullivan	29,661	30,692	31,623
Tioga	18,808	19,697	21,345
Tompkins	34,268	32,868	33,335
Ulster	81,326	82,308	83,068
Warren	42,186	39,783	38,009
Washington	16,853	15,393	15,935
Wayne	41,335	40,230	39,883
Westchester	259,440	266,018	293,600
Wyoming	17,365	16,943	16,211
Yates	7,778	7,757	7,528

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

## Estimated Annual Residential Energy Consumption by County in New York State, 2002–2016

Table C-2

Residential Energy Consumption	Natural Gas		Propane		Electricity		Distillate		Kerosene		Wood	
	Bcf		Mbbbl		GWh		Mbbbl		Mbbbl		MCords	
County	2016	2002	2016	2002	2016	2002	2016	2002	2016	2002	2016	2002
Albany	11.0	8.9	60	51	1,606	1,229	136	258	5	13	8	34
Allegany	1.4	1.1	49	41	171	153	15	32	1	2	12	63
Bronx	11.6	10.6	72	84	1,749	1,925	1,344	3,070	52	153	0	3
Broome	7.7	5.8	137	109	978	659	132	177	5	9	14	61
Cattaraugus	2.3	1.9	94	94	365	353	31	50	1	2	16	86
Cayuga	2.3	1.7	108	91	318	258	65	103	3	5	12	52
Chautauqua	5.1	4.3	94	87	643	570	16	31	1	2	13	69
Chemung	4.0	2.9	45	33	352	251	34	45	1	2	7	30
Chenango	0.5	0.3	74	51	331	239	97	143	4	7	14	63
Clinton	0.6	0.3	42	24	1,014	705	219	256	9	13	18	53
Columbia	0.4	0.3	66	49	349	330	184	268	7	13	10	42
Cortland	1.3	1.0	35	32	209	173	34	55	1	3	7	30
Delaware	0.3	0.3	62	47	249	181	122	176	5	9	20	75
Dutchess	3.8	2.9	125	95	1,353	1,057	710	1,030	28	51	15	47
Erie	45.6	35.5	155	149	2,063	1,710	74	129	3	6	12	86
Essex	0.1	0.1	58	37	279	243	135	161	5	8	15	50
Franklin	0.2	0.1	57	30	318	228	170	200	7	10	19	50
Fulton	1.3	1.0	44	38	157	138	92	132	4	7	10	43
Genesee	2.0	1.6	78	65	212	187	39	60	2	3	5	27
Greene	0.2	0.1	48	43	214	177	129	213	5	11	8	33
Hamilton	0.0	0.0	11	11	9	16	9	22	0	1	2	12
Herkimer	1.9	1.2	53	35	315	259	102	136	4	7	13	49
Jefferson	2.9	1.9	150	106	837	567	104	165	4	8	20	63
Kings	45.0	46.9	186	236	2,573	2,476	654	2,214	25	111	1	11
Lewis	0.3	0.1	46	27	101	71	57	88	2	4	16	69
Livingston	1.7	1.3	94	79	317	280	36	62	1	3	9	44
Madison	1.7	1.3	80	55	300	248	89	134	3	7	11	44
Monroe	33.7	26.3	116	108	3,833	2,846	91	183	4	9	9	46
Montgomery	1.2	1.0	25	22	158	123	65	106	3	5	6	25
Nassau	24.2	24.4	98	95	1,499	1,942	1,561	3,788	61	189	3	15
New York	16.7	15.8	120	144	6,436	6,456	1,207	3,352	47	167	0	3
Niagara	9.7	7.6	114	99	657	536	70	118	3	6	7	35
Oneida	7.8	5.9	119	89	927	771	215	332	8	17	21	64
Onondaga	19.8	15.1	130	111	3,014	2,026	110	184	4	9	12	52
Ontario	3.7	2.8	121	120	592	411	49	90	2	4	9	45
Orange	5.8	6.4	96	124	741	945	354	789	14	39	8	43
Orleans	1.0	0.8	74	63	165	149	34	59	1	3	6	28
Oswego	2.9	2.2	199	194	459	354	91	133	4	7	25	96
Otsego	0.6	0.4	84	83	225	226	122	198	5	10	16	70
Putnam	0.2	0.3	24	33	462	614	212	438	8	22	4	17
Queens	39.8	41.7	200	205	2,141	2,661	872	2,675	34	134	1	9
Rensselaer	4.0	3.1	102	87	754	598	196	308	8	15	15	60
Richmond	12.4	14.1	31	40	356	378	84	239	3	12	0	1
Rockland	7.8	9.4	14	21	497	523	27	63	1	3	1	5
St. Lawrence	2.6	1.5	107	71	565	380	199	266	8	13	35	126
Saratoga	7.1	5.2	217	174	1,025	811	182	301	7	15	16	74
Schenectady	5.4	4.6	33	33	619	497	58	120	2	6	3	14
Schoharie	0.1	0.0	41	30	159	164	74	128	3	6	10	43
Schuyler	0.2	0.2	45	42	82	74	19	33	1	2	5	20
Seneca	0.8	0.7	61	61	160	114	30	39	1	2	3	13
Steuben	3.0	2.4	123	114	390	302	39	70	2	3	19	89
Suffolk	18.9	20.2	187	219	2,178	2,957	2,480	5,294	96	264	13	58
Sullivan	0.1	0.1	106	107	438	344	242	303	9	15	15	55
Tioga	1.0	0.7	66	49	197	141	93	139	4	7	10	41
Tompkins	2.8	2.0	104	90	624	525	55	74	2	4	11	40
Ulster	1.9	1.5	174	132	776	610	464	721	18	36	22	77
Warren	1.9	1.4	82	59	328	288	86	145	3	7	10	34
Washington	0.8	0.6	71	62	278	204	144	198	6	10	18	71
Wayne	2.8	2.2	113	99	437	414	65	101	3	5	13	54
Westchester	13.3	14.7	97	110	1,940	2,066	1,052	2,436	41	122	3	18
Wyoming	1.1	0.9	57	43	205	188	22	37	1	2	8	40
Yates	0.4	0.3	55	54	130	136	18	28	1	1	6	27
<b>New York State</b>	<b>410.8</b>	<b>369.6</b>	<b>5,529</b>	<b>4,987</b>	<b>50,831</b>	<b>46,457</b>	<b>15,511</b>	<b>32,893</b>	<b>602</b>	<b>1,642</b>	<b>670</b>	<b>2,796</b>



## Estimated Annual Residential Energy Consumption by County in New York State (TBtu), 2002–2016

Table C-3

Residential Energy Consumption	Natural Gas		Propane		Electricity		Distillate		Kerosene		Wood		Solar	
	(TBtu)		(TBtu)		(TBtu)		(TBtu)		(TBtu)		(TBtu)		(TBtu)	
County	2016	2002	2016	2002	2016	2002	2016	2002	2016	2002	2016	2002	2016	2002
Albany	11.4	9.1	0.2	0.2	5.5	4.2	0.8	1.5	0.0	0.1	0.2	0.7	0.2	0.0
Allegany	1.5	1.1	0.2	0.2	0.6	0.5	0.1	0.2	0.0	0.0	0.2	1.3	0.0	0.0
Bronx	12.0	10.8	0.3	0.3	6.0	6.6	7.8	17.9	0.3	0.9	0.0	0.1	0.2	0.0
Broome	7.9	5.9	0.5	0.4	3.3	2.2	0.8	1.0	0.0	0.1	0.3	1.2	0.0	0.0
Cattaraugus	2.4	2.0	0.4	0.4	1.2	1.2	0.2	0.3	0.0	0.0	0.3	1.7	0.0	0.0
Cayuga	2.4	1.8	0.4	0.3	1.1	0.9	0.4	0.6	0.0	0.0	0.2	1.0	0.0	0.0
Chautauqua	5.3	4.4	0.4	0.3	2.2	1.9	0.1	0.2	0.0	0.0	0.3	1.4	0.1	0.0
Chemung	4.1	3.0	0.2	0.1	1.2	0.9	0.2	0.3	0.0	0.0	0.1	0.6	0.0	0.0
Chenango	0.5	0.3	0.3	0.2	1.1	0.8	0.6	0.8	0.0	0.0	0.3	1.3	0.0	0.0
Clinton	0.6	0.3	0.2	0.1	3.5	2.4	1.3	1.5	0.0	0.1	0.4	1.1	0.0	0.0
Columbia	0.4	0.3	0.3	0.2	1.2	1.1	1.1	1.6	0.0	0.1	0.2	0.8	0.0	0.0
Cortland	1.4	1.0	0.1	0.1	0.7	0.6	0.2	0.3	0.0	0.0	0.1	0.6	0.0	0.0
Delaware	0.4	0.3	0.2	0.2	0.9	0.6	0.7	1.0	0.0	0.0	0.4	1.5	0.0	0.0
Dutchess	3.9	2.9	0.5	0.4	4.6	3.6	4.1	6.0	0.2	0.3	0.3	0.9	0.3	0.0
Erie	47.1	36.4	0.6	0.6	7.0	5.8	0.4	0.7	0.0	0.0	0.2	1.7	0.1	0.0
Essex	0.1	0.1	0.2	0.1	1.0	0.8	0.8	0.9	0.0	0.0	0.3	1.0	0.1	0.0
Franklin	0.2	0.2	0.2	0.1	1.1	0.8	1.0	1.2	0.0	0.1	0.4	1.0	0.0	0.0
Fulton	1.3	1.0	0.2	0.1	0.5	0.5	0.5	0.8	0.0	0.0	0.2	0.9	0.1	0.0
Genesee	2.0	1.6	0.3	0.2	0.7	0.6	0.2	0.3	0.0	0.0	0.1	0.5	0.0	0.0
Greene	0.2	0.1	0.2	0.2	0.7	0.6	0.7	1.2	0.0	0.1	0.2	0.7	0.1	0.0
Hamilton	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Herkimer	2.0	1.3	0.2	0.1	1.1	0.9	0.6	0.8	0.0	0.0	0.3	1.0	0.2	0.0
Jefferson	3.0	1.9	0.6	0.4	2.9	1.9	0.6	1.0	0.0	0.0	0.4	1.3	0.0	0.0
Kings	46.4	48.1	0.7	0.9	8.8	8.4	3.8	12.9	0.1	0.6	0.0	0.2	0.3	0.1
Lewis	0.3	0.1	0.2	0.1	0.3	0.2	0.3	0.5	0.0	0.0	0.3	1.4	0.0	0.0
Livingston	1.7	1.3	0.4	0.3	1.1	1.0	0.2	0.4	0.0	0.0	0.2	0.9	0.0	0.0
Madison	1.8	1.3	0.3	0.2	1.0	0.8	0.5	0.8	0.0	0.0	0.2	0.9	0.0	0.0
Monroe	34.7	26.9	0.4	0.4	13.1	9.7	0.5	1.1	0.0	0.1	0.2	0.9	0.2	0.0
Montgomery	1.2	1.0	0.1	0.1	0.5	0.4	0.4	0.6	0.0	0.0	0.1	0.5	0.0	0.0
Nassau	24.9	25.0	0.4	0.4	5.1	6.6	9.0	22.0	0.3	1.1	0.1	0.3	0.5	0.0
New York	17.2	16.2	0.5	0.6	22.0	22.0	7.0	19.5	0.3	0.9	0.0	0.1	0.3	0.1
Niagara	10.0	7.8	0.4	0.4	2.2	1.8	0.4	0.7	0.0	0.0	0.1	0.7	0.0	0.0
Oneida	8.1	6.0	0.5	0.3	3.2	2.6	1.2	1.9	0.0	0.1	0.4	1.3	0.3	0.0
Onondaga	20.5	15.5	0.5	0.4	10.3	6.9	0.6	1.1	0.0	0.1	0.2	1.0	0.2	0.0
Ontario	3.8	2.9	0.5	0.5	2.0	1.4	0.3	0.5	0.0	0.0	0.2	0.9	0.0	0.0
Orange	6.0	6.6	0.4	0.5	2.5	3.2	2.0	4.6	0.1	0.2	0.2	0.9	0.2	0.0
Orleans	1.0	0.8	0.3	0.2	0.6	0.5	0.2	0.3	0.0	0.0	0.1	0.6	0.0	0.0
Oswego	3.0	2.3	0.8	0.7	1.6	1.2	0.5	0.8	0.0	0.0	0.5	1.9	0.1	0.0
Otsego	0.6	0.4	0.3	0.3	0.8	0.8	0.7	1.1	0.0	0.1	0.3	1.4	0.0	0.0
Putnam	0.2	0.3	0.1	0.1	1.6	2.1	1.2	2.5	0.0	0.1	0.1	0.3	0.0	0.0
Queens	41.1	42.7	0.8	0.8	7.3	9.1	5.0	15.6	0.2	0.8	0.0	0.2	0.1	0.0
Rensselaer	4.1	3.2	0.4	0.3	2.6	2.0	1.1	1.8	0.0	0.1	0.3	1.2	0.1	0.0
Richmond	12.8	14.4	0.1	0.2	1.2	1.3	0.5	1.4	0.0	0.1	0.0	0.0	0.2	0.0
Rockland	8.1	9.6	0.1	0.1	1.7	1.8	0.2	0.4	0.0	0.0	0.0	0.1	0.0	0.0
St. Lawrence	2.7	1.5	0.4	0.3	1.9	1.3	1.1	1.5	0.0	0.1	0.7	2.5	0.0	0.0
Saratoga	7.3	5.3	0.8	0.7	3.5	2.8	1.0	1.8	0.0	0.1	0.3	1.5	0.2	0.0
Schenectady	5.6	4.7	0.1	0.1	2.1	1.7	0.3	0.7	0.0	0.0	0.1	0.3	0.2	0.0
Schoharie	0.1	0.1	0.2	0.1	0.5	0.6	0.4	0.7	0.0	0.0	0.2	0.9	0.0	0.0
Schuyler	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.0	0.0	0.1	0.4	0.0	0.0
Seneca	0.9	0.7	0.2	0.2	0.5	0.4	0.2	0.2	0.0	0.0	0.1	0.3	0.0	0.0
Steuben	3.1	2.5	0.5	0.4	1.3	1.0	0.2	0.4	0.0	0.0	0.4	1.8	0.1	0.0
Suffolk	19.5	20.7	0.7	0.8	7.4	10.1	14.3	30.8	0.5	1.5	0.3	1.2	0.5	0.0
Sullivan	0.1	0.1	0.4	0.4	1.5	1.2	1.4	1.8	0.1	0.1	0.3	1.1	0.0	0.0
Tioga	1.0	0.7	0.3	0.2	0.7	0.5	0.5	0.8	0.0	0.0	0.2	0.8	0.0	0.0
Tompkins	2.9	2.0	0.4	0.3	2.1	1.8	0.3	0.4	0.0	0.0	0.2	0.8	0.1	0.0
Ulster	1.9	1.5	0.7	0.5	2.6	2.1	2.7	4.2	0.1	0.2	0.4	1.5	0.5	0.0
Warren	2.0	1.4	0.3	0.2	1.1	1.0	0.5	0.8	0.0	0.0	0.2	0.7	0.0	0.0
Washington	0.8	0.6	0.3	0.2	0.9	0.7	0.8	1.1	0.0	0.1	0.4	1.4	0.2	0.0
Wayne	2.9	2.3	0.4	0.4	1.5	1.4	0.4	0.6	0.0	0.0	0.3	1.1	0.0	0.0
Westchester	13.7	15.0	0.4	0.4	6.6	7.0	6.1	14.2	0.2	0.7	0.1	0.4	0.1	0.0
Wyoming	1.1	0.9	0.2	0.2	0.7	0.6	0.1	0.2	0.0	0.0	0.2	0.8	0.0	0.0
Yates	0.4	0.3	0.2	0.2	0.4	0.5	0.1	0.2	0.0	0.0	0.1	0.5	0.0	0.0
<b>New York State</b>	<b>423.9</b>	<b>378.8</b>	<b>21.2</b>	<b>19.1</b>	<b>173.4</b>	<b>158.5</b>	<b>89.5</b>	<b>191.4</b>	<b>3.4</b>	<b>9.3</b>	<b>13.4</b>	<b>55.9</b>	<b>6.3</b>	<b>0.5</b>

## 2013 Estimated Electricity and Natural Gas Usage by Sector by County

Table C-4

County	Population	Residential Electricity (MWh)	Residential Natural Gas (Mcf)	Commercial Electricity (MWh)	Commercial Natural Gas (Mcf)	Industrial Electricity (MWh)	Industrial Natural Gas (Mcf)
Albany	303,957	899,724	8,812,027	1,212,363	5,343,312	325,990	1,509,430
Allegany	48,988	119,906	1,110,517	103,018	466,755	168,665	1,012,122
Broome	200,448	702,325	5,070,251	524,802	2,261,735	242,504	876,329
Cattaraugus	82,379	292,796	1,898,015	198,998	892,640	193,703	949,846
Cayuga	94,459	267,422	1,891,759	259,987	1,049,641	231,492	723,977
Chautauqua	134,981	445,432	2,885,493	351,615	1,533,307	441,733	2,175,581
Chemung	88,730	371,103	2,302,824	227,720	982,692	180,695	780,553
Chenango	50,787	144,179	1,120,179	112,450	345,162	311,824	2,434,948
Clinton	82,264	349,284	2,088,621	241,570	905,537	171,534	736,733
Columbia	58,893	159,328	932,486	186,600	538,459	84,910	170,478
Cortland	49,442	138,939	988,005	129,525	552,036	145,598	736,768
Delaware	72,425	222,448	1,004,958	139,829	182,981	140,212	50,396
Dutchess	296,227	870,861	5,733,768	974,544	4,226,488	256,723	343,437
Erie	974,548	3,179,040	15,762,018	2,849,342	12,460,458	1,565,573	7,362,180
Essex	39,356	133,655	0	176,526	0	105,604	0
Franklin	51,712	136,455	0	141,293	92,686	39,875	22,664
Fulton	55,456	170,166	1,250,004	151,168	540,914	73,467	336,524
Genesee	67,694	173,954	1,480,967	177,781	764,426	152,681	731,520
Greene	49,298	127,376	913,754	157,573	637,235	55,498	196,685
Hamilton	4,868	14,059	0	29,942	0	781	0
Herkimer	64,353	198,644	1,568,080	144,049	515,571	95,929	493,684
Jefferson	115,921	421,272	3,236,403	321,774	1,130,744	119,265	558,327
Lewis	27,037	79,239	842,499	58,690	231,936	43,685	359,536
Livingston	65,387	155,765	1,408,882	158,962	689,906	84,877	322,491
Madison	73,143	197,418	1,637,776	166,665	740,972	186,830	489,940
Monroe	739,895	2,925,228	19,326,436	1,665,876	7,188,403	942,745	4,194,838
Montgomery	49,985	149,578	1,524,140	138,721	611,784	174,057	662,801
Nassau	1,337,612	3,723,190	22,103,409	6,887,684	27,797,181	638,943	1,974,577
New York	8,115,643	18,200,343	180,069,690	35,045,797	138,667,341	1,832,760	7,491,743
Niagara	214,982	639,428	4,333,950	557,021	2,486,689	325,497	1,560,626
Oneida	234,563	780,739	5,921,469	629,494	2,631,945	462,500	1,322,211
Onondaga	464,921	1,965,294	11,677,430	1,534,568	6,615,547	752,533	3,076,566
Ontario	120,269	302,882	2,390,662	349,679	1,460,829	305,441	1,224,768
Orange	350,882	934,707	6,979,308	1,226,002	5,125,054	423,746	1,711,165
Orleans	44,986	117,160	984,934	85,760	365,060	71,428	290,678
Oswego	120,230	337,855	3,022,608	224,642	986,307	277,829	3,179,724
Otsego	62,379	178,999	1,079,086	195,240	542,120	49,181	62,068
Putnam	99,662	255,120	2,653,377	355,482	1,434,836	96,183	145,968
Rensselaer	159,053	502,918	4,750,295	375,487	1,613,121	127,085	658,925
Rockland	308,682	719,114	6,587,729	1,353,281	5,663,545	418,161	3,357,267
Saratoga	218,520	686,960	5,305,878	657,684	2,811,857	390,586	1,846,428
Schenectady	153,935	469,386	4,043,728	391,519	1,718,193	113,108	448,148
Schoharie	32,765	88,412	472,727	98,897	350,766	25,805	375,957
Schuyler	17,998	58,964	369,333	49,006	191,629	49,107	161,395
Seneca	35,306	97,041	723,394	94,581	362,147	59,842	198,311
St. Lawrence	111,810	425,429	1,941,137	241,982	963,689	290,585	849,695
Steuben	99,891	294,620	1,982,296	232,226	1,003,524	261,439	1,946,227
Suffolk	1,491,087	2,423,344	30,016,703	6,464,432	26,418,091	2,188,249	8,601,717
Sullivan	77,553	202,815	0	252,156	113,610	42,515	89,112
Tioga	51,288	153,714	1,034,030	98,326	349,530	51,692	102,198
Tompkins	101,033	391,916	2,835,759	307,907	1,454,917	107,065	389,608
Ulster	177,029	561,106	3,361,492	1,248,053	5,331,865	602,493	2,321,436
Warren	62,372	198,943	1,431,629	317,322	1,170,054	155,333	1,761,111
Washington	63,174	188,449	1,043,047	127,585	415,954	123,580	637,307
Wayne	93,628	250,717	2,404,202	211,718	925,988	214,822	873,578
Westchester	942,978	2,411,722	20,435,469	4,405,645	18,827,211	614,369	1,325,302
Wyoming	34,495	104,710	892,853	86,642	378,082	143,974	445,671
Yates	25,343	67,316	560,051	65,583	295,997	46,718	173,532
<b>New York State</b>	<b>19,366,702</b>	<b>50,778,909</b>	<b>416,197,537</b>	<b>75,172,778</b>	<b>303,358,459</b>	<b>17,799,019</b>	<b>76,834,807</b>

# Appendix D-1

## Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2012–2016, Five-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
<b>New York State</b>	7,266,187	4,161,669	261,912	801,149	1,732,065	18,501	144,316	3,348	77,241	65,986
<b>New York City</b>	3,128,246	1,912,997	55,702	346,481	711,034	2,062	1,699	958	44,852	52,461
Bronx	490,740	189,454	6,881	45,598	233,140	450	225	193	5,723	9,076
Kings	938,803	719,651	17,495	65,702	111,042	328	550	241	9,657	14,137
New York	753,385	291,774	12,382	179,837	224,443	758	200	296	22,474	21,221
Queens	779,304	567,135	16,779	48,680	131,898	417	579	106	6,529	7,181
Richmond	166,014	144,983	2,165	6,664	10,511	109	145	122	469	846
<b>Rest of State</b>	4,137,941	2,248,672	206,210	454,668	1,021,031	16,439	142,617	2,390	32,389	13,525
Albany	124,108	86,296	2,766	20,102	11,318	73	2,061	108	814	570
Allegany	18,032	9,714	2,004	1,883	1,069	503	2,565	0	272	22
Broome	78,738	49,666	5,229	10,128	9,112	536	2,944	4	788	331
Cattaraugus	31,502	16,505	3,914	4,102	2,329	362	3,626	5	580	79
Cayuga	31,039	15,418	4,169	3,332	4,528	480	2,417	12	530	153
Chautauqua	52,718	36,173	3,903	7,244	1,215	165	3,000	25	851	142
Chemung	34,887	25,213	1,671	3,525	2,238	367	1,477	18	270	108
Chenango	19,837	2,936	2,821	3,406	6,629	595	2,919	14	492	25
Clinton	31,648	3,321	1,436	9,452	13,603	140	3,259	8	329	100
Columbia	25,295	2,928	2,639	3,806	13,353	46	2,087	12	395	29
Cortland	17,683	8,998	1,417	2,294	2,510	562	1,537	16	250	99
Delaware	18,817	2,070	2,179	2,395	7,810	213	3,732	13	380	25
Dutchess	106,949	27,233	5,254	15,478	53,987	116	3,486	130	932	333
Erie	382,822	340,005	6,796	24,569	5,867	171	2,846	46	1,411	1,111
Essex	15,298	651	1,810	2,345	7,577	103	2,565	42	167	38
Franklin	19,299	963	1,849	2,792	9,917	206	3,267	3	260	42
Fulton	22,450	9,019	1,847	1,772	6,902	85	2,153	21	604	47
Genesee	23,825	13,559	3,179	2,339	2,858	232	1,091	12	469	86
Greene	17,125	1,406	1,922	2,318	9,272	73	1,792	37	305	0
Hamilton	1,239	39	310	70	484	5	305	0	26	0
Herkimer	25,670	11,139	1,851	2,969	6,405	290	2,403	61	440	112
Jefferson	43,428	18,102	5,495	8,329	6,884	34	3,911	2	517	154
Lewis	10,307	1,409	1,506	906	3,420	65	2,808	0	178	15
Livingston	24,217	11,498	3,829	3,517	2,684	303	1,881	11	456	38
Madison	26,121	10,948	3,041	3,088	6,065	465	2,231	13	230	40
Monroe	300,289	239,261	4,849	43,500	6,882	194	2,050	69	2,078	1,406
Montgomery	19,540	8,953	1,125	1,895	5,169	322	1,461	11	517	87
Nassau	440,230	241,335	5,774	23,909	165,566	111	885	295	1,299	1,056
Niagara	87,638	68,105	4,706	7,369	5,215	96	1,545	9	436	157
Oneida	90,260	53,492	4,796	10,135	15,627	304	4,484	116	951	355
Onondaga	184,925	133,506	5,144	32,418	7,853	850	2,462	62	1,622	1,008
Ontario	44,180	25,626	4,986	6,622	3,679	469	2,084	11	503	200
Orange	125,144	61,858	6,004	12,636	40,090	353	2,550	131	865	657
Orleans	16,132	6,991	3,020	1,821	2,514	61	1,414	10	280	21
Oswego	45,374	19,381	7,843	4,912	6,470	418	5,356	24	765	205
Ostego	23,539	4,186	3,477	2,537	9,124	127	3,671	7	346	64
Putnam	34,102	2,178	1,349	7,160	21,865	38	1,104	0	382	26
Rensselaer	63,553	29,690	4,519	9,041	15,596	52	3,663	38	834	120
Rockland	99,038	85,334	922	8,649	3,149	18	317	23	333	293
St. Lawrence	41,466	14,498	3,474	4,993	11,696	38	6,113	5	538	111
Saratoga	90,896	51,110	9,179	11,764	13,888	172	3,722	76	749	236
Schenectady	55,027	40,379	1,433	7,360	4,612	30	772	84	243	114
Schoharie	12,373	679	1,689	1,764	5,451	131	2,241	9	333	76
Schuyler	7,376	1,369	1,845	919	1,440	539	1,031	11	171	51
Seneca	13,672	5,805	2,482	1,778	2,189	535	574	0	238	71
Steuben	40,438	21,347	5,104	4,408	2,916	1,812	4,208	51	487	105
Suffolk	489,758	183,172	10,645	33,698	255,186	343	3,891	261	1,606	956
Sullivan	28,007	838	3,804	4,273	15,727	161	2,955	11	166	72
Tioga	19,705	6,111	2,416	1,950	6,150	815	1,918	10	275	60
Tompkins	38,269	19,486	4,200	6,840	3,979	495	2,494	56	509	210
Ulster	69,335	13,041	7,161	8,652	34,392	96	4,934	199	586	274
Warren	26,944	12,218	3,047	3,316	5,791	94	2,064	6	288	120
Washington	24,027	4,998	2,589	2,763	9,523	189	3,559	88	246	72
Wayne	36,576	19,136	4,536	4,761	4,722	310	2,735	5	285	86
Westchester	341,762	159,118	6,844	37,071	133,700	393	1,023	91	1,994	1,528
Wyoming	15,780	7,525	2,250	2,213	1,550	235	1,632	0	357	18
Yates	9,532	2,737	2,161	1,380	1,284	448	1,342	8	161	11

## Appendix D-2

### Occupied Housing Units by Type of Space Heating Fuel by County in New York State, 2016, One-Year Estimates<sup>1</sup>

Table D-2. (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
<b>New York State</b>	7,209,054	4,227,422	273,838	860,856	1,540,787	19,268	126,890	6,535	79,479	73,979
<b>New York City</b>	3,114,811	1,975,213	56,865	391,723	580,677	1,918	1,812	1,466	46,911	58,226
Bronx	498,539	209,325	7,277	53,917	207,212	878	105	275	7,377	12,173
Kings	941,871	735,112	20,342	71,538	88,618	398	529	165	10,358	14,811
New York	748,293	301,259	11,907	212,337	177,119	270	652	356	21,237	23,156
Queens	761,819	585,037	15,667	46,702	99,146	372	245	151	7,186	7,313
Richmond	164,289	144,480	1,672	7,229	8,582	0	281	519	753	773
<b>Rest of State</b>	4,094,243	2,252,209	216,973	469,133	960,110	17,350	125,078	5,069	32,568	15,753
Albany	125,329	85,954	2,757	22,365	9,778	323	2,048	281	885	938
Broome	76,957	50,681	3,634	9,810	8,404	798	2,603	23	765	239
Cattaraugus	31,409	17,025	3,624	4,357	1,995	438	3,321	0	592	57
Cayuga	30,966	15,711	4,519	2,793	4,141	554	2,340	36	647	225
Chautauqua	51,705	35,877	4,003	7,263	905	163	2,480	0	781	233
Chemung	34,418	24,265	2,227	4,568	1,841	287	993	0	96	141
Clinton	30,624	3,287	1,080	9,368	13,682	91	2,542	38	536	0
Dutchess	108,200	28,458	6,005	15,940	53,835	135	2,366	362	758	341
Erie	380,473	336,898	6,208	27,641	4,736	224	2,484	72	1,249	961
Jefferson	41,415	17,676	5,754	8,036	5,150	0	3,851	0	768	180
Livingston	23,904	12,092	4,096	2,778	2,727	302	1,427	71	387	24
Madison	25,612	10,684	3,170	2,767	6,603	537	1,538	73	240	0
Monroe	299,224	237,000	5,140	44,683	5,595	227	1,578	169	3,249	1,583
Nassau	440,785	252,187	6,845	23,116	154,585	65	334	884	1,475	1,294
Niagara	86,786	66,896	4,543	8,134	4,993	65	1,282	59	632	182
Oneida	87,929	51,258	6,465	10,946	14,585	153	3,077	553	665	227
Onondaga	182,984	130,235	5,073	34,848	6,747	652	2,626	60	1,318	1,425
Ontario	45,187	27,071	4,817	6,077	4,303	468	1,724	43	420	264
Orange	124,365	62,373	6,481	13,099	38,782	159	1,534	27	1,216	694
Oswego	44,633	18,152	8,435	5,749	5,447	372	5,784	106	526	62
Putnam	34,762	2,335	1,163	7,496	22,671	27	680	0	323	67
Rensselaer	62,816	28,757	4,698	9,863	15,310	34	3,411	0	650	93
Rockland	99,257	87,000	632	8,201	2,275	93	351	72	334	299
St. Lawrence	40,479	13,407	3,603	3,859	11,820	71	7,065	22	372	260
Saratoga	93,703	52,079	10,294	12,984	13,491	344	3,083	100	921	407
Schenectady	48,720	35,766	1,554	7,157	3,631	25	442	52	93	0
Steuben	38,458	20,556	4,713	4,567	2,638	1,612	3,747	122	412	91
Suffolk	474,311	185,927	10,981	34,322	236,192	76	3,771	609	1,658	775
Sullivan	25,031	567	4,582	2,819	14,218	159	2,493	0	162	31
Tompkins	37,683	16,732	3,764	8,957	3,947	693	2,546	141	457	446
Ulster	68,298	14,064	6,527	8,843	32,271	218	4,999	367	501	508
Warren	28,841	12,355	3,415	4,739	5,802	44	1,925	0	522	39
Wayne	37,496	19,035	5,432	4,739	4,264	275	2,665	0	690	396
Westchester	342,216	167,443	9,168	37,213	123,367	339	690	136	1,851	2,009

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

# Appendix D-3

## New York State Population Estimates by County, 2006–2016

Table D-3

County	July 2006	July 2007	July 2008	July 2009	July 2010	July 2011	July 2012	July 2013	July 2014	July 2015	July 2016
<b>New York State</b>	<b>19,104,631</b>	<b>19,132,335</b>	<b>19,212,436</b>	<b>19,307,066</b>	<b>19,402,640</b>	<b>19,519,529</b>	<b>19,602,769</b>	<b>19,673,546</b>	<b>19,718,515</b>	<b>19,747,183</b>	<b>19,745,289</b>
Albany	303,997	303,858	303,739	304,733	304,078	305,019	306,384	307,496	308,295	308,432	308,846
Alleghany	49,359	49,079	49,177	48,969	48,949	48,818	48,247	48,005	47,765	47,407	47,077
Bronx	1,348,164	1,354,056	1,363,488	1,376,261	1,388,240	1,399,990	1,414,774	1,426,550	1,437,687	1,449,196	1,455,720
Broome	200,905	200,877	201,029	200,935	200,469	199,459	198,916	198,370	197,669	196,618	195,334
Cattaraugus	81,342	81,056	80,761	80,491	80,249	79,839	79,365	78,958	78,621	77,909	77,677
Cayuga	80,892	80,629	80,482	80,172	79,844	79,811	79,637	79,242	78,857	78,316	77,861
Chautauqua	135,640	135,481	135,229	135,197	134,760	134,266	133,438	133,005	131,980	130,811	129,504
Chemung	88,732	88,634	88,503	88,849	88,972	88,988	89,264	88,498	87,506	87,120	86,322
Chenango	51,391	51,463	51,326	50,639	50,371	50,254	49,919	49,522	49,432	48,979	48,579
Clinton	82,547	82,556	82,401	82,280	82,068	81,852	81,869	81,749	81,682	81,154	81,073
Columbia	63,427	63,430	63,253	63,023	63,017	62,626	62,539	62,269	62,013	61,491	60,989
Cortland	49,449	49,624	49,537	49,358	49,245	49,497	49,154	49,038	48,875	48,429	48,070
Deleware	48,271	48,450	48,363	48,182	47,877	47,654	47,330	46,874	46,600	46,074	45,523
Dutchess	294,712	295,319	296,267	296,887	297,757	298,289	297,213	296,708	295,903	295,228	294,473
Erie	925,564	921,887	920,571	919,334	919,220	920,088	920,792	922,150	923,702	922,957	921,046
Essex	39,490	39,373	39,435	39,478	39,288	39,479	39,114	38,832	38,572	38,371	38,102
Franklin	51,511	51,782	51,907	51,706	51,624	51,568	51,788	51,242	51,092	50,502	50,409
Fulton	55,328	55,489	55,584	55,558	55,468	55,264	55,033	54,521	54,145	53,960	53,828
Genesee	59,919	59,930	59,895	59,932	59,939	59,923	59,762	59,262	58,949	58,810	58,482
Greene	49,513	49,537	49,467	49,372	49,118	48,992	48,711	48,416	48,015	47,695	47,508
Hamilton	4,987	4,969	4,893	4,858	4,834	4,834	4,797	4,760	4,689	4,698	4,542
Herkimer	64,029	64,343	64,404	64,381	64,426	64,615	64,527	64,122	63,602	62,924	62,613
Jefferson	113,650	115,059	115,033	115,023	116,571	118,161	120,730	119,112	118,724	117,260	114,006
Kings	2,436,132	2,441,324	2,460,361	2,487,751	2,510,240	2,543,667	2,572,282	2,595,344	2,612,544	2,624,941	2,629,150
Lewis	27,001	27,086	26,878	27,047	27,063	27,087	27,267	27,168	27,214	27,022	26,865
Livingston	65,357	65,460	65,637	65,420	65,234	64,890	64,854	64,723	64,692	64,583	64,257
Madison	72,042	72,709	73,075	73,169	73,431	72,970	72,490	72,547	72,306	71,771	71,329
Monroe	738,329	739,249	741,018	743,386	744,959	747,714	748,947	750,367	750,089	749,048	747,727
Montgomery	49,724	49,798	49,951	50,001	50,286	49,932	49,848	49,789	49,747	49,673	49,276
Nassau	1,324,905	1,322,048	1,325,129	1,332,088	1,341,879	1,346,815	1,350,748	1,354,258	1,357,799	1,359,702	1,361,500
New York	1,578,171	1,581,402	1,587,022	1,583,431	1,588,530	1,609,533	1,625,121	1,630,453	1,634,468	1,641,168	1,643,734
Niagara	216,148	215,791	215,793	216,043	216,489	215,729	214,841	214,267	213,484	212,522	211,758
Oneida	234,229	234,488	234,482	234,619	234,836	234,292	234,061	233,800	233,213	232,025	231,190
Onondaga	460,925	461,287	463,472	465,633	467,522	467,913	467,712	469,328	468,742	468,275	466,194
Ontario	104,644	105,216	106,302	107,214	108,218	108,750	108,801	109,285	109,684	109,654	109,828
Orange	366,908	368,464	370,201	372,079	373,484	374,358	374,100	374,956	375,814	377,130	379,210
Orleans	43,420	43,342	43,254	42,975	42,846	42,693	42,465	42,328	41,947	41,604	41,346
Oswego	122,354	122,213	122,366	122,055	122,129	121,999	121,551	121,321	120,744	119,962	118,987
Ostego	63,032	62,914	62,561	62,280	62,192	61,982	61,805	61,558	60,907	60,530	60,097
Putnam	99,357	99,454	99,537	99,666	99,827	99,958	99,717	99,678	99,478	99,265	98,900
Queens	2,173,862	2,177,351	2,193,623	2,217,166	2,235,310	2,259,756	2,278,024	2,297,598	2,314,149	2,327,228	2,333,054
Rensselaer	157,312	158,243	159,011	159,150	159,347	159,694	159,669	159,862	160,092	160,101	160,070
Richmond	457,577	459,642	463,701	466,965	469,706	471,152	470,978	472,515	473,142	473,969	476,015
Rockland	299,390	301,668	305,413	308,652	312,533	315,772	317,763	320,321	322,855	325,491	326,780
St. Lawrence	111,556	111,586	111,684	112,169	111,821	112,468	112,621	112,253	111,800	110,935	110,038
Saratoga	214,627	215,798	217,282	218,652	220,094	221,166	222,553	224,207	224,692	226,140	227,053
Schenectady	151,768	152,275	153,360	154,050	154,896	154,673	154,945	154,964	155,006	154,758	154,553
Schoharie	32,661	32,894	32,890	32,776	32,688	32,662	32,086	31,872	31,690	31,372	31,317
Schuyler	18,752	18,707	18,644	18,398	18,309	18,492	18,579	18,502	18,301	18,199	18,099
Seneca	35,223	35,469	35,370	35,286	35,246	35,353	35,380	35,272	34,904	34,848	34,777
Steuben	98,473	98,541	98,726	98,949	98,990	99,272	99,064	98,952	98,253	97,546	96,940
Suffolk	1,475,626	1,475,255	1,480,218	1,487,206	1,494,747	1,500,259	1,499,382	1,500,776	1,500,008	1,497,903	1,492,583
Sullivan	77,231	77,991	77,755	77,647	77,412	77,104	76,952	76,919	75,667	74,751	74,801
Tioga	51,536	51,565	51,498	51,236	51,000	50,945	50,303	50,128	49,793	49,261	48,760
Tompkins	99,651	99,910	100,383	101,497	101,774	102,111	103,135	104,270	104,498	104,564	104,871
Ulster	182,845	182,818	183,174	182,638	182,408	182,647	181,811	180,987	180,680	179,824	179,225
Warren	65,554	65,740	65,848	65,694	65,678	65,694	65,418	65,145	64,882	64,544	64,567
Washington	62,771	63,054	63,252	63,077	63,321	63,112	63,066	62,777	62,442	62,238	61,800
Wayne	93,595	93,539	93,739	93,643	93,756	93,260	93,012	92,939	91,829	91,340	90,798
Westchester	931,426	933,414	937,449	944,201	950,588	957,052	961,073	967,377	970,255	972,900	974,542
Wyoming	42,673	42,515	42,281	42,236	42,118	41,930	41,771	41,431	41,200	41,004	40,791
Yates	25,025	25,234	25,352	25,303	25,349	25,387	25,271	25,154	25,130	25,051	24,923

# Appendix E

## New York State Heating and Cooling Degree-Days, 2002–2016

Figure E-1

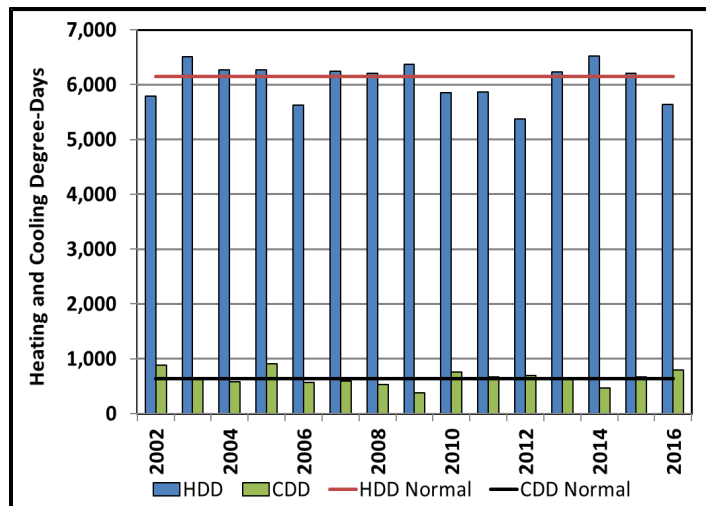


Table E-1 (monthly heating degree-days)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2002	971	868	827	462	299	40	3	6	46	445	725	1,099	5,791
2003	1,375	1,164	898	597	277	62	1	5	64	438	610	1,012	6,503
2004	1,441	1,103	818	500	148	57	3	15	49	384	675	1,080	6,273
2005	1,277	1,011	1,029	456	325	18	0	3	35	365	622	1,130	6,271
2006	951	997	886	487	254	53	1	15	136	442	571	828	5,621
2007	1,054	1,213	939	622	218	40	16	23	74	243	752	1,045	6,239
2008	1,085	1,053	930	450	315	22	1	18	107	455	743	1,031	6,210
2009	1,367	997	890	497	240	71	18	16	140	476	583	1,073	6,368
2010	1,183	1,021	715	386	175	35	6	5	91	394	693	1,153	5,857
2011	1,292	1,051	910	490	193	33	0	4	70	381	569	876	5,869
2012	1,038	894	601	508	146	51	0	7	117	347	775	889	5,373
2013	1,102	1,028	936	540	230	54	3	9	166	350	771	1,042	6,231
2014	1,313	1,150	1,087	568	207	25	7	16	116	335	768	925	6,517
2015	1,304	1,378	1,073	542	133	64	5	6	47	429	560	662	6,203
2016	1,124	970	711	579	265	34	0	0	33	284	639	1,003	5,642
Normal*	1,207	1,021	892	516	232	46	1	13	105	397	679	1,038	6,147

Table E-2 (monthly cooling degree-days)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2002	0	0	0	27	16	135	307	276	99	17	0	0	877
2003	0	0	0	0	1	90	233	269	58	0	1	0	652
2004	0	0	0	0	35	103	197	174	70	0	0	0	579
2005	0	0	0	0	0	196	285	296	120	12	0	0	909
2006	0	0	0	0	24	104	251	170	14	0	0	0	563
2007	0	0	0	0	26	104	169	188	76	28	0	0	591
2008	0	0	0	0	3	144	224	96	65	0	0	0	532
2009	0	0	0	9	5	43	107	191	20	0	0	0	375
2010	0	0	0	0	42	142	295	196	75	1	0	0	751
2011	0	0	0	0	39	97	280	169	84	1	0	0	670
2012	0	0	0	4	44	105	271	203	59	2	0	0	688
2013	0	0	0	0	32	113	301	135	57	6	0	0	644
2014	0	0	0	0	13	93	183	106	69	7	0	0	471
2015	0	0	0	0	56	82	213	200	119	0	0	0	670
2016	0	0	0	0	43	86	253	279	123	15	0	0	799
Normal*	0	0	0	0	18	119	233	200	64	3	0	0	637

\* Note: Normal is a 30-year degree-day average value from 1981 to 2010.



# Appendix F-1

## New York State Electricity Prices by Sector by Utility<sup>1</sup> in Nominal Dollars, 2002–2016

**Table F-1a. Residential Sector Electricity Prices by Utility (Nominal Cents/kWh)**

Year	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	9.96	16.99	13.92	12.32	12.39	12.47	10.61
2003	10.39	19.37	14.66	12.37	12.26	13.95	10.72
2004	10.43	18.93	16.05	12.43	12.83	13.84	10.38
2005	12.61	21.07	17.50	13.59	12.74	15.20	10.58
2006	12.83	20.90	20.11	13.78	14.98	15.40	11.71
2007	14.00	21.58	19.08	13.40	15.56	16.60	11.46
2008	16.28	24.18	19.67	13.19	15.45	18.12	11.85
2009	15.81	23.58	18.56	11.90	14.95	17.63	11.52
2010	16.51	25.85	20.75	11.14	15.57	18.88	12.34
2011	15.96	25.59	19.81	10.83	15.16	18.60	12.07
2012	16.22	25.65	19.03	10.70	12.91	16.85	12.21
2013	16.86	26.99	20.65	11.68	14.18	19.46	13.31
2014	18.78	28.85	20.52	13.01	15.85	23.24	14.22
2015	17.67	26.30	19.19	12.00	13.31	20.82	13.07
2016	16.48	24.91	18.94	11.50	12.08	19.40	12.72

**Table F-1b. Commercial Sector Electricity Prices by Utility (Nominal Cents/kWh)**

Year	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	7.34	14.32	11.80	10.40	10.99	9.37	9.25
2003	7.61	16.36	12.50	11.28	11.79	10.89	9.78
2004	7.67	16.05	13.87	11.06	12.24	10.63	9.10
2005	10.11	18.61	15.82	12.22	13.12	12.27	9.58
2006	10.12	18.37	18.75	12.25	14.35	12.09	11.23
2007	11.26	19.27	17.76	12.05	15.38	13.53	11.00
2008	13.28	21.20	18.59	12.46	16.84	14.70	11.36
2009	12.12	19.64	17.39	9.23	12.66	13.01	10.12
2010	12.64	20.38	19.27	10.21	13.69	14.31	11.88
2011	12.13	20.70	18.12	9.62	13.13	13.64	11.39
2012	12.47	20.04	17.23	9.40	10.69	12.29	11.72
2013	13.21	20.61	18.62	11.52	12.06	14.61	13.04
2014	15.53	22.16	18.82	13.05	13.33	17.36	13.50
2015	13.94	20.57	17.46	11.41	10.89	15.29	12.31
2016	12.67	19.13	16.72	10.36	9.49	13.40	11.80

**Table F-1c. Industrial Sector Electricity Prices by Utility (Nominal Cents/kWh)**

Year	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	5.00	13.03	N/A	6.49	4.85	6.06	6.67
2003	7.50	15.08	N/A	7.70	14.12	7.88	6.79
2004	7.16	14.81	N/A	6.58	13.27	7.28	7.10
2005	10.05	17.41	N/A	7.34	17.44	8.88	7.33
2006	7.66	16.82	N/A	7.25	18.31	8.54	8.17
2007	8.53	18.02	N/A	6.81	17.05	9.85	7.99
2008	12.47	19.56	N/A	7.19	20.44	11.94	8.26
2009	10.52	18.05	N/A	5.53	15.36	7.59	6.47
2010	11.15	18.92	N/A	6.04	15.00	8.08	8.90
2011	10.01	18.65	N/A	5.84	15.47	7.04	8.50
2012	10.27	17.26	N/A	5.47	10.58	5.80	9.36
2013	10.69	18.30	N/A	5.98	8.10	8.03	11.71
2014	13.02	20.18	N/A	8.81	8.65	11.09	12.07
2015	10.92	16.70	N/A	7.21	6.35	8.73	10.50
2016	9.76	16.68	N/A	6.56	5.34	8.39	9.82

<sup>1</sup> Annual average electricity prices by sector by utility are based on bundled electricity sales.

# Appendix F-2

## New York State Electricity Customers by Sector by Utility, 2002–2016

Table F-2a. Residential Sector Electricity Customers by Utility

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	239,249	2,683,349	936,810	715,299	1,369,959	142,212	281,565
2002	Delivery	47	139,766	28,322	20,371	608,235	39,678	35,923
<b>2002</b>	<b>Total</b>	<b>239,296</b>	<b>2,823,115</b>	<b>965,132</b>	<b>735,670</b>	<b>1,978,194</b>	<b>181,890</b>	<b>317,488</b>
2003	Bundled	243,689	2,691,906	967,606	708,149	1,357,582	131,739	278,996
2003	Delivery	34	100,061	2,352	32,366	71,042	53,025	38,430
<b>2003</b>	<b>Total</b>	<b>243,723</b>	<b>2,791,967</b>	<b>969,958</b>	<b>740,515</b>	<b>1,428,624</b>	<b>184,764</b>	<b>317,426</b>
2004	Bundled	245,088	2,626,379	977,980	706,360	1,348,800	130,148	282,578
2004	Delivery	906	69,818	2	36,539	81,494	56,211	35,776
<b>2004</b>	<b>Total</b>	<b>245,994</b>	<b>2,696,197</b>	<b>977,982</b>	<b>742,899</b>	<b>1,430,294</b>	<b>186,359</b>	<b>318,354</b>
2005	Bundled	248,409	2,625,628	981,532	696,362	1,349,917	131,200	264,873
2005	Delivery	2,089	84,216	11	48,266	84,004	56,991	54,556
<b>2005</b>	<b>Total</b>	<b>250,498</b>	<b>2,709,844</b>	<b>981,543</b>	<b>744,628</b>	<b>1,433,921</b>	<b>188,191</b>	<b>319,429</b>
2006	Bundled	246,921	2,527,297	988,501	701,371	1,343,802	137,776	258,345
2006	Delivery	2,698	201,652	22	50,960	94,454	51,982	61,026
<b>2006</b>	<b>Total</b>	<b>249,619</b>	<b>2,728,949</b>	<b>988,523</b>	<b>752,331</b>	<b>1,438,256</b>	<b>189,758</b>	<b>319,371</b>
2007	Bundled	248,621	2,403,262	989,705	679,298	1,308,819	138,326	264,226
2007	Delivery	3,227	344,996	22	77,757	133,645	52,626	55,598
<b>2007</b>	<b>Total</b>	<b>251,848</b>	<b>2,748,258</b>	<b>989,727</b>	<b>757,055</b>	<b>1,442,464</b>	<b>190,952</b>	<b>319,824</b>
2008	Bundled	244,470	2,312,650	991,385	653,965	1,271,407	138,899	261,889
2008	Delivery	9,240	456,629	7	104,749	175,420	53,345	58,923
<b>2008</b>	<b>Total</b>	<b>253,710</b>	<b>2,769,279</b>	<b>991,392</b>	<b>758,714</b>	<b>1,446,827</b>	<b>192,244</b>	<b>320,812</b>
2009	Bundled	240,551	2,280,223	995,350	636,962	1,245,334	140,244	259,569
2009	Delivery	12,358	500,463	1	120,867	204,921	52,623	62,434
<b>2009</b>	<b>Total</b>	<b>252,909</b>	<b>2,780,686</b>	<b>995,351</b>	<b>757,829</b>	<b>1,450,255</b>	<b>192,867</b>	<b>322,003</b>
2010	Bundled	237,920	2,288,286	997,361	611,712	1,224,605	132,344	256,607
2010	Delivery	15,555	519,200	1	149,116	230,164	61,103	68,054
<b>2010</b>	<b>Total</b>	<b>253,475</b>	<b>2,807,486</b>	<b>997,362</b>	<b>760,828</b>	<b>1,454,769</b>	<b>193,447</b>	<b>324,661</b>
2011	Bundled	235,742	2,263,566	997,520	587,353	1,199,358	128,238	249,138
2011	Delivery	18,413	569,199	1	174,488	258,822	65,413	77,311
<b>2011</b>	<b>Total</b>	<b>254,155</b>	<b>2,832,765</b>	<b>997,521</b>	<b>761,841</b>	<b>1,458,180</b>	<b>193,651</b>	<b>326,449</b>
2012	Bundled	225,159	2,161,397	998,404	576,672	1,174,731	120,892	245,761
2012	Delivery	28,250	688,186	71	184,793	286,703	73,344	82,820
<b>2012</b>	<b>Total</b>	<b>253,409</b>	<b>2,849,583</b>	<b>998,475</b>	<b>761,465</b>	<b>1,461,434</b>	<b>194,236</b>	<b>328,581</b>
2013	Bundled	217,523	2,113,173	996,217	574,429	1,165,012	117,183	246,295
2013	Delivery	36,370	746,375	215	187,235	301,568	78,084	83,885
<b>2013</b>	<b>Total</b>	<b>253,893</b>	<b>2,859,548</b>	<b>996,432</b>	<b>761,664</b>	<b>1,466,580</b>	<b>195,267</b>	<b>330,180</b>
2014	Bundled	213,187	2,135,972	996,453	583,185	1,164,691	117,671	253,092
2014	Delivery	41,162	733,909	63	180,404	306,231	78,179	78,275
<b>2014</b>	<b>Total</b>	<b>254,349</b>	<b>2,869,881</b>	<b>996,516</b>	<b>763,589</b>	<b>1,470,922</b>	<b>195,850</b>	<b>331,367</b>
2015	Bundled	213,731	2,196,201	1,002,930	597,341	1,189,904	121,745	261,440
2015	Delivery	42,047	689,832	27	166,909	285,904	75,159	71,316
<b>2015</b>	<b>Total</b>	<b>255,778</b>	<b>2,886,033</b>	<b>1,002,957</b>	<b>764,250</b>	<b>1,475,808</b>	<b>196,904</b>	<b>332,756</b>
2016	Bundled	226,402	2,187,429	1,005,734	608,584	1,220,352	128,099	270,864
2016	Delivery	39,659	708,600	25	158,370	264,515	70,232	63,886
<b>2016</b>	<b>Total</b>	<b>266,061</b>	<b>2,896,029</b>	<b>1,005,759</b>	<b>766,954</b>	<b>1,484,867</b>	<b>198,331</b>	<b>334,750</b>



**Table F-2b. Commercial Sector Electricity Customers by Utility**

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	38,698	429,641	107,888	82,376	146,566	22,459	26,570
2002	Delivery	42	20,960	3,826	4,770	130,206	5,488	7,195
<b>2002</b>	<b>Total</b>	<b>38,740</b>	<b>450,601</b>	<b>111,714</b>	<b>87,146</b>	<b>276,772</b>	<b>27,947</b>	<b>33,765</b>
2003	Bundled	44,571	445,078	115,170	85,555	141,499	20,713	28,457
2003	Delivery	90	22,416	715	8,459	18,370	8,444	8,919
<b>2003</b>	<b>Total</b>	<b>44,661</b>	<b>467,494</b>	<b>115,885</b>	<b>94,014</b>	<b>159,869</b>	<b>29,157</b>	<b>37,376</b>
2004	Bundled	44,092	423,526	112,431	95,739	137,116	19,659	28,225
2004	Delivery	902	31,977	923	14,779	22,937	9,735	9,725
<b>2004</b>	<b>Total</b>	<b>44,994</b>	<b>455,503</b>	<b>113,354</b>	<b>110,518</b>	<b>160,053</b>	<b>29,394</b>	<b>37,950</b>
2005	Bundled	44,673	410,162	112,638	89,068	124,672	20,037	23,527
2005	Delivery	1,346	55,680	1,377	23,510	35,777	9,748	14,686
<b>2005</b>	<b>Total</b>	<b>46,019</b>	<b>465,842</b>	<b>114,015</b>	<b>112,578</b>	<b>160,449</b>	<b>29,785</b>	<b>38,213</b>
2006	Bundled	42,938	390,897	117,700	86,541	123,449	21,335	23,640
2006	Delivery	1,762	82,833	2,198	26,467	38,815	8,725	15,378
<b>2006</b>	<b>Total</b>	<b>44,700</b>	<b>473,730</b>	<b>119,898</b>	<b>113,008</b>	<b>162,264</b>	<b>30,060</b>	<b>39,018</b>
2007	Bundled	43,399	391,071	117,844	81,786	117,655	21,622	24,108
2007	Delivery	1,870	95,745	2,200	30,200	45,916	8,768	14,732
<b>2007</b>	<b>Total</b>	<b>45,269</b>	<b>486,816</b>	<b>120,044</b>	<b>111,986</b>	<b>163,571</b>	<b>30,390</b>	<b>38,840</b>
2008	Bundled	42,761	391,694	117,966	76,284	109,098	21,563	23,916
2008	Delivery	2,990	99,653	2,544	36,222	55,040	9,051	15,326
<b>2008</b>	<b>Total</b>	<b>45,751</b>	<b>491,347</b>	<b>120,510</b>	<b>112,506</b>	<b>164,138</b>	<b>30,614</b>	<b>39,242</b>
2009	Bundled	40,613	391,850	118,095	75,082	104,171	20,769	22,832
2009	Delivery	4,969	104,455	2,917	39,945	60,354	9,920	16,779
<b>2009</b>	<b>Total</b>	<b>45,582</b>	<b>496,305</b>	<b>121,012</b>	<b>115,027</b>	<b>164,525</b>	<b>30,689</b>	<b>39,611</b>
2010	Bundled	39,196	388,876	118,320	71,547	101,607	19,322	22,285
2010	Delivery	6,222	110,876	2,547	43,011	63,113	11,424	17,672
<b>2010</b>	<b>Total</b>	<b>45,418</b>	<b>499,752</b>	<b>120,867</b>	<b>114,558</b>	<b>164,720</b>	<b>30,746</b>	<b>39,957</b>
2011	Bundled	37,576	371,054	117,917	68,473	98,730	18,672	21,372
2011	Delivery	7,726	124,704	2,762	46,158	67,587	12,185	18,647
<b>2011</b>	<b>Total</b>	<b>45,302</b>	<b>495,758</b>	<b>120,679</b>	<b>114,631</b>	<b>166,317</b>	<b>30,857</b>	<b>40,019</b>
2012	Bundled	35,638	349,340	117,568	67,874	98,886	17,759	20,516
2012	Delivery	9,485	144,982	2,959	47,984	70,541	13,188	19,047
<b>2012</b>	<b>Total</b>	<b>45,123</b>	<b>494,322</b>	<b>120,527</b>	<b>115,858</b>	<b>169,427</b>	<b>30,947</b>	<b>39,563</b>
2013	Bundled	34,217	341,327	116,388	69,136	97,955	16,935	20,991
2013	Delivery	11,044	152,969	3,755	48,703	71,720	14,154	18,639
<b>2013</b>	<b>Total</b>	<b>45,261</b>	<b>494,296</b>	<b>120,143</b>	<b>117,839</b>	<b>169,675</b>	<b>31,089</b>	<b>39,630</b>
2014	Bundled	33,384	342,181	116,293	69,443	94,509	16,848	21,250
2014	Delivery	11,856	156,644	4,881	48,422	74,452	14,381	18,759
<b>2014</b>	<b>Total</b>	<b>45,240</b>	<b>498,825</b>	<b>121,174</b>	<b>117,865</b>	<b>168,961</b>	<b>31,229</b>	<b>40,009</b>
2015	Bundled	33,288	349,478	112,610	70,993	98,408	16,322	21,193
2015	Delivery	12,324	161,479	3,536	47,146	71,998	15,099	19,022
<b>2015</b>	<b>Total</b>	<b>45,612</b>	<b>510,957</b>	<b>116,146</b>	<b>118,139</b>	<b>170,406</b>	<b>31,421</b>	<b>40,215</b>
2016	Bundled	34,264	358,352	112,922	73,348	102,502	16,542	21,958
2016	Delivery	12,206	164,550	3,544	46,882	70,240	15,168	18,375
<b>2016</b>	<b>Total</b>	<b>46,470</b>	<b>522,902</b>	<b>116,466</b>	<b>120,230</b>	<b>172,742</b>	<b>31,710</b>	<b>40,333</b>

**Table F-2c. Industrial Sector Electricity Customers by Utility**

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	1,027	388	N/A	2,376	1,469	95	900
2002	Delivery	3	434	N/A	297	3,895	30	306
<b>2002</b>	<b>Total</b>	<b>1,030</b>	<b>822</b>	<b>N/A</b>	<b>2,673</b>	<b>5,364</b>	<b>125</b>	<b>1,206</b>
2003	Bundled	1,026	298	N/A	12,580	1,218	80	809
2003	Delivery	15	474	N/A	3,712	583	36	356
<b>2003</b>	<b>Total</b>	<b>1,041</b>	<b>772</b>	<b>N/A</b>	<b>16,292</b>	<b>1,801</b>	<b>116</b>	<b>1,165</b>
2004	Bundled	981	305	N/A	2,191	1,071	73	744
2004	Delivery	15	512	N/A	543	796	43	397
<b>2004</b>	<b>Total</b>	<b>996</b>	<b>817</b>	<b>N/A</b>	<b>2,734</b>	<b>1,867</b>	<b>116</b>	<b>1,141</b>
2005	Bundled	988	324	N/A	1,858	890	78	618
2005	Delivery	82	552	N/A	800	859	40	525
<b>2005</b>	<b>Total</b>	<b>1,070</b>	<b>876</b>	<b>N/A</b>	<b>2,658</b>	<b>1,749</b>	<b>118</b>	<b>1,143</b>
2006	Bundled	959	259	N/A	1,644	874	78	493
2006	Delivery	89	585	N/A	1,040	932	33	568
<b>2006</b>	<b>Total</b>	<b>1,048</b>	<b>844</b>	<b>N/A</b>	<b>2,684</b>	<b>1,806</b>	<b>111</b>	<b>1,061</b>
2007	Bundled	1,181	247	N/A	1,415	817	73	472
2007	Delivery	89	612	N/A	1,170	958	36	548
<b>2007</b>	<b>Total</b>	<b>1,270</b>	<b>859</b>	<b>N/A</b>	<b>2,585</b>	<b>1,775</b>	<b>109</b>	<b>1,020</b>
2008	Bundled	1,027	238	N/A	1,215	768	71	438
2008	Delivery	134	620	N/A	1,299	973	36	544
<b>2008</b>	<b>Total</b>	<b>1,161</b>	<b>858</b>	<b>N/A</b>	<b>2,514</b>	<b>1,741</b>	<b>107</b>	<b>982</b>
2009	Bundled	905	223	N/A	1,056	755	67	406
2009	Delivery	191	625	N/A	1,375	975	38	540
<b>2009</b>	<b>Total</b>	<b>1,096</b>	<b>848</b>	<b>N/A</b>	<b>2,431</b>	<b>1,730</b>	<b>105</b>	<b>946</b>
2010	Bundled	864	184	N/A	939	748	57	364
2010	Delivery	214	625	N/A	1,409	952	43	539
<b>2010</b>	<b>Total</b>	<b>1,078</b>	<b>809</b>	<b>N/A</b>	<b>2,348</b>	<b>1,700</b>	<b>100</b>	<b>903</b>
2011	Bundled	834	130	N/A	853	702	52	325
2011	Delivery	246	636	N/A	1,425	983	47	556
<b>2011</b>	<b>Total</b>	<b>1,080</b>	<b>766</b>	<b>N/A</b>	<b>2,278</b>	<b>1,685</b>	<b>99</b>	<b>881</b>
2012	Bundled	789	97	N/A	796	655	48	333
2012	Delivery	272	666	N/A	1,414	1,017	49	587
<b>2012</b>	<b>Total</b>	<b>1,061</b>	<b>763</b>	<b>N/A</b>	<b>2,210</b>	<b>1,672</b>	<b>97</b>	<b>920</b>
2013	Bundled	799	85	N/A	758	630	47	314
2013	Delivery	272	679	N/A	1,397	1,026	43	579
<b>2013</b>	<b>Total</b>	<b>1,071</b>	<b>764</b>	<b>N/A</b>	<b>2,155</b>	<b>1,656</b>	<b>90</b>	<b>893</b>
2014	Bundled	763	93	N/A	725	588	42	293
2014	Delivery	295	675	N/A	1,377	1,048	55	568
<b>2014</b>	<b>Total</b>	<b>1,058</b>	<b>768</b>	<b>N/A</b>	<b>2,102</b>	<b>1,636</b>	<b>97</b>	<b>861</b>
2015	Bundled	727	81	N/A	682	569	42	282
2015	Delivery	316	679	N/A	1,266	1,054	54	559
<b>2015</b>	<b>Total</b>	<b>1,043</b>	<b>760</b>	<b>N/A</b>	<b>1,948</b>	<b>1,623</b>	<b>96</b>	<b>841</b>
2016	Bundled	745	69	N/A	700	560	45	300
2016	Delivery	304	693	N/A	1,280	1,045	56	529
<b>2016</b>	<b>Total</b>	<b>1,049</b>	<b>762</b>	<b>N/A</b>	<b>1,980</b>	<b>1,605</b>	<b>101</b>	<b>829</b>

**Electricity Customers by Sector by Power Marketer – Top 10 Power Marketers in each sector and total of all Power Marketers**

**Table F-2d. Residential Sector Electricity Customers by Power Marketers**

Year	Ambit Energy Holdings, LLC	Constellation NewEnergy, Inc	Direct Energy Services	Just Energy New York Corp.	IDT Energy, Inc.	Green Mountain Energy Company	Family Energy, Inc. New York	Major Energy Electric Services	Agway Energy Services, LLC	Viridian Energy NY LLC	Total All Power Marketers
2002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27,399	N/A	675,924
2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34,379	N/A	291,310
2004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34,789	N/A	440,760
2005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34,000	N/A	304,969
2006	N/A	N/A	18,216	N/A	N/A	N/A	N/A	N/A	36,827	N/A	422,016
2007	N/A	N/A	26,713	N/A	164,717	N/A	N/A	N/A	33,575	N/A	737,923
2008	75,395	N/A	51,501	35,872	183,116	N/A	N/A	N/A	29,304	N/A	940,815
2009	70,935	N/A	71,100	59,501	199,349	N/A	N/A	N/A	30,445	N/A	967,457
2010	103,237	N/A	60,497	86,396	182,071	N/A	N/A	9,788	32,943	N/A	1,039,714
2011	166,899	N/A	43,973	112,900	186,311	N/A	N/A	17,170	37,015	N/A	1,126,903
2012	210,320	N/A	38,325	136,535	135,729	35,735	N/A	24,693	41,209	9,115	1,150,844
2013	209,393	N/A	186,139	143,969	121,764	49,030	N/A	24,790	40,437	20,051	1,141,026
2014	193,934	N/A	177,777	120,742	110,185	51,708	37,160	29,062	37,921	40,528	1,785,034
2015	165,468	N/A	159,084	100,350	101,066	59,964	56,639	37,035	36,262	39,564	1,331,839
2016	150,267	1,442	137,925	84,650	83,580	71,261	56,170	34,571	37,286	35,540	1,215,960

**Table F-2e. Commercial Sector Electricity Customers by Power Marketers**

Year	Constellation NewEnergy, Inc	Strategic Energy LLC	ENGIE Resources LLC	Calpine Energy Solutions, LLC	Hudson Energy Services	Consolidated Edison Sol Inc	Champion Energy Services	Plymouth Rock Energy, LLC	Agera Energy LLC	Bluerock Energy, Inc.	Total All Power Marketers
2002	2,299	5,097	N/A	4	N/A	800	N/A	N/A	N/A	N/A	108,365
2003	35,079	4,211	46	5	N/A	3,700	N/A	N/A	N/A	N/A	104,704
2004	3,643	611	168	10	N/A	3,622	N/A	N/A	N/A	N/A	98,738
2005	6,373	963	133	12	N/A	6,184	N/A	N/A	N/A	N/A	91,728
2006	597	3,614	226	18	N/A	7,045	N/A	N/A	N/A	N/A	155,423
2007	630	4,630	2,664	31	4,500	7,282	N/A	N/A	N/A	1,829	196,494
2008	1,079	3,391	4,079	46	11,966	6,524	N/A	N/A	N/A	3,507	237,883
2009	847	3,391	388	56	8,415	9,018	N/A	N/A	N/A	5,912	211,908
2010	799	3,208	384	47	9,458	9,572	N/A	N/A	N/A	6,537	208,409
2011	812	2,612	513	46	16,763	12,128	N/A	245	N/A	7,841	210,580
2012	777	2,282	660	37	16,148	9,980	N/A	7,048	N/A	7,939	220,440
2013	742	4,238	631	42	15,066	8,378	N/A	12,468	N/A	8,327	212,607
2014	1,148	4,680	613	76	13,624	9,028	60	7,353	N/A	8,666	243,802
2015	2,074	9,895	604	169	11,477	14,972	188	6,021	669	10,627	246,574
2016	2,584	9,920	741	172	10,480	14,830	276	5,377	3,002	10,947	227,226

**Table F-2f. Industrial Sector Electricity Customers by Power Marketers**

Year	Constellation NewEnergy, Inc	Strategic Energy LLC	Constellation Energy Services NY, Inc.	ENGIE Resources LLC	TransCanada Power Marketing, Ltd.	EDF Energy Services, LLC	Calpine Energy Solutions, LLC	EnergyMark, LLC	Great Eastern Energy	Linde Energy Services, Inc.	Total All Power Marketers
2002	2	325	318	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,772
2003	88	269	414	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,232
2004	8	39	5,455	N/A	N/A	N/A	1	N/A	N/A	N/A	9,441
2005	8	61	397	N/A	N/A	N/A	1	N/A	N/A	N/A	2,955
2006	1	231	414	N/A	N/A	N/A	1	N/A	N/A	N/A	10,222
2007	3	296	531	264	N/A	N/A	1	N/A	N/A	N/A	7,175
2008	5	216	534	403	N/A	N/A	2	N/A	N/A	N/A	6,413
2009	4	216	456	95	N/A	N/A	6	N/A	N/A	N/A	7,044
2010	73	205	420	107	6	N/A	9	N/A	N/A	1	6,305
2011	90	167	421	184	91	N/A	9	N/A	N/A	1	7,144
2012	92	146	438	155	116	N/A	7	5	N/A	3	9,777
2013	82	271	463	74	95	N/A	7	42	N/A	3	17,085
2014	84	299	509	89	116	N/A	6	65	N/A	3	8,776
2015	103	5,085	592	89	89	4	6	89	4,801	3	11,017
2016	117	4,628	568	93	56	5	6	93	2,750	3	8,407

# Appendix F-3

## New York State Electricity Sales by Sector by Utility, 2002–2016

Table F-3a. Residential Sector Electricity Sales by Utility (MWh)

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	1,882,605	12,510,162	8,489,702	5,544,411	10,119,984	1,092,398	2,156,036
2002	Delivery	786	751,545	299,954	217,865	500,265	359,913	323,627
<b>2002</b>	<b>Total</b>	<b>1,883,391</b>	<b>13,261,707</b>	<b>8,789,656</b>	<b>5,762,276</b>	<b>10,620,249</b>	<b>1,452,311</b>	<b>2,479,663</b>
2003	Bundled	1,978,211	12,440,663	8,997,588	5,574,081	10,232,341	1,038,020	1,996,897
2003	Delivery	669	610,213	12,707	403,162	659,009	435,567	344,509
<b>2003</b>	<b>Total</b>	<b>1,978,880</b>	<b>13,050,876</b>	<b>9,010,295</b>	<b>5,977,243</b>	<b>10,891,350</b>	<b>1,473,587</b>	<b>2,341,406</b>
2004	Bundled	2,002,612	12,672,846	9,182,520	5,607,088	10,168,685	986,418	2,144,358
2004	Delivery	5,306	495,759	4	367,338	746,384	513,958	333,863
<b>2004</b>	<b>Total</b>	<b>2,007,918</b>	<b>13,168,605</b>	<b>9,182,524</b>	<b>5,974,426</b>	<b>10,915,069</b>	<b>1,500,376</b>	<b>2,478,221</b>
2005	Bundled	2,146,753	13,689,872	9,705,553	5,732,108	10,749,792	1,070,489	2,223,030
2005	Delivery	17,924	579,286	199	540,071	866,478	601,675	551,292
<b>2005</b>	<b>Total</b>	<b>2,164,677</b>	<b>14,269,158</b>	<b>9,705,752</b>	<b>6,272,179</b>	<b>11,616,270</b>	<b>1,672,164</b>	<b>2,774,322</b>
2006	Bundled	2,004,577	12,589,959	9,277,824	5,648,612	10,247,534	1,035,081	1,982,798
2006	Delivery	25,802	1,044,698	387	500,176	898,753	537,404	594,378
<b>2006</b>	<b>Total</b>	<b>2,030,379</b>	<b>13,634,657</b>	<b>9,278,211</b>	<b>6,148,788</b>	<b>11,146,287</b>	<b>1,572,485</b>	<b>2,577,176</b>
2007	Bundled	2,087,392	12,312,008	9,508,007	5,659,267	10,139,717	1,131,165	2,096,566
2007	Delivery	30,785	1,796,348	334	639,999	1,227,940	514,687	568,328
<b>2007</b>	<b>Total</b>	<b>2,118,177</b>	<b>14,108,356</b>	<b>9,508,341</b>	<b>6,299,266</b>	<b>11,367,657</b>	<b>1,645,852</b>	<b>2,664,894</b>
2008	Bundled	2,003,545	11,719,706	9,511,752	5,297,114	9,636,989	1,130,272	2,013,088
2008	Delivery	80,320	2,333,137	121	975,778	1,155,154	528,643	559,973
<b>2008</b>	<b>Total</b>	<b>2,083,865</b>	<b>14,052,843</b>	<b>9,511,873</b>	<b>6,272,892</b>	<b>10,792,143</b>	<b>1,658,915</b>	<b>2,573,061</b>
2009	Bundled	1,916,310	10,952,005	9,211,446	5,107,334	9,360,771	1,076,295	1,987,238
2009	Delivery	106,644	2,497,071	7	1,115,466	1,770,888	485,049	575,064
<b>2009</b>	<b>Total</b>	<b>2,022,954</b>	<b>13,449,076</b>	<b>9,211,453</b>	<b>6,222,800</b>	<b>11,131,659</b>	<b>1,561,344</b>	<b>2,562,302</b>
2010	Bundled	1,958,837	11,518,155	9,971,612	5,120,503	9,542,752	1,115,190	2,035,226
2010	Delivery	138,750	2,837,209	3	1,398,004	2,039,312	574,983	642,215
<b>2010</b>	<b>Total</b>	<b>2,097,587</b>	<b>14,355,364</b>	<b>9,971,615</b>	<b>6,518,507</b>	<b>11,582,064</b>	<b>1,690,173</b>	<b>2,677,441</b>
2011	Bundled	1,944,957	11,403,660	9,848,964	4,983,887	9,366,973	1,024,674	1,999,343
2011	Delivery	164,127	3,045,014	1	1,648,121	2,301,861	644,193	729,209
<b>2011</b>	<b>Total</b>	<b>2,109,084</b>	<b>14,448,674</b>	<b>9,848,965</b>	<b>6,632,008</b>	<b>11,668,834</b>	<b>1,668,867</b>	<b>2,728,552</b>
2012	Bundled	1,800,614	10,717,525	9,734,394	4,847,889	9,036,230	954,763	1,926,700
2012	Delivery	248,798	3,619,471	1,013	1,748,681	2,558,665	710,618	761,667
<b>2012</b>	<b>Total</b>	<b>2,049,412</b>	<b>14,336,996</b>	<b>9,735,407</b>	<b>6,596,570</b>	<b>11,594,895</b>	<b>1,665,381</b>	<b>2,688,367</b>
2013	Bundled	1,760,152	10,273,410	9,533,155	4,949,765	9,012,097	927,165	1,921,297
2013	Delivery	326,875	3,883,598	2,997	1,801,854	2,702,425	750,477	764,872
<b>2013</b>	<b>Total</b>	<b>2,087,027</b>	<b>14,157,008</b>	<b>9,536,152</b>	<b>6,751,619</b>	<b>11,714,522</b>	<b>1,677,642</b>	<b>2,686,169</b>
2014	Bundled	1,684,952	9,869,409	9,389,030	5,015,098	8,914,956	877,435	1,946,739
2014	Delivery	361,590	3,698,256	897	1,718,759	2,746,542	748,498	706,317
<b>2014</b>	<b>Total</b>	<b>2,046,542</b>	<b>13,567,665</b>	<b>9,389,927</b>	<b>6,733,857</b>	<b>11,661,498</b>	<b>1,625,933</b>	<b>2,653,056</b>
2015	Bundled	1,712,057	10,534,126	9,610,729	5,167,329	9,157,873	912,853	2,015,852
2015	Delivery	369,009	3,601,982	433	1,594,625	2,561,335	749,686	647,985
<b>2015</b>	<b>Total</b>	<b>2,081,066</b>	<b>14,136,108</b>	<b>9,611,162</b>	<b>6,761,954</b>	<b>11,719,208</b>	<b>1,662,539</b>	<b>2,663,837</b>
2016	Bundled	1,783,747	10,399,796	9,463,002	5,123,827	9,291,884	971,947	2,152,350
2016	Delivery	334,147	3,821,699	400	1,494,842	2,308,253	711,285	590,117
<b>2016</b>	<b>Total</b>	<b>2,117,894</b>	<b>14,221,495</b>	<b>9,463,402</b>	<b>6,618,669</b>	<b>11,600,137</b>	<b>1,683,232</b>	<b>2,742,467</b>

**Table F-3b. Commercial Sector Electricity Sales by Utility (MWh)**

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	1,534,091	18,594,627	9,026,264	2,918,363	8,984,374	1,227,141	1,645,668
2002	Delivery	3,602	10,346,954	585,491	815,071	3,339,417	457,223	783,265
<b>2002</b>	<b>Total</b>	<b>1,537,693</b>	<b>28,941,581</b>	<b>9,611,755</b>	<b>3,733,434</b>	<b>12,323,791</b>	<b>1,684,364</b>	<b>2,428,933</b>
2003	Bundled	1,935,048	17,766,204	9,593,209	2,474,015	8,075,084	1,296,082	1,618,227
2003	Delivery	32,830	19,270,435	182,290	1,319,149	4,488,414	538,950	1,408,360
<b>2003</b>	<b>Total</b>	<b>1,967,878</b>	<b>37,036,639</b>	<b>9,775,499</b>	<b>3,793,164</b>	<b>12,563,498</b>	<b>1,835,032</b>	<b>3,026,587</b>
2004	Bundled	1,890,480	16,803,719	9,666,377	3,177,619	6,964,019	1,128,642	1,385,608
2004	Delivery	116,380	20,930,619	420,463	2,260,306	5,722,201	767,671	1,661,358
<b>2004</b>	<b>Total</b>	<b>2,006,860</b>	<b>37,734,338</b>	<b>10,086,840</b>	<b>5,437,925</b>	<b>12,686,220</b>	<b>1,896,313</b>	<b>3,046,966</b>
2005	Bundled	1,800,725	15,271,507	9,198,576	2,714,119	5,887,419	1,137,834	1,096,937
2005	Delivery	291,676	23,563,370	1,088,270	2,817,040	7,535,015	832,622	2,166,766
<b>2005</b>	<b>Total</b>	<b>2,092,401</b>	<b>38,834,877</b>	<b>10,286,846</b>	<b>5,531,159</b>	<b>13,422,434</b>	<b>1,970,456</b>	<b>3,263,703</b>
2006	Bundled	1,520,755	13,230,007	8,824,667	2,532,073	5,075,399	1,132,730	896,507
2006	Delivery	468,741	25,435,278	1,242,005	2,967,779	7,964,432	789,317	2,161,477
<b>2006</b>	<b>Total</b>	<b>1,989,496</b>	<b>38,665,285</b>	<b>10,066,672</b>	<b>5,499,852</b>	<b>13,039,831</b>	<b>1,922,047</b>	<b>3,057,984</b>
2007	Bundled	1,615,260	12,743,413	8,968,607	2,446,765	4,690,828	1,188,901	930,697
2007	Delivery	454,504	27,333,176	1,341,673	3,225,572	8,530,320	777,689	2,366,818
<b>2007</b>	<b>Total</b>	<b>2,069,764</b>	<b>40,076,589</b>	<b>10,310,280</b>	<b>5,672,337</b>	<b>13,221,148</b>	<b>1,966,590</b>	<b>3,297,515</b>
2008	Bundled	1,575,834	12,678,840	8,542,369	2,279,549	4,135,314	1,152,066	845,892
2008	Delivery	453,056	27,603,634	1,552,130	3,404,631	8,741,923	840,732	2,345,488
<b>2008</b>	<b>Total</b>	<b>2,028,890</b>	<b>40,282,474</b>	<b>10,094,499</b>	<b>5,684,180</b>	<b>12,877,237</b>	<b>1,992,798</b>	<b>3,191,380</b>
2009	Bundled	1,296,801	12,324,277	8,305,275	2,002,202	4,016,265	981,477	710,800
2009	Delivery	684,220	26,821,176	1,473,880	3,518,398	8,726,146	934,057	2,386,825
<b>2009</b>	<b>Total</b>	<b>1,981,021</b>	<b>39,145,453</b>	<b>9,779,155</b>	<b>5,520,600</b>	<b>12,742,411</b>	<b>1,915,534</b>	<b>3,097,625</b>
2010	Bundled	1,183,268	12,417,399	8,854,183	1,774,115	3,873,456	833,035	656,602
2010	Delivery	819,866	28,052,828	1,273,720	3,759,408	8,972,038	1,129,933	2,523,026
<b>2010</b>	<b>Total</b>	<b>2,003,134</b>	<b>40,470,227</b>	<b>10,127,903</b>	<b>5,533,523</b>	<b>12,845,494</b>	<b>1,962,968</b>	<b>3,179,628</b>
2011	Bundled	1,052,215	11,082,390	8,770,670	1,581,403	3,452,903	696,076	611,724
2011	Delivery	945,729	28,600,445	1,223,432	3,999,181	9,352,872	1,270,480	2,581,565
<b>2011</b>	<b>Total</b>	<b>1,997,944</b>	<b>39,682,835</b>	<b>9,994,102</b>	<b>5,580,584</b>	<b>12,805,775</b>	<b>1,966,556</b>	<b>3,193,289</b>
2012	Bundled	900,176	9,788,179	8,660,966	1,522,028	3,232,094	600,631	575,652
2012	Delivery	1,066,013	29,604,126	1,291,658	4,220,471	9,461,328	1,334,740	2,606,953
<b>2012</b>	<b>Total</b>	<b>1,966,189</b>	<b>39,392,305</b>	<b>9,952,624</b>	<b>5,742,499</b>	<b>12,693,422</b>	<b>1,935,371</b>	<b>3,182,605</b>
2013	Bundled	849,055	9,743,737	8,498,832	1,438,211	3,289,630	571,385	601,602
2013	Delivery	1,117,707	29,831,961	1,578,159	4,310,118	9,316,457	1,356,647	2,542,479
<b>2013</b>	<b>Total</b>	<b>1,966,762</b>	<b>39,575,698</b>	<b>10,076,991</b>	<b>5,748,329</b>	<b>12,606,087</b>	<b>1,928,032</b>	<b>3,144,081</b>
2014	Bundled	801,954	9,783,465	8,344,323	1,413,210	3,220,135	524,143	611,565
2014	Delivery	1,149,441	29,809,716	1,632,701	4,201,214	9,503,774	1,416,724	2,564,388
<b>2014</b>	<b>Total</b>	<b>1,951,395</b>	<b>39,593,181</b>	<b>9,977,024</b>	<b>5,614,424</b>	<b>12,723,909</b>	<b>1,940,867</b>	<b>3,175,953</b>
2015	Bundled	773,716	9,584,505	8,221,337	1,364,889	2,945,264	501,473	541,850
2015	Delivery	1,208,809	30,204,314	1,773,750	4,452,914	9,770,991	1,475,956	2,607,627
<b>2015</b>	<b>Total</b>	<b>1,982,525</b>	<b>39,788,819</b>	<b>9,995,087</b>	<b>5,817,803</b>	<b>12,716,255</b>	<b>1,977,429</b>	<b>3,149,477</b>
2016	Bundled	771,166	9,423,582	8,083,334	1,416,262	3,113,035	517,445	537,670
2016	Delivery	1,177,372	30,081,332	1,746,669	4,362,643	9,470,113	1,479,073	2,628,783
<b>2016</b>	<b>Total</b>	<b>1,948,538</b>	<b>39,504,914</b>	<b>9,830,003</b>	<b>5,778,905</b>	<b>12,583,148</b>	<b>1,996,518</b>	<b>3,166,453</b>

**Table F-3c. Industrial Sector Electricity Sales by Utility (MWh)**

Year	Category	Central Hudson	Consolidated Edison	Long Island Power Authority	New York State Elec. & Gas Corp. (NYSEG)	National Grid	Orange & Rockland	Rochester Gas & Electric
2002	Bundled	1,000,051	468,108	N/A	2,891,026	9,185,488	288,227	1,380,190
2002	Delivery	383,592	160,149	N/A	397,152	1,698,233	410,138	320,137
<b>2002</b>	<b>Total</b>	<b>1,383,643</b>	<b>628,257</b>	<b>N/A</b>	<b>3,288,178</b>	<b>10,883,721</b>	<b>698,365</b>	<b>1,700,327</b>
2003	Bundled	552,664	403,022	N/A	3,313,581	2,627,485	241,796	1,196,974
2003	Delivery	880,282	178,616	N/A	1,577,538	8,055,567	430,894	427,758
<b>2003</b>	<b>Total</b>	<b>1,432,946</b>	<b>581,638</b>	<b>N/A</b>	<b>4,891,119</b>	<b>10,683,052</b>	<b>672,690</b>	<b>1,624,732</b>
2004	Bundled	478,489	372,432	N/A	2,176,117	2,444,673	252,275	823,202
2004	Delivery	998,887	405,137	N/A	1,152,869	8,372,932	441,692	653,205
<b>2004</b>	<b>Total</b>	<b>1,477,376</b>	<b>777,569</b>	<b>N/A</b>	<b>3,328,986</b>	<b>10,817,605</b>	<b>693,967</b>	<b>1,476,407</b>
2005	Bundled	328,119	365,733	N/A	1,814,690	1,881,205	432,001	748,081
2005	Delivery	1,153,696	586,335	N/A	1,453,317	8,442,146	241,848	782,456
<b>2005</b>	<b>Total</b>	<b>1,481,815</b>	<b>952,068</b>	<b>N/A</b>	<b>3,268,007</b>	<b>10,323,351</b>	<b>673,849</b>	<b>1,530,537</b>
2006	Bundled	511,237	267,531	N/A	1,745,002	1,589,350	305,037	640,682
2006	Delivery	968,300	457,880	N/A	1,677,100	3,722,215	239,799	907,896
<b>2006</b>	<b>Total</b>	<b>1,479,537</b>	<b>725,411</b>	<b>N/A</b>	<b>3,422,102</b>	<b>5,311,565</b>	<b>544,836</b>	<b>1,548,578</b>
2007	Bundled	1,047,884	245,799	N/A	1,608,935	1,634,915	340,473	611,790
2007	Delivery	395,736	458,274	N/A	1,771,722	3,773,924	181,065	982,874
<b>2007</b>	<b>Total</b>	<b>1,443,620</b>	<b>704,073</b>	<b>N/A</b>	<b>3,380,657</b>	<b>5,408,839</b>	<b>521,538</b>	<b>1,594,664</b>
2008	Bundled	147,781	230,395	N/A	1,236,259	1,345,912	281,966	588,797
2008	Delivery	1,161,029	431,984	N/A	2,156,191	4,130,834	219,037	831,352
<b>2008</b>	<b>Total</b>	<b>1,308,810</b>	<b>662,379</b>	<b>N/A</b>	<b>3,392,450</b>	<b>5,476,746</b>	<b>501,003</b>	<b>1,420,149</b>
2009	Bundled	105,727	200,427	N/A	843,134	1,155,161	249,428	396,034
2009	Delivery	1,064,606	481,886	N/A	2,105,390	3,735,245	188,371	1,033,810
<b>2009</b>	<b>Total</b>	<b>1,170,333</b>	<b>682,313</b>	<b>N/A</b>	<b>2,948,524</b>	<b>4,890,406</b>	<b>437,799</b>	<b>1,429,844</b>
2010	Bundled	95,294	200,770	N/A	585,294	1,490,309	218,641	342,545
2010	Delivery	1,018,720	430,460	N/A	2,382,846	3,594,942	202,350	1,084,117
<b>2010</b>	<b>Total</b>	<b>1,114,014</b>	<b>631,230</b>	<b>N/A</b>	<b>2,968,140</b>	<b>5,085,251</b>	<b>420,991</b>	<b>1,426,662</b>
2011	Bundled	92,979	130,979	N/A	480,602	1,254,034	166,921	230,243
2011	Delivery	984,417	463,602	N/A	2,517,379	3,855,371	245,523	1,135,675
<b>2011</b>	<b>Total</b>	<b>1,077,396</b>	<b>594,581</b>	<b>N/A</b>	<b>2,997,981</b>	<b>5,109,405</b>	<b>412,444</b>	<b>1,365,918</b>
2012	Bundled	71,566	113,525	N/A	372,349	1,514,576	113,440	111,154
2012	Delivery	986,320	591,180	N/A	2,533,705	3,797,323	301,499	1,249,025
<b>2012</b>	<b>Total</b>	<b>1,057,886</b>	<b>704,705</b>	<b>N/A</b>	<b>2,906,054</b>	<b>5,311,899</b>	<b>414,939</b>	<b>1,360,179</b>
2013	Bundled	101,993	98,951	N/A	323,235	1,084,851	90,127	70,842
2013	Delivery	952,871	579,193	N/A	2,634,005	8,551,922	307,406	1,253,873
<b>2013</b>	<b>Total</b>	<b>1,054,864</b>	<b>678,144</b>	<b>N/A</b>	<b>2,957,240</b>	<b>9,636,773</b>	<b>397,533</b>	<b>1,324,715</b>
2014	Bundled	82,543	102,499	N/A	192,298	1,017,505	65,879	61,835
2014	Delivery	940,274	547,902	N/A	2,712,726	8,935,504	350,411	1,239,341
<b>2014</b>	<b>Total</b>	<b>1,022,817</b>	<b>650,401</b>	<b>N/A</b>	<b>2,905,024</b>	<b>9,953,009</b>	<b>416,290</b>	<b>1,301,176</b>
2015	Bundled	68,136	86,327	N/A	172,847	933,232	49,246	47,865
2015	Delivery	945,589	576,199	N/A	2,852,848	9,062,143	339,114	1,248,167
<b>2015</b>	<b>Total</b>	<b>1,013,725</b>	<b>662,526</b>	<b>N/A</b>	<b>3,025,695</b>	<b>9,995,375</b>	<b>388,360</b>	<b>1,296,032</b>
2016	Bundled	83,106	60,862	N/A	164,122	905,678	59,245	48,688
2016	Delivery	915,693	555,764	N/A	2,872,275	8,806,826	342,523	1,234,486
<b>2016</b>	<b>Total</b>	<b>998,799</b>	<b>616,626</b>	<b>N/A</b>	<b>3,036,397</b>	<b>9,712,504</b>	<b>401,768</b>	<b>1,283,174</b>



**Electricity Sales by Sector by Power Marketer – Top 10 Power Marketers in each sector and total of all Power Marketers**

**Table F-3d. Residential Sector Electricity Sales by Power Marketers (GWh)**

Year	Ambit Energy Holdings, LLC	Constellation NewEnergy, Inc	Direct Energy Services	Just Energy New York Corp.	IDT Energy, Inc.	Green Mountain Energy Company	Family Energy, Inc. New York	Major Energy Electric Services	Agway Energy Services, LLC	Viridian Energy NY LLC	Total All Power Marketers
2002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	234	N/A	2,488
2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	354	N/A	2,382
2004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	374	N/A	2,426
2005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	385	N/A	2,798
2006	N/A	N/A	79	N/A	N/A	N/A	N/A	N/A	348	N/A	3,026
2007	N/A	N/A	200	N/A	787	N/A	N/A	N/A	300	N/A	5,218
2008	227	N/A	340	213	845	N/A	N/A	N/A	264	N/A	5,887
2009	437	N/A	489	345	950	N/A	N/A	N/A	249	N/A	6,607
2010	749	N/A	576	566	1,034	N/A	N/A	74	273	N/A	8,264
2011	1,363	N/A	368	746	1,009	N/A	N/A	168	295	N/A	8,720
2012	1,865	N/A	260	935	696	45	N/A	297	323	67	8,524
2013	2,039	N/A	1,634	1,008	632	194	N/A	210	320	198	8,570
2014	1,880	N/A	1,522	844	521	222	227	245	292	357	8,859
2015	1,497	N/A	1,383	708	489	271	355	278	286	355	8,849
2016	1,324	1	1,146	582	400	297	350	276	281	302	8,726

**Table F-3e. Commercial Sector Electricity Sales by Power Marketers (GWh)**

Year	Constellation NewEnergy, Inc	Strategic Energy LLC	ENGIE Resources LLC	Calpine Energy Solutions, LLC	Hudson Energy Services	Consolidated Edison Sol Inc	Champion Energy Services	Plymouth Rock Energy, LLC	Agera Energy LLC	Bluerock Energy, Inc.	Total All Power Marketers
2002	3,807	947	N/A	266	N/A	4,486	N/A	N/A	N/A	N/A	15,426
2003	4,330	1,143	472	956	N/A	5,232	N/A	N/A	N/A	N/A	18,979
2004	5,117	1,326	1,667	519	N/A	5,176	N/A	N/A	N/A	N/A	21,388
2005	6,380	1,240	2,641	358	N/A	6,198	N/A	N/A	N/A	N/A	25,630
2006	6,232	2,035	2,370	283	N/A	6,214	N/A	N/A	N/A	N/A	26,255
2007	5,838	2,532	2,349	475	1,863	6,464	N/A	N/A	N/A	201	32,859
2008	4,382	2,157	2,728	706	2,034	5,087	N/A	N/A	N/A	293	32,015
2009	5,037	1,958	2,754	734	1,978	5,115	N/A	N/A	N/A	428	31,829
2010	5,490	2,769	2,621	658	2,456	4,919	N/A	N/A	N/A	624	33,426
2011	4,751	3,422	3,199	632	2,513	4,457	N/A	119	N/A	639	33,639
2012	4,264	4,741	3,461	606	2,697	3,675	N/A	522	N/A	602	34,189
2013	3,849	5,800	3,354	560	2,204	3,110	N/A	817	N/A	582	34,634
2014	4,682	5,936	3,299	640	1,845	3,265	146	759	N/A	593	35,179
2015	6,648	9,826	4,544	966	1,399	3,669	482	785	65	600	39,126
2016	7,614	9,281	5,185	1,331	1,262	3,067	847	781	243	666	39,621

**Table F-3f. Industrial Sector Electricity Sales by Power Marketers (GWh)**

Year	Constellation NewEnergy, Inc	Strategic Energy LLC	Constellation Energy Services NY, Inc.	ENGIE Resources LLC	TransCanada Power Marketing, Ltd.	EDF Energy Services, LLC	Calpine Energy Solutions, LLC	EnergyMark, LLC	Great Eastern Energy	Linde Energy Services, Inc.	Total All Power Marketers
2002	367	60	605	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,635
2003	474	73	786	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,752
2004	415	85	891	N/A	N/A	N/A	394	N/A	N/A	N/A	5,800
2005	491	79	963	N/A	N/A	N/A	4	N/A	N/A	N/A	5,897
2006	480	130	1,140	N/A	N/A	N/A	15	N/A	N/A	N/A	8,601
2007	453	162	1,535	232	N/A	N/A	13	N/A	N/A	N/A	7,750
2008	341	138	1,531	270	N/A	N/A	24	N/A	N/A	N/A	8,171
2009	392	124	1,231	675	N/A	N/A	41	N/A	N/A	N/A	8,748
2010	1,070	177	1,227	726	16	N/A	224	N/A	N/A	6	9,467
2011	1,135	218	1,351	1,147	219	N/A	218	N/A	N/A	66	10,129
2012	1,368	303	1,442	812	319	N/A	217	3	N/A	96	10,665
2013	1,334	370	1,334	393	281	N/A	167	51	N/A	77	9,429
2014	1,269	379	1,320	481	452	N/A	110	96	N/A	42	8,802
2015	1,529	4,491	1,529	673	581	66	139	118	148	45	9,549
2016	1,664	3,446	1,562	648	539	253	137	128	128	45	8,639

# Appendix F-4

## New York State Natural Gas Prices by Sector by Utility in Nominal Dollars, 2002–2016

**Table F-4a. Residential Sector Natural Gas Prices by Utility (Nominal Dollars per Thousand Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Coming Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	11.05	10.89	12.60	8.63	11.88	8.21	8.10	8.79	8.56	9.66	6.12
2003	12.61	11.77	13.35	9.21	12.80	11.51	9.68	10.43	10.84	10.83	7.61
2004	12.91	12.30	14.05	10.64	13.35	11.97	11.95	11.06	12.26	11.56	9.44
2005	15.30	14.27	16.80	11.97	15.16	14.51	13.59	13.05	14.54	13.51	11.02
2006	13.15	16.23	18.72	14.91	16.11	15.70	14.04	14.35	17.95	14.32	12.30
2007	16.12	16.46	20.05	13.40	16.47	14.36	13.88	13.12	17.95	13.86	13.33
2008	17.21	18.25	21.40	14.95	17.07	15.39	14.56	14.08	18.26	14.95	13.84
2009	14.36	17.44	20.24	12.04	15.69	13.40	13.65	12.81	17.39	12.66	12.04
2010	13.66	16.89	19.98	12.25	14.22	10.85	12.44	11.81	15.64	11.89	11.94
2011	13.10	17.72	18.49	11.33	13.90	10.89	12.70	12.14	15.33	11.63	12.84
2012	11.84	16.39	17.78	11.33	13.11	10.34	12.35	11.26	14.52	11.34	13.22
2013	11.61	15.35	17.96	11.70	12.66	9.62	11.07	10.50	13.82	10.38	12.73
2014	11.87	17.01	16.78	11.40	12.83	10.11	10.84	9.66	13.41	9.95	12.29
2015	10.94	14.67	13.95	9.57	12.42	7.84	9.74	8.41	10.35	8.67	12.45
2016	11.11	14.51	13.97	8.78	11.88	6.83	9.49	8.18	11.03	8.26	10.96

**Table F-4b. Commercial Sector Natural Gas Prices by Utility (Nominal Dollars per Thousand Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Coming Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	5.70	8.08	8.24	10.07	8.48	7.09	8.47	7.55	8.15	8.37	5.62
2003	7.74	9.22	10.53	9.68	10.21	10.24	9.54	9.77	10.40	9.50	7.23
2004	8.86	10.08	7.24	10.48	10.89	9.94	10.42	10.11	11.67	10.14	8.71
2005	14.02	12.31	10.42	11.13	13.01	13.15	12.30	11.78	13.81	12.05	10.43
2006	12.76	13.20	10.97	13.94	13.12	13.96	12.97	12.81	17.03	12.54	11.44
2007	13.83	13.13	11.21	12.38	13.92	13.24	12.82	12.23	16.97	12.26	12.00
2008	14.96	14.46	10.54	13.70	14.95	14.04	13.54	14.35	17.15	13.23	12.53
2009	11.79	12.85	9.68	10.47	12.98	12.66	12.38	11.50	16.10	11.11	10.18
2010	11.61	11.72	8.83	10.54	11.36	10.17	11.24	10.18	13.94	10.13	9.70
2011	11.22	12.08	7.80	9.68	11.86	9.63	11.17	10.55	13.69	9.68	10.56
2012	9.23	9.74	6.79	9.28	10.71	9.31	10.39	9.34	12.47	9.25	10.47
2013	9.83	9.49	7.46	9.95	11.12	8.79	9.36	8.79	12.01	8.48	10.09
2014	10.08	11.68	8.17	9.56	10.59	9.20	9.70	8.28	11.68	8.06	10.28
2015	9.22	9.45	6.43	7.79	10.05	7.00	8.48	6.51	8.47	6.85	10.17
2016	8.98	7.80	6.28	7.77	8.99	6.10	7.78	5.88	8.45	6.26	8.59

**Table F-4c. Industrial Sector Natural Gas Prices by Utility (Nominal Dollars per Thousand Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Coming Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	N/A	7.16	8.24	9.30	N/A	4.52	6.19	6.31	7.47	7.79	4.38
2003	N/A	8.65	9.78	8.84	N/A	6.67	6.89	7.92	10.08	8.95	6.70
2004	N/A	9.67	8.52	9.98	N/A	7.35	8.01	8.49	11.04	9.56	7.82
2005	12.56	11.67	10.19	11.97	N/A	9.34	9.64	10.61	14.19	11.30	10.22
2006	10.43	12.03	10.70	12.83	N/A	10.64	10.57	11.24	16.24	11.74	13.94
2007	13.33	12.45	10.79	0.74	N/A	10.78	11.03	10.71	16.85	11.42	11.57
2008	14.75	14.00	10.35	0.65	N/A	12.14	12.06	11.55	16.40	12.42	11.38
2009	10.66	11.92	9.49	0.69	N/A	11.89	11.07	9.26	15.36	10.62	7.81
2010	9.59	10.16	8.31	N/A	N/A	7.35	9.22	8.36	12.69	9.42	7.81
2011	9.41	10.44	7.56	N/A	N/A	8.81	8.36	9.20	11.97	8.74	8.55
2012	7.50	7.94	6.71	N/A	N/A	7.42	7.85	8.12	10.55	8.11	8.58
2013	8.65	7.69	7.18	N/A	N/A	8.05	8.36	7.80	10.83	7.51	7.36
2014	9.19	10.31	7.93	N/A	N/A	8.29	8.37	7.43	10.54	7.25	8.54
2015	8.09	7.45	6.33	N/A	N/A	6.26	7.86	4.77	6.77	5.89	7.23
2016	7.75	6.10	5.64	N/A	N/A	5.06	6.45	4.21	6.90	5.13	5.79



# Appendix F-5

## New York State Natural Gas Customers by Sector by Utility, 2002–2016

**Table F-5a. Residential Sector Natural Gas Customers by Utility**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Corning Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	1,190,825	57,247	936,163	13,636	445,735	487,084	222,481	508,353	110,223	267,760	13,623
2003	1,140,775	58,158	919,562	17,064	461,842	486,322	222,655	512,652	111,060	269,182	13,764
2004	1,108,132	59,132	928,106	17,064	460,013	485,786	223,262	516,042	112,452	270,515	13,779
2005	1,120,046	60,489	934,272	17,061	466,673	484,083	223,977	521,491	112,760	271,828	13,819
2006	1,133,240	61,623	1,004,285	16,987	472,250	472,042	226,301	522,562	113,810	272,655	13,630
2007	1,139,533	62,605	1,045,956	13,468	477,395	479,539	227,350	526,036	114,657	273,882	13,714
2008	1,146,761	63,403	947,502	13,517	480,968	481,568	229,176	530,636	115,837	275,075	13,651
2009	1,147,105	63,570	936,894	13,531	488,324	482,209	229,805	534,864	116,773	276,202	13,782
2010	1,158,412	64,129	939,586	13,621	491,658	483,378	231,286	538,042	117,367	278,398	13,833
2011	1,165,043	64,538	942,468	13,699	495,067	483,214	231,032	540,759	117,963	280,057	13,829
2012	1,168,014	64,811	944,233	13,790	499,683	485,321	230,355	544,544	118,250	275,602	13,891
2013	1,170,112	65,652	944,930	13,744	503,537	487,184	231,138	549,251	118,997	282,576	13,955
2014	1,174,315	65,881	943,359	13,746	510,359	489,345	232,106	552,921	119,655	283,820	14,091
2015	1,219,393	67,648	944,522	13,697	518,708	461,086	232,595	557,797	117,814	285,216	14,218
2016	1,214,526	68,859	944,108	13,614	525,826	492,981	233,880	563,241	118,970	286,902	14,441

**Table F-5b. Commercial Sector Natural Gas Customers by Utility**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Corning Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	54,139	9,202	112,497	N/A	52,688	32,846	28,311	42,789	10,836	21,166	1,639
2003	49,159	9,445	131,466	1,014	54,811	32,635	29,300	43,937	10,956	21,586	1,683
2004	46,781	9,647	113,292	896	55,533	32,596	29,469	44,249	11,051	21,910	1,672
2005	44,997	9,925	120,593	942	56,463	33,830	29,709	44,678	11,284	21,920	1,667
2006	42,579	10,111	144,164	854	57,062	33,784	29,197	44,622	11,369	21,837	1,606
2007	44,129	10,326	138,194	1,004	57,810	33,555	28,849	44,587	11,506	21,745	1,621
2008	40,479	10,477	121,107	1,009	58,274	33,448	28,949	44,527	11,492	21,886	1,638
2009	41,012	10,515	121,391	997	58,557	33,006	29,681	44,553	11,605	22,133	1,652
2010	41,634	10,544	122,432	1,015	58,600	33,452	29,237	44,624	11,599	22,121	1,651
2011	41,619	10,608	122,435	1,011	58,610	33,669	29,241	44,729	11,635	22,227	1,653
2012	42,372	10,639	123,369	1,023	58,714	34,213	29,160	44,438	11,600	21,672	1,658
2013	42,201	10,811	123,942	1,119	59,145	34,365	29,849	44,426	10,693	22,437	1,666
2014	40,721	10,898	131,144	1,066	60,045	34,715	29,931	44,585	11,820	22,687	1,682
2015	41,376	11,189	133,403	1,091	60,488	35,091	30,247	44,899	14,779	22,830	1,696
2016	43,755	11,376	132,994	1,079	61,231	35,503	30,345	45,365	14,897	23,071	1,726

**Table F-5c. Industrial Sector Natural Gas Customers by Utility**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Corning Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	N/A	306	46	20	N/A	614	707	263	123	934	26
2003	N/A	310	50	22	N/A	594	696	256	85	918	24
2004	N/A	301	55	22	N/A	595	708	251	74	909	22
2005	827	299	56	22	N/A	584	707	256	54	899	22
2006	784	288	54	24	N/A	550	712	261	44	882	20
2007	4,686	279	48	65	N/A	536	679	266	37	844	21
2008	4,318	278	51	61	N/A	530	691	254	34	817	22
2009	3,960	264	48	61	N/A	507	673	255	29	795	20
2010	3,622	259	46	N/A	N/A	500	654	251	26	771	20
2011	4,053	253	48	N/A	N/A	490	626	252	20	754	21
2012	3,428	251	48	N/A	N/A	493	615	234	20	704	21
2013	3,864	245	48	N/A	N/A	491	618	214	20	727	21
2014	3,885	251	48	N/A	N/A	482	624	215	18	709	22
2015	3,657	259	48	N/A	N/A	439	616	221	19	689	22
2016	4,133	273	48	N/A	N/A	419	592	227	22	668	21

# Appendix F-6

## New York State Natural Gas Sales by Sector by Utility, 2002–2016

**Table F-6a. Residential Sector Natural Gas Sales by Utility (Millions of Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Conring Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	93,469	4,532	56,302	2,258	43,288	53,961	23,024	50,485	13,431	26,661	1,700
2003	102,811	5,482	63,541	2,443	48,061	57,548	26,145	56,790	15,241	29,138	1,892
2004	100,666	5,221	60,779	2,279	47,514	54,012	24,081	53,500	14,595	27,761	1,811
2005	115,538	5,282	63,140	2,261	47,901	52,013	22,924	52,801	14,541	27,522	1,710
2006	100,274	4,707	56,736	1,955	40,747	45,242	22,263	46,300	12,409	23,793	1,545
2007	114,790	5,096	64,811	1,577	46,735	51,096	22,597	50,427	14,063	26,905	1,637
2008	114,362	5,177	64,012	1,549	46,046	49,736	22,561	49,217	13,535	26,008	1,527
2009	116,866	5,173	68,572	1,551	49,791	49,436	22,394	49,495	13,625	25,899	1,562
2010	115,924	4,802	66,362	1,507	47,017	47,028	21,017	47,256	13,143	24,532	1,433
2011	114,278	5,169	67,670	1,551	45,917	48,404	22,057	49,170	12,823	24,776	1,471
2012	105,504	4,314	63,773	1,349	41,990	42,457	19,203	42,725	11,973	22,635	1,346
2013	120,933	5,106	75,286	1,634	49,709	50,022	21,887	49,305	13,853	26,551	1,490
2014	131,329	5,706	86,791	1,783	54,763	54,928	24,132	54,315	14,821	27,450	1,649
2015	126,900	5,697	91,835	1,439	55,978	51,484	23,156	53,255	13,794	26,460	1,564
2016	114,764	5,088	89,463	1,471	49,527	45,965	20,027	46,524	13,044	24,603	1,435

**Table F-6b. Commercial Sector Natural Gas Sales by Utility (Millions of Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Conring Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	64,514	5,666	155,227	233	32,984	24,541	19,098	33,716	9,573	14,804	1,536
2003	59,784	6,521	124,436	442	37,362	26,440	20,511	36,210	9,846	15,762	1,681
2004	104,493	6,758	103,119	414	37,592	24,764	19,255	34,785	10,173	15,726	1,656
2005	23,640	6,922	100,877	399	38,078	24,868	19,148	34,281	9,382	16,198	1,569
2006	20,434	6,147	100,158	345	34,749	23,212	18,825	31,045	8,685	14,598	1,411
2007	23,539	6,831	107,971	3,826	38,377	24,551	19,148	33,440	9,343	16,050	1,544
2008	23,477	6,875	114,868	3,631	38,551	24,291	19,307	32,439	8,767	16,065	1,550
2009	23,515	6,826	105,843	3,371	40,413	23,679	19,288	31,960	8,140	15,673	1,605
2010	24,033	6,240	117,023	4,230	39,211	22,636	18,232	30,917	7,681	15,193	1,542
2011	23,910	6,848	117,774	4,312	39,091	23,474	18,874	31,692	7,506	15,616	1,490
2012	22,154	6,038	112,420	3,759	35,432	20,195	17,250	29,391	7,228	14,516	1,410
2013	24,537	6,831	127,190	724	39,108	23,809	19,079	32,929	7,874	16,682	1,580
2014	26,639	7,460	128,894	768	44,811	26,509	20,708	35,925	8,477	17,644	1,855
2015	25,543	7,351	123,328	425	45,133	25,160	20,855	35,815	8,494	16,846	1,798
2016	23,862	7,040	119,415	374	51,348	21,779	18,744	33,042	8,067	16,635	1,848

**Table F-6c. Industrial Sector Natural Gas Sales by Utility (Millions of Cubic Feet)**

Year	Brooklyn Union Gas (National Grid)	Central Hudson Gas & Electric	Consolidated Edison	Conring Natural Gas	Keyspan Energy (National Grid)	National Fuel Gas Dist.	New York State Elec. And Gas Corp. (NYSEG)	Niagara Mohawk (National Grid)	Orange & Rockland Utilities	Rochester Gas And Elec. Corp.	St. Lawrence Gas Co.
2002	N/A	3,742	3,807	3,459	N/A	24,512	13,898	21,583	3,259	9,770	6,334
2003	N/A	3,389	2,918	2,253	N/A	22,004	14,489	16,373	3,172	9,260	5,922
2004	N/A	3,529	1,309	2,460	N/A	20,000	13,827	16,375	3,073	9,233	6,006
2005	4,682	3,125	1,451	2,579	N/A	19,257	13,056	17,545	2,999	8,597	5,730
2006	3,696	3,082	1,387	2,745	N/A	16,765	12,561	20,317	2,609	7,286	5,867
2007	4,345	2,904	1,534	352	N/A	17,166	13,254	20,703	2,635	7,275	5,680
2008	4,422	2,987	1,668	335	N/A	16,282	13,739	23,289	2,555	8,233	5,124
2009	3,914	2,819	1,599	394	N/A	13,919	13,155	21,348	2,393	7,200	3,546
2010	4,277	2,922	1,684	N/A	N/A	14,672	12,666	23,651	2,450	6,998	3,710
2011	3,720	2,903	1,764	N/A	N/A	14,145	12,643	24,440	2,281	6,967	3,805
2012	3,107	2,574	1,601	N/A	N/A	13,929	12,594	25,622	2,358	6,548	3,378
2013	3,279	2,896	1,847	N/A	N/A	14,379	13,160	26,296	2,327	6,826	3,426
2014	3,534	3,053	1,913	N/A	N/A	16,993	13,606	26,660	2,176	7,030	3,577
2015	3,201	3,153	1,776	N/A	N/A	16,358	12,476	27,671	2,266	6,689	3,402
2016	3,169	2,791	1,784	N/A	N/A	16,236	11,863	26,781	2,081	6,879	3,429

# Appendix G-1

## New York State Weather Normalized Residential Energy Consumption, 1980–2016

Figure G-1

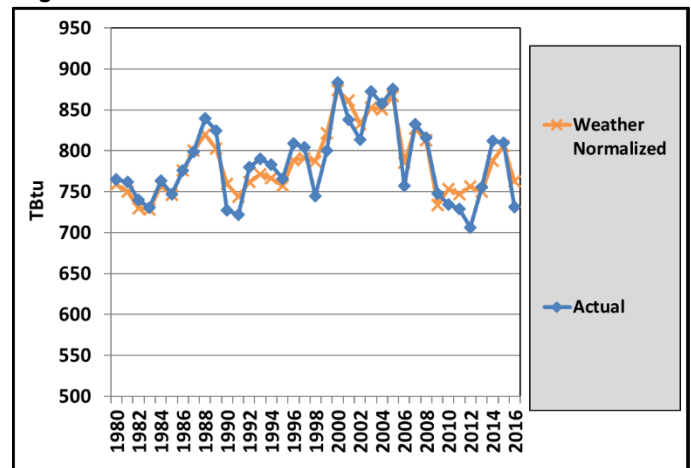


Table G-1. (in trillion Btu)

Year	Coal	Natural Gas	Distillate <sup>1</sup>	Kerosene	LPG	Total Petroleum	Wood	Electricity	Solar <sup>2</sup>	Geothermal	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
1980	1.7	339.9	217.1	9.8	9.0	235.9	77.8	104.2	0.0	0.0	759.6
1981	2.1	339.5	199.9	8.6	9.7	218.2	87.0	104.8	0.0	0.0	751.6
1982	2.6	347.0	180.8	10.5	9.1	200.3	76.4	104.7	0.0	0.0	730.9
1983	1.5	329.6	170.5	8.5	10.5	189.5	99.2	108.3	0.0	0.0	728.2
1984	2.3	343.9	199.4	20.2	10.5	230.1	69.7	112.1	0.0	0.0	758.0
1985	2.3	328.3	201.0	18.3	11.4	230.7	72.7	111.9	0.0	0.0	745.9
1986	2.6	345.9	221.2	12.5	11.5	245.2	66.6	115.3	0.0	0.0	775.6
1987	2.2	344.8	241.4	18.2	13.5	273.1	59.4	120.4	0.0	0.0	799.8
1988	1.7	360.0	235.6	23.7	13.3	272.6	59.9	127.6	0.0	0.0	821.8
1989	1.6	365.5	217.3	15.8	14.0	247.1	60.1	129.3	0.3	0.1	803.9
1990	1.4	363.2	194.7	9.9	14.1	218.8	41.9	131.6	0.3	0.0	757.1
1991	1.3	359.5	175.9	11.8	17.6	205.4	42.5	133.4	0.3	0.0	742.3
1992	1.2	380.4	184.0	7.1	17.5	208.6	40.1	132.5	0.3	0.1	763.1
1993	1.0	385.3	172.9	8.9	15.1	196.9	53.0	136.0	0.3	0.1	772.7
1994	0.7	386.9	168.6	8.0	15.2	191.8	50.7	136.8	0.4	0.1	767.4
1995	0.7	381.6	164.2	7.1	15.8	187.1	51.6	136.0	0.4	0.1	757.4
1996	0.8	402.0	170.5	8.3	17.2	196.0	52.8	137.6	0.5	0.1	789.8
1997	0.7	378.1	167.4	9.9	15.3	192.6	82.6	136.8	0.5	0.1	791.5
1998	0.4	375.2	166.2	10.4	15.7	192.4	78.5	138.3	0.5	0.0	785.4
1999	0.6	395.0	170.6	13.1	16.8	200.5	78.3	146.0	0.5	0.1	821.0
2000	0.3	407.3	202.3	13.3	21.6	237.3	82.0	147.0	0.5	0.1	874.4
2001	0.3	403.3	219.6	13.4	16.9	249.9	55.9	150.8	0.5	0.1	860.8
2002	0.1	391.3	197.0	9.2	19.6	225.8	56.4	158.0	0.6	0.1	832.3
2003	0.3	407.7	197.3	9.4	18.5	225.2	58.5	160.7	0.6	0.1	853.1
2004	0.4	398.8	197.3	11.8	19.4	228.5	60.3	161.8	0.7	0.1	850.5
2005	0.3	412.0	201.9	12.5	17.7	232.1	50.4	171.8	0.8	0.1	867.5
2006	0.3	384.0	162.6	10.0	16.7	189.3	44.5	165.4	1.0	0.1	784.6
2007	0.4	406.1	172.8	7.5	18.1	198.4	49.4	171.5	1.1	0.2	827.1
2008	0.0	400.2	161.8	3.8	22.4	188.0	55.4	167.5	1.3	0.2	812.5
2009	0.0	404.4	117.7	5.6	22.3	145.5	18.5	165.2	1.3	0.3	735.2
2010	0.0	412.2	117.4	5.6	22.9	145.9	18.2	173.6	1.5	0.3	751.6
2011	0.0	416.6	109.5	4.0	20.1	133.6	18.6	174.8	1.6	0.7	745.9
2012	0.0	402.9	137.3	2.0	18.8	158.1	20.4	172.8	1.8	0.4	756.3
2013	0.0	426.9	104.1	2.3	19.5	125.8	21.7	173.2	2.0	0.4	750.1
2014	0.0	455.0	108.9	4.0	22.3	135.2	20.2	170.9	2.8	0.5	784.6
2015	0.0	464.1	121.1	2.6	21.1	144.8	16.5	174.0	4.3	0.4	804.0
2016	0.0	450.2	94.2	2.9	22.7	119.8	13.8	172.9	5.3	0.4	762.4

<sup>1</sup> Distillate consumption estimates include biodiesel blended into diesel fuel.

<sup>2</sup> Includes customer-sited solar electric and thermal energy.

# Appendix G-2

## New York State Weather Normalized Residential Energy Intensity Indicators, 1990–2016

Figure G-2a: Residential Energy Usage/Household

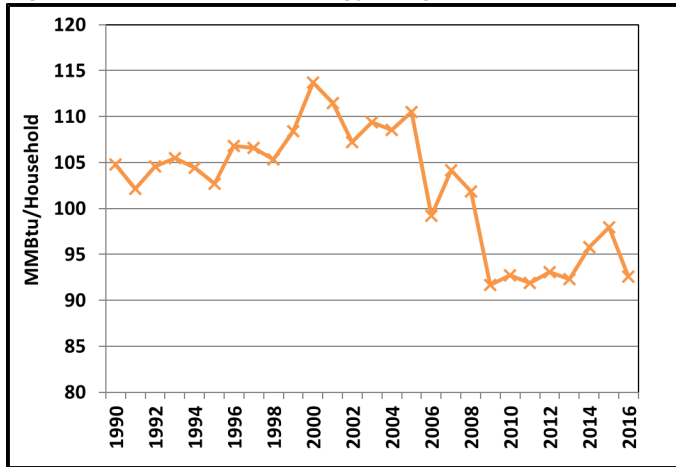


Figure G-2b: Residential Energy Usage/GSP (2016\$)

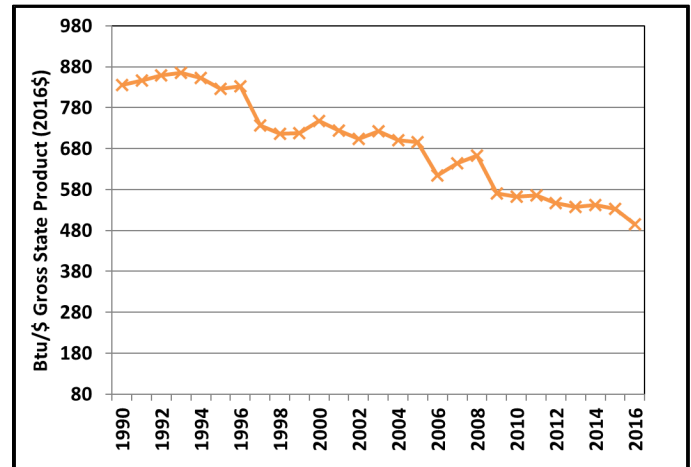


Table G-2. (in trillion Btu)

Year	Weather Normalized Residential Total Energy	Households	Energy Usage/Household	Gross State Product	Res Energy Usage Per GSP (2016\$)
	Tbtu	Thousands	(MMBtu/Household)	Million (2016\$)	(Btu/\$)
1990	757.1	7,227	104.8	\$905,658	836.0
1991	742.3	7,270	102.1	\$876,389	847.0
1992	763.1	7,297	104.6	\$889,042	858.4
1993	772.7	7,324	105.5	\$892,766	865.6
1994	767.4	7,346	104.5	\$899,333	853.3
1995	757.4	7,374	102.7	\$917,595	825.4
1996	789.8	7,397	106.8	\$948,636	832.6
1997	791.5	7,423	106.6	\$1,074,158	736.9
1998	785.4	7,455	105.3	\$1,097,294	715.8
1999	821.0	7,572	108.4	\$1,143,449	718.0
2000	874.4	7,689	113.7	\$1,168,899	748.1
2001	860.8	7,724	111.4	\$1,188,718	724.1
2002	832.3	7,760	107.2	\$1,183,082	703.5
2003	853.1	7,799	109.4	\$1,180,835	722.4
2004	850.5	7,836	108.5	\$1,213,620	700.8
2005	867.5	7,853	110.5	\$1,247,405	695.5
2006	784.6	7,908	99.2	\$1,275,505	615.1
2007	827.1	7,940	104.2	\$1,283,593	644.4
2008	812.5	7,977	101.8	\$1,225,361	663.1
2009	735.2	8,018	91.7	\$1,289,675	570.1
2010	751.6	8,108	92.7	\$1,336,151	562.5
2011	745.9	8,120	91.9	\$1,318,862	565.6
2012	756.3	8,124	93.1	\$1,382,426	547.1
2013	750.1	8,126	92.3	\$1,396,605	537.1
2014	784.6	8,192	95.8	\$1,447,541	542.1
2015	804.0	8,207	98.0	\$1,506,975	533.5
2016	762.4	8,232	92.6	\$1,540,970	494.8

# Appendix H

## New York State Estimated Customer-Sited Solar Capacity and Generation by County, 2006–2016

Table H-1. Solar Installed Capacity (kW)

County	2006	2011	2016
<b>New York State</b>	<b>7,328</b>	<b>78,690</b>	<b>743,082</b>
Albany	65	2,653	23,633
Alleghany	4	66	3,116
Bronx	52	1,103	10,927
Broome	22	560	3,053
Cattaraugus	0	117	1,009
Cayuga	6	171	2,608
Chautauqua	0	394	4,326
Chemung	14	103	3,865
Chenango	3	82	1,065
Clinton	144	307	1,750
Columbia	121	1,676	13,919
Cortland	16	137	3,092
Deleware	31	201	1,276
Dutchess	456	2,752	23,857
Erie	12	3,902	21,357
Essex	41	310	1,076
Franklin	20	78	896
Fulton	0	59	2,524
Genesee	0	115	1,459
Greene	47	430	3,780
Hamilton	12	36	168
Herkimer	4	82	1,307
Jefferson	6	185	3,698
Kings	72	1,888	15,395
Lewis	0	12	397
Livingston	19	163	2,801
Madison	14	184	2,006
Monroe	25	949	12,933
Montgomery	0	277	6,433
Nassau	1,385	11,286	67,225
New York	41	733	1,883
Niagara	0	538	3,763
Oneida	16	433	12,585
Onondaga	5	967	12,126
Ontario	7	362	7,930
Orange	59	1,577	43,792
Orleans	2	73	1,129
Oswego	12	145	3,485
Ostego	15	161	1,236
Putnam	3	262	4,249
Queens	157	2,459	25,191
Rensselaer	42	1,202	18,019
Richmond	0	396	34,725
Rockland	117	623	20,613
St. Lawrence	84	918	21,492
Saratoga	25	782	14,478
Schenectady	14	202	2,395
Schoharie	10	56	1,185
Schuyler	18	77	2,517
Seneca	22	193	5,613
Steuben	4	63	1,275
Suffolk	3,403	27,058	147,434
Sullivan	34	591	5,471
Tioga	41	192	1,351
Tompkins	195	876	15,974
Ulster	253	2,851	21,028
Warren	14	333	10,106
Washington	34	466	10,265
Wayne	5	214	6,286
Westchester	101	3,467	42,313
Wyoming	0	90	1,030
Yates	3	52	1,195

Table H-2. Solar Estimated Annual Generation (MWh)

County	2006	2011	2016
<b>New York State</b>	<b>8,602</b>	<b>92,368</b>	<b>858,247</b>
Albany	76	3,114	27,014
Alleghany	5	77	3,108
Bronx	62	1,295	12,841
Broome	25	657	3,584
Cattaraugus	0	137	1,184
Cayuga	7	201	2,996
Chautauqua	0	463	4,657
Chemung	16	121	4,008
Chenango	4	97	1,250
Clinton	169	360	2,054
Columbia	142	1,968	16,152
Cortland	19	161	3,292
Deleware	36	236	1,498
Dutchess	536	3,231	27,595
Erie	15	4,580	24,432
Essex	48	364	1,263
Franklin	23	92	1,052
Fulton	0	70	2,962
Genesee	0	135	1,712
Greene	55	505	4,436
Hamilton	14	43	197
Herkimer	4	96	1,534
Jefferson	7	218	4,341
Kings	84	2,216	17,878
Lewis	0	14	465
Livingston	22	191	3,288
Madison	17	216	2,355
Monroe	29	1,114	14,282
Montgomery	0	325	7,551
Nassau	1,626	13,248	78,904
New York	49	860	2,210
Niagara	0	632	4,417
Oneida	19	508	13,092
Onondaga	6	1,135	13,802
Ontario	8	425	9,206
Orange	70	1,852	50,816
Orleans	2	86	1,325
Oswego	14	170	4,091
Ostego	18	189	1,451
Putnam	3	308	4,789
Queens	184	2,887	29,052
Rensselaer	49	1,410	21,150
Richmond	0	465	40,423
Rockland	137	731	23,551
St. Lawrence	99	1,078	24,640
Saratoga	29	918	16,700
Schenectady	16	238	2,811
Schoharie	12	66	1,391
Schuyler	21	91	2,777
Seneca	26	226	6,103
Steuben	5	74	1,497
Suffolk	3,995	31,761	173,049
Sullivan	39	693	5,888
Tioga	48	226	1,586
Tompkins	229	1,028	17,708
Ulster	297	3,346	24,491
Warren	16	390	11,862
Washington	39	546	12,049
Wayne	6	252	6,926
Westchester	118	4,069	48,899
Wyoming	0	106	1,209
Yates	4	61	1,402

# Appendix I

## New York State Estimated Combined Heat and Power (CHP) Capacity and Generation by County, 2001–2016

Table I-1. CHP Installed Capacity (kW)

County	2001	2006	2011	2016
<b>New York State</b>	<b>5,071,180</b>	<b>5,900,111</b>	<b>6,075,255</b>	<b>6,170,883</b>
Albany	446,000	447,100	449,724	455,449
Allegany	941	1,691	1,691	1,691
Bronx	15,620	18,145	59,524	61,199
Broome	0	60	135	535
Cattaraugus	94,140	94,140	94,140	94,140
Cayuga	450	925	5,000	6,520
Chautauqua	53,980	101,825	101,825	101,890
Chemung	205	505	505	505
Clinton	285,600	285,600	288,600	288,600
Cortland	0	1,650	1,650	1,650
Dutchess	7,500	7,500	8,500	8,500
Erie	67,675	71,425	73,443	75,543
Essex	41,000	41,000	41,600	41,600
Genesee	75,130	75,130	75,930	75,930
Herkimer	60,500	60,500	60,500	60,500
Jefferson	375	375	475	475
Kings	367,274	371,559	393,474	402,046
Lewis	128,900	128,900	128,900	128,900
Madison	80	80	130	1,730
Monroe	130,625	167,025	169,825	170,550
Montgomery	0	1,770	1,770	1,770
Nassau	223,730	288,025	291,145	298,459
New York	367,350	743,900	790,520	824,170
Niagara	335,300	341,300	341,330	342,180
Oneida	66,078	71,578	76,038	79,823
Onondaga	332,890	333,190	334,670	339,695
Ontario	1,200	1,600	1,600	2,485
Orange	0	0	0	5,000
Orleans	0	0	0	60
Oswego	1,315,225	1,315,225	1,315,225	1,315,225
Otsego	96	96	96	96
Queens	156,987	411,937	414,117	416,902
Rensselaer	0	5,070	5,870	5,880
Richmond	7,022	9,522	9,622	10,132
Rockland	23,400	25,721	25,721	25,796
Saratoga	148,225	148,568	148,568	148,568
Schenectady	560	560	1,480	3,280
Schuyler	8,000	8,000	8,000	8,000
Seneca	11,200	11,650	11,650	11,650
St. Lawrence	107,450	107,450	107,645	111,301
Suffolk	82,553	88,388	89,273	89,838
Sullivan	60	60	60	60
Tioga	505	505	1,173	1,173
Tompkins	240	365	30,365	31,185
Ulster	360	360	360	360
Warren	29,000	29,000	29,000	29,000
Washington	14,400	14,400	14,400	14,720
Wayne	1,785	1,785	1,785	1,785
Westchester	4,369	6,741	8,891	13,839
Wyoming	57,200	58,210	59,310	60,498

Table I-2. CHP Estimated Annual Generation (MWh)

County	2001	2006	2011	2016
<b>New York State</b>	<b>15,423,227</b>	<b>20,314,272</b>	<b>21,302,336</b>	<b>21,841,816</b>
Albany	640,200	646,406	661,209	693,506
Allegany	5,309	9,540	9,540	9,540
Bronx	88,119	102,364	335,801	345,250
Broome	0	338	762	3,018
Cattaraugus	139,871	139,871	139,871	139,871
Cayuga	2,539	5,218	28,207	36,782
Chautauqua	48,780	216,454	216,454	216,821
Chemung	1,156	2,849	2,849	2,849
Clinton	88,600	88,600	105,524	105,524
Cortland	0	9,308	9,308	9,308
Dutchess	42,311	42,311	47,952	47,952
Erie	133,525	154,680	166,065	177,912
Essex	0	0	3,385	3,385
Genesee	92,772	92,772	97,286	97,286
Herkimer	341,307	341,307	341,307	341,307
Jefferson	2,116	2,116	2,680	2,680
Kings	2,071,954	2,096,128	2,219,760	2,268,118
Lewis	132,600	132,600	132,600	132,600
Madison	451	451	733	9,760
Monroe	736,913	942,262	958,058	962,148
Montgomery	0	9,985	9,985	9,985
Nassau	704,018	931,248	948,849	990,111
New York	823,302	3,093,453	3,356,457	3,546,292
Niagara	1,091,580	1,125,429	1,125,598	1,130,393
Oneida	15,889	46,917	72,078	93,431
Onondaga	816,263	817,955	826,304	854,653
Ontario	6,770	9,026	9,026	14,019
Orange	0	0	0	28,207
Orleans	0	0	0	338
Oswego	4,808,479	4,808,479	4,808,479	4,808,479
Otsego	542	542	542	542
Queens	890,790	2,635,615	2,647,914	2,663,625
Rensselaer	0	28,602	33,115	33,172
Richmond	39,614	53,718	54,282	57,159
Rockland	132,010	145,103	145,103	145,527
Saratoga	687,311	689,246	689,246	689,246
Schenectady	3,159	3,159	8,349	18,504
Schuyler	45,132	45,132	45,132	45,132
Seneca	63,184	65,723	65,723	65,723
St. Lawrence	34,082	34,082	35,182	55,807
Suffolk	485,670	518,588	523,581	526,768
Sullivan	338	338	338	338
Tioga	2,849	2,849	6,617	6,617
Tompkins	1,354	2,059	171,302	175,928
Ulster	2,031	2,031	2,031	2,031
Warren	0	0	0	0
Washington	81,237	81,237	81,237	83,042
Wayne	10,070	10,070	10,070	10,070
Westchester	24,647	38,029	50,158	78,072
Wyoming	84,385	90,083	96,288	102,990

# Appendix J

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## Abbreviations

B	billion or 10 <sup>9</sup>
bbbl	barrel
Bcf	Billion cubic feet
Btu	British thermal unit
cf	cubic foot
CO <sub>2</sub>	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 <sup>3</sup>
Mcf	Thousand cubic feet
MM	million or 10 <sup>6</sup>
N/A	Not applicable
n.a.	Not available
OPEC	Organization of Petroleum Exporting Countries
T	trillion or 10 <sup>12</sup>

## Conversion Factors

Approximate heat content of various fuels (2016)

### Coal

Electric generation	23,906,000 Btu/ton
Industrial end use sector	27,791,000 Btu/ton

### Natural Gas

Electric generation	1,030 Btu/cf
Other end use sectors	1,032 Btu/cf

**Wood** 20,000,000 Btu/cord

**Electricity Sales** 3,412 Btu/kWh

**Electricity Generation** 8,657 Btu/kWh

(Three-year statewide weighted average annual heat rate for fossil-fueled power plants)

### Petroleum Products (one barrel equals 42 gallons)

Distillate fuel oil	5,770,000 Btu/barrel
Ethanol	3,558,000 Btu/barrel
Jet fuel, kerosene-type	5,670,000 Btu/barrel
Kerosene	5,670,000 Btu/barrel
Motor gasoline	5,059,000 Btu/barrel
LPG (propane)	3,836,000 Btu/barrel
Residual fuel oil	6,287,000 Btu/barrel

# Appendix K

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## 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 unit of volume measure equal to 42 U.S. gallons, commonly used in expressing quantities of petroleum or petroleum products.

**Biofuels** – Liquids derived from non-fossil biomass energy sources through chemical, thermal, and biological processes and used 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 and biodiesel blended with diesel fuel. 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, this unit provides a common denominator for quantifying all types of energy on an equivalent energy content basis. 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. Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace.



**Combined heat and power (CHP)** – Includes plants designed to produce both heat and electricity from a single heat source.

**Commercial sector** – The part of the energy-using sector of the economy that engages primarily in providing goods and services other than manufacturing. The commercial sector includes both private and public entities, and is made up of apartment and office buildings, governmental units, schools, institutions, churches, hotels, 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 several 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°F, 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°F 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. Unit commonly used to measure amount of natural gas, based on its heat content in Btu rather than its volume in cubic feet.

**Distillate fuel** – A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

**Electric generation** - Includes both publicly and privately-owned generating plants in the 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 industrial process. Fossil fuels sometimes are used as feedstocks for their chemical properties, rather than their energy value (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. Also equal to 4 quarts (231 cubic inches), commonly used to measure petroleum products such as gasoline and heating oil. 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. Unit of measure for amount of electricity generated or used.

**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 energy-using economy involved in or associated with 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. A unit of power usually used for electricity.

**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. Measure of volume commonly used for natural gas.

**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 2,204 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** – An odorless, colorless, tasteless, non-toxic clean-burning fossil fuel, widely used to generate electricity and used directly by end-use customers to provide space heat, water heating, and cooking.

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

**Net Energy Consumption** – The energy 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, Ecuador, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, 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 such as gasoline, diesel fuel, jet fuel, and heating oil.

**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 as a fuel for transportation and industrial uses, including petrochemical feedstocks. Propane is the first product refined from crude petroleum. Propane is often used at customer locations where natural gas is not available, as it can be easily transported by truck and stored at the customer site.

**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** – The part of the economy having to do with the places people stay or live. The residential sector is made up of homes, apartments, condominiums, etc. including 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. A long ton or metric ton is equal to 2,204 pounds.

**Solar electric** – A technology that directly converts light energy radiated by the sun as electromagnetic waves (electromagnetic radiation) into electricity by means of solar electric (also known as photovoltaic or PV) panels or concentrating (focusing) collectors.

**Solar thermal** – A technology that collects heat energy from the sun to heat water. Solar thermal energy is 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, other rail vehicles, aircraft, ships, barges, and other waterborne vehicles. Vehicles whose primary purpose is not transportation (e.g., construction cranes, 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, often used to measure amounts of coal and air emissions of various pollutants. The American ton is often called the “short.” The metric or “long ton” equals 2,204 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 L

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## Data Sources

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

State Energy Price and Expenditure Report – DOE/EIA

Annual and Monthly Energy Review – DOE/EIA

Electric Power Annual – DOE/EIA

Retail Motor Gasoline Price Report – DOE/EIA

Residential Energy Consumption Survey – 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 – NYS Department of Environmental Conservation

Highway Statistics for New York State – NYS Department of Motor Vehicles

Motor Fuel Volume and Revenue Report – NYS Department of Taxation & Finance

Population and Housing Estimates – NYS Empire State Development

New York State Renewable Portfolio Standard Annual Performance Report – NYSERDA

Load and Capacity Data Report – New York Independent System Operator





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