

3 New York State Energy Consumption

This section presents data on primary and net energy consumption in New York State by sector and fuel type from 2007 through 2021. Total primary energy consumption by sector, including residential, commercial, industrial, transportation, and electric generation is presented for the 15-year period with both physical and energy units.

The section also presents summaries on the State’s renewable and bioenergy consumption. Electricity generation reported does not include generator station use. Electricity—from hydroelectric generation 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 I. Conversion Factors.

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

3.1 Key Observations about 2021 New York State Energy Consumption Data

- The recovery from the COVID-19 pandemic regarding energy consumption in New York State is highlighted throughout the energy consumption data for 2021. Most notable is the overall energy consumption increases compared to 2020.
- Total primary energy consumption was 3,532 TBtu, a 5.0% increase from 2020, keeping in mind that 2021 total primary energy consumption remains 8.1% below 2019 (pre-pandemic).
- Primary consumption of natural gas (1,361 TBtu) remained the greatest energy source for NYS energy consumption, representing 38.5% of total primary energy consumption. Petroleum products also remained as the second greatest energy source (1,199 TBtu; 33.9% of total primary energy consumption).
- Cumulative heating degree-days were 0.5% lower in 2021 compared to 2020. Cumulative cooling degree-days were 7.0% lower in 2021 compared to 2020.
- Compared to 2020, the 2021 primary consumption increased for natural gas (4.3%), petroleum products (12.9%), electricity imports (36.1%), solar (23.3%), and bioenergy (6.4%). Primary consumption decreased for coal (5.5%), hydroelectric generation (7.1%), and wind (7.3%).
- Total consumption of petroleum products was 1,198.7 TBtu, or 235 million barrels, representing 33.9% of total primary energy consumption.

- In 2021, statewide petroleum products consumption increased 12.9% compared to 2020. This represents another sign of the pandemic recovery. Specific statewide petroleum fuels consumption comparisons include:
 - Distillate oil consumption increased 9.5% from 2020 but remained 7.5% less than 2019 consumption.
 - Motor gasoline consumption increased 10.1% from 2020 but remained 8.7% less than 2019 consumption.
 - Residual fuel oil consumption increased by 81.0% from 2020 and 92.7% greater than 2019 consumption.

- Sales of natural gas totaled 1,319 billion cubic feet in 2021, which was 4.3% greater than the 1,264 billion cubic feet sold in 2020 and 1.8% greater than 2019.
- Sales of natural gas by sector were 33.8% for the residential sector, 22.6% for the commercial sector, 6.8% for the industrial sector, 2.8% for the transportation sector, and 34.0% for the electric generation sector.
- Natural gas and nuclear power accounted for 35.8% and 25.2% of the State's electricity requirements in 2021, respectively.
- Energy used for electricity generation accounted for 36.6% of primary energy use.
- Sales of electricity to ultimate customers increased by 0.7% between 2021 and 2020. However, the 2021 sales of electricity remained 2.9% less than 2019.
- Total residential net energy consumption was 811 TBtu, which was 4.4% greater than 2020 consumption, but was 3.9% less than 2019 consumption. The residential sector accounted for 29.8% of total net energy consumption.
- Total net energy consumption in the commercial sector was 630 TBtu, or 23.2% of total net energy consumption.
- Industrial net energy consumption was 253 TBtu, or 9.3% of total net consumption.
- Transportation energy consumption was 1,027 TBtu, or 37.7% of total net energy consumption.

New York State Primary Consumption of Energy by Fuel Type 2007–2021

Figure 3-1.

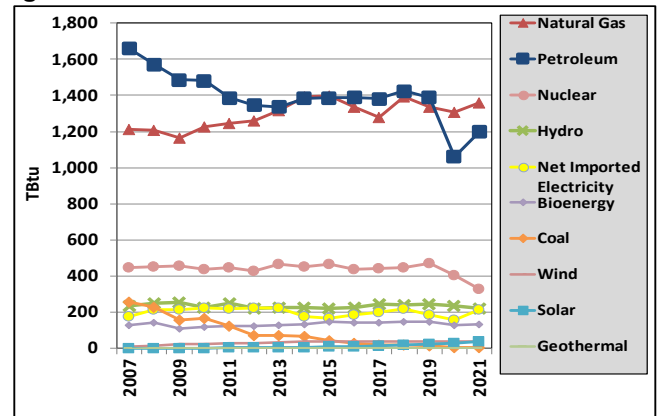


Table 3-1a. (In Physical Units)

Year	Coal Mtons	Natural Gas Bcf	Petroleum Products ¹ Mbbbl	Hydro GWh	Nuclear GWh	Net Imported Electricity GWh	Solar GWh	Wind GWh
2007	11,058	1,187	308,297	25,557	42,453	18,904	16	833
2008	10,157	1,180	295,891	27,501	43,209	23,344	24	1,251
2009	7,032	1,143	282,236	27,945	43,485	23,361	33	2,266
2010	7,367	1,198	283,381	25,103	41,870	24,912	56	2,596
2011	5,604	1,217	266,385	28,355	42,695	24,883	93	2,828
2012	3,137	1,223	258,653	25,303	40,775	25,516	202	2,992
2013	3,041	1,273	257,552	26,397	44,756	25,902	259	3,539
2014	2,867	1,349	266,956	26,823	43,039	20,789	401	3,986
2015	1,761	1,353	267,380	26,704	44,603	19,809	643	3,984
2016	1,175	1,296	268,501	27,150	41,571	22,358	931	3,943
2017	738	1,237	267,925	30,350	42,167	24,319	1,233	4,219
2018	635	1,350	276,282	29,856	42,919	26,766	1,550	3,985
2019	536	1,296	269,940	30,724	44,865	23,134	1,920	4,454
2020	222	1,264	208,043	30,156	38,430	19,990	2,356	4,163
2021	211	1,319	235,254	28,214	31,177	27,394	2,769	4,111

Table 3-1b. (In Trillion Btu)

Year	Coal TBtu	Natural Gas TBtu	Petroleum Products ¹ TBtu	Hydro TBtu	Nuclear TBtu	Net Imported Electricity TBtu	Solar TBtu	Wind TBtu	Geothermal TBtu	Bioenergy ² TBtu	Total TBtu
2007	258.5	1,214.4	1,659.9	236.9	445.3	175.2	1.2	8.2	0.7	128.6	4,128.8
2008	229.0	1,205.1	1,572.3	251.2	451.6	213.3	1.3	12.3	0.8	143.9	4,081.0
2009	156.0	1,166.6	1,486.8	252.9	454.8	211.4	1.5	22.1	1.0	107.6	3,860.6
2010	167.1	1,224.5	1,480.9	225.4	437.6	223.7	1.7	25.3	1.1	118.5	3,905.8
2011	125.2	1,247.8	1,387.2	250.7	446.8	220.0	2.1	27.5	1.3	124.9	3,833.4
2012	72.9	1,261.0	1,346.5	220.1	427.3	222.0	3.1	28.5	1.2	124.3	3,706.9
2013	68.7	1,315.3	1,337.9	224.7	467.7	220.5	3.9	33.8	1.2	128.3	3,801.9
2014	64.7	1,392.4	1,384.6	224.3	450.1	173.8	5.3	37.7	1.2	132.0	3,866.1
2015	41.2	1,396.7	1,387.9	221.2	466.5	164.1	7.7	37.0	1.2	147.6	3,871.2
2016	29.7	1,336.5	1,388.2	223.5	434.8	184.1	10.7	36.4	1.2	141.9	3,786.8
2017	19.6	1,276.9	1,381.1	246.5	441.0	197.5	13.9	38.1	1.2	143.3	3,759.1
2018	16.7	1,393.7	1,425.2	240.8	448.7	215.9	17.7	36.4	1.2	149.0	3,945.2
2019	13.6	1,337.8	1,388.1	242.6	468.5	182.7	22.5	39.7	1.2	148.1	3,844.8
2020	5.7	1,305.3	1,061.6	236.8	401.4	156.9	28.8	39.6	1.2	126.1	3,363.4
2021	5.4	1,361.2	1,198.7	220.0	325.7	213.7	35.5	36.8	1.2	134.1	3,532.2

¹ Includes petroleum coke used for electric generation.

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

**New York State
Primary Consumption
of Refined Petroleum Products, 2007–2021**

Figure 3-2.

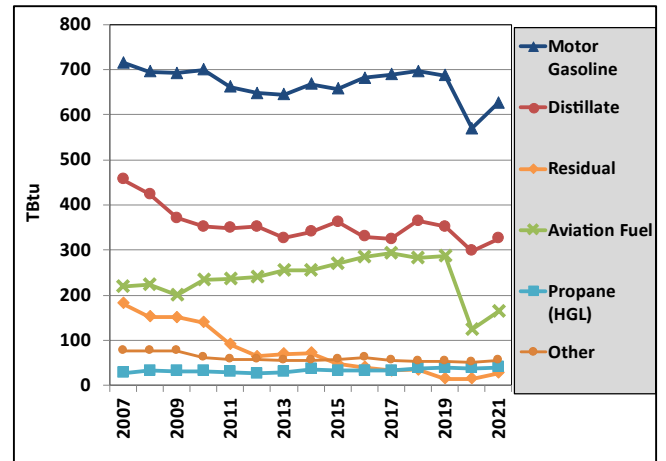


Table 3-2a. (In Thousand Barrels)

Year	Distillate	Residual	Kerosene	Propane (HGL)	Motor Gasoline	Aviation Fuel ¹	Other	Total ²
	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl
2007	78,850	28,975	1,777	7,345	139,140	38,588	21,237	308,297
2008	73,289	24,204	829	8,536	136,105	39,293	23,601	295,891
2009	64,154	24,060	1,218	8,344	135,921	35,364	25,198	282,236
2010	60,987	22,234	1,701	8,138	138,087	41,093	24,629	283,381
2011	60,439	14,517	1,058	7,689	130,718	41,569	23,153	266,385
2012	61,030	10,262	569	6,869	127,902	42,219	22,442	258,653
2013	56,594	11,032	506	7,657	127,461	44,878	22,183	257,552
2014	59,002	11,396	878	9,230	131,943	45,179	22,457	266,956
2015	62,971	7,582	613	8,609	129,909	47,781	22,789	267,380
2016	57,242	6,358	836	8,516	134,799	50,233	23,950	268,501
2017	56,280	5,202	491	8,459	136,414	51,544	23,325	267,925
2018	63,298	5,474	541	9,953	137,758	49,975	23,288	276,282
2019	61,140	2,269	771	10,276	135,872	50,626	22,923	269,940
2020	51,718	2,416	989	9,931	112,676	22,026	19,897	208,043
2021	56,532	4,372	591	10,401	124,180	28,927	23,148	235,254

Table 3-2b. (In Trillion Btu)

Year	Distillate	Residual	Kerosene	Propane (HGL)	Motor Gasoline	Aviation Fuel ¹	Other	Total ²
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	456.1	182.2	10.1	27.7	715.5	218.7	76.2	1,659.9
2008	423.6	152.2	4.7	32.4	695.0	222.7	76.3	1,572.3
2009	370.6	151.3	6.9	31.7	691.8	200.5	75.6	1,486.8
2010	352.2	139.8	9.6	31.3	699.7	232.9	62.1	1,480.9
2011	348.7	91.3	6.0	29.5	661.8	235.6	58.5	1,387.2
2012	352.0	64.5	3.2	26.4	647.4	239.3	57.5	1,346.5
2013	326.1	69.4	2.9	29.4	645.0	254.4	55.0	1,337.9
2014	340.0	71.6	5.0	35.5	667.5	256.1	54.5	1,384.6
2015	362.8	47.7	3.5	33.1	656.9	270.9	57.7	1,387.9
2016	329.5	40.0	4.7	32.7	681.4	284.8	61.7	1,388.2
2017	324.0	32.7	2.8	32.5	689.3	292.2	55.5	1,381.1
2018	364.5	34.4	3.1	38.2	696.2	283.3	54.3	1,425.2
2019	352.1	14.3	4.4	39.5	686.4	287.0	53.0	1,388.1
2020	297.7	15.2	5.6	38.1	569.2	124.8	51.2	1,061.6
2021	325.9	27.5	3.3	40.0	627.1	164.0	55.8	1,198.7

¹ Kerosene-type jet fuel and aviation gasoline.

² Includes petroleum coke used for electric generation. Ethanol values are embedded in motor gasoline but are excluded from the petroleum product's total.

**New York State
Primary Consumption
of Energy by Sector¹
2007–2021**

Figure 3-3a.

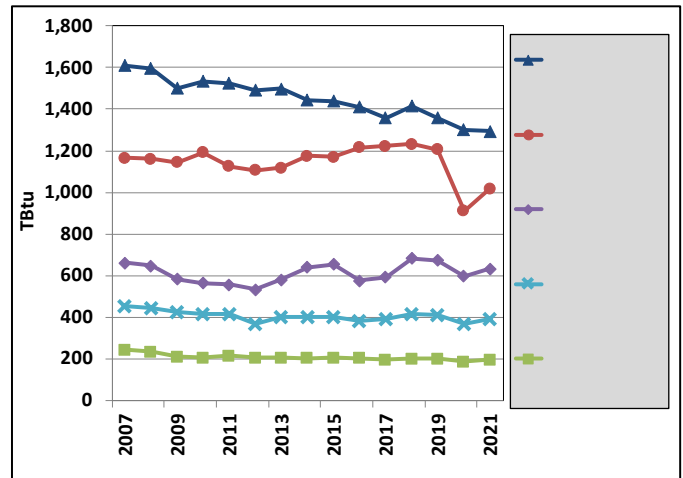


Table 3-3a. (In Trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Electric Generation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	660.7	451.6	242.2	1,165.9	1,611.2	4,131.6
2008	648.4	442.8	234.3	1,161.0	1,596.5	4,083.0
2009	582.8	424.4	209.3	1,144.5	1,501.3	3,862.3
2010	564.3	415.0	205.1	1,192.9	1,533.7	3,911.0
2011	557.1	416.6	214.1	1,124.4	1,523.8	3,836.1
2012	533.7	370.3	205.4	1,106.0	1,491.5	3,706.9
2013	581.7	400.2	203.9	1,118.1	1,498.0	3,801.9
2014	641.2	402.0	203.7	1,175.1	1,444.1	3,866.1
2015	655.6	399.7	205.4	1,170.8	1,439.7	3,871.2
2016	575.9	382.8	201.6	1,214.8	1,411.7	3,786.8
2017	591.5	390.9	196.4	1,222.5	1,357.7	3,759.0
2018	683.2	413.7	199.8	1,232.4	1,416.2	3,945.2
2019	672.7	408.5	199.3	1,205.8	1,358.5	3,844.8
2020	598.1	366.4	187.1	911.4	1,300.3	3,363.3
2021	632.8	391.6	195.7	1,018.5	1,293.6	3,532.2

¹ 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 Sector¹
2007–2021**

Figure 3-3b.

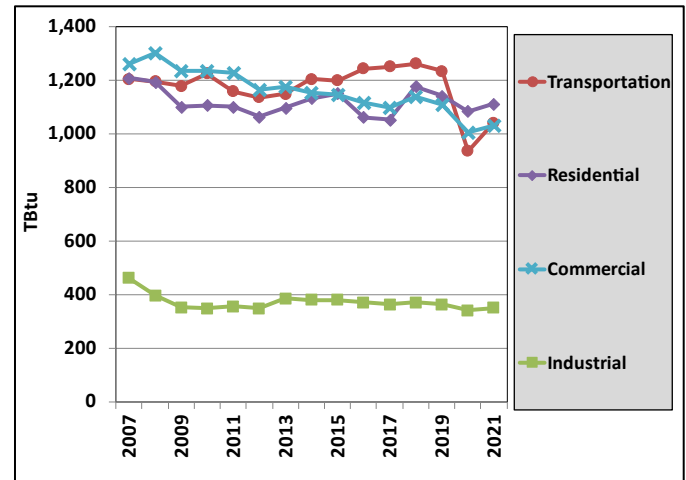


Table 3-3b. (In Trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu
2007	1,207.0	1,259.8	462.0	1,202.8	4,128.8
2008	1,191.8	1,300.8	397.0	1,193.4	4,081.0
2009	1,100.0	1,232.2	353.1	1,177.0	3,860.6
2010	1,104.5	1,234.5	348.1	1,223.9	3,905.8
2011	1,099.1	1,224.9	356.1	1,156.0	3,833.4
2012	1,061.8	1,162.2	348.2	1,134.7	3,706.9
2013	1,096.0	1,173.5	385.3	1,147.1	3,801.9
2014	1,130.9	1,152.0	380.2	1,203.0	3,866.1
2015	1,148.8	1,144.2	380.2	1,198.0	3,871.2
2016	1,061.4	1,113.5	370.7	1,241.1	3,786.8
2017	1,051.1	1,096.3	363.2	1,248.4	3,759.1
2018	1,175.8	1,138.6	370.5	1,260.3	3,945.2
2019	1,140.5	1,109.1	363.1	1,232.1	3,844.8
2020	1,082.0	1,005.3	340.9	935.1	3,363.4
2021	1,109.9	1,031.1	350.2	1,040.9	3,532.2

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

New York State Energy Services and Losses of Energy by Sector¹ 2007–2021

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

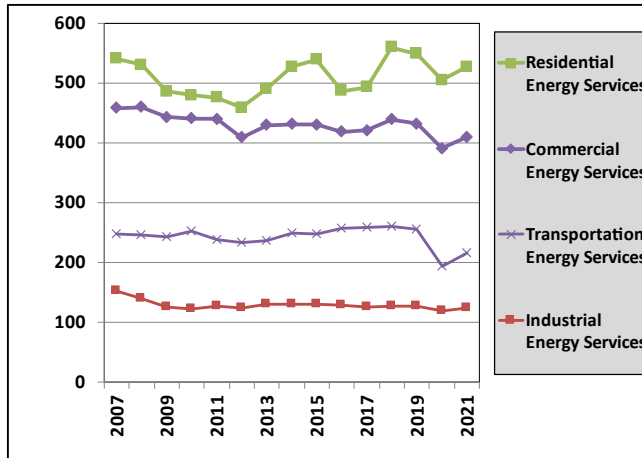


Figure 3-3c-2. Energy Losses by Sector

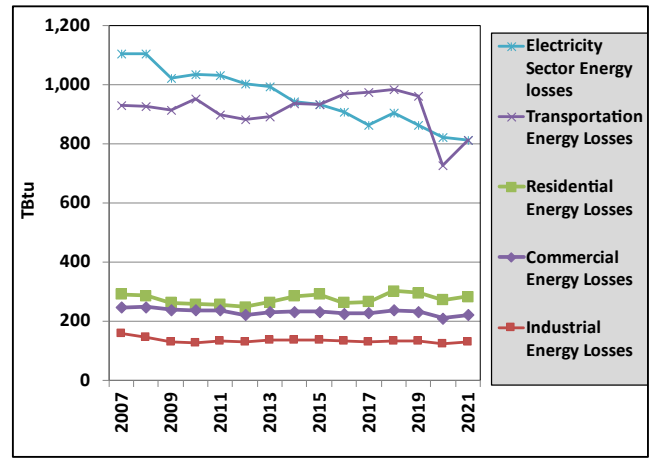


Table 3-3c. (In Trillion Btu)

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
2007	540.9	291.2	458.4	246.8	152.5	158.7	247.3	930.2	1,102.8	1,399.0	2,729.8	4,128.8
2008	530.2	285.5	459.5	247.4	139.3	145.0	245.9	925.1	1,102.9	1,375.0	2,705.9	4,081.0
2009	485.8	261.6	443.0	238.5	125.0	130.1	242.5	912.3	1,021.8	1,296.3	2,564.3	3,860.6
2010	479.8	258.3	441.2	237.5	123.0	128.1	252.6	950.3	1,035.0	1,296.6	2,609.2	3,905.8
2011	475.8	256.2	440.3	237.1	127.4	132.6	238.3	896.3	1,029.6	1,281.7	2,551.7	3,833.4
2012	459.3	247.3	409.3	220.4	123.5	128.6	234.2	881.2	1,003.1	1,226.4	2,480.5	3,706.9
2013	490.7	264.2	429.5	231.3	129.8	135.1	236.9	891.0	993.4	1,286.9	2,515.0	3,801.9
2014	527.6	284.1	431.0	232.1	129.9	135.2	248.8	936.0	941.3	1,337.4	2,528.7	3,866.1
2015	539.3	290.4	430.6	231.9	130.9	136.2	247.9	932.5	931.7	1,348.6	2,522.6	3,871.2
2016	487.1	262.3	418.5	225.3	128.4	133.6	257.1	967.1	907.4	1,291.0	2,495.8	3,786.8
2017	493.3	265.6	421.1	226.8	126.0	131.2	258.7	973.2	863.0	1,299.2	2,459.9	3,759.1
2018	559.7	301.4	439.1	236.4	128.1	133.3	260.9	981.5	904.7	1,387.9	2,557.4	3,945.2
2019	548.4	295.3	432.1	232.6	127.0	132.2	255.2	960.2	861.8	1,362.7	2,482.1	3,844.8
2020	504.7	271.7	391.2	210.6	119.5	124.3	193.2	726.9	821.3	1,208.5	2,154.9	3,363.4
2021	527.0	283.8	409.6	220.5	124.1	129.2	215.6	811.2	811.1	1,276.3	2,255.9	3,532.2

¹ 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 loss is 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 ratio of energy services to losses.

**New York State
Primary Consumption of Energy
for Electric Generation
2007–2021**

Figure 3-4.

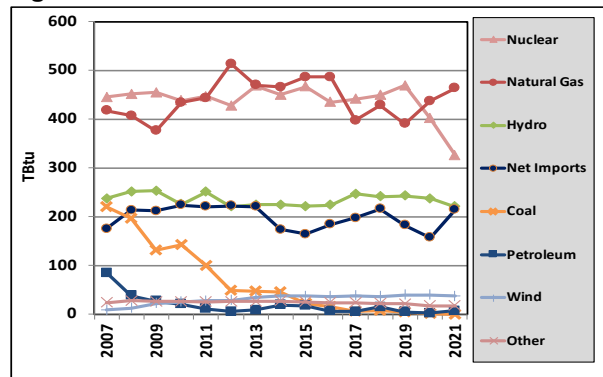


Table 3-4a. (In Physical Units)

Year	Coal	Natural Gas	Distillate ¹	Residual	Total Petroleum ²	Conventional Hydro ³	Pumped Storage Hydro	Nuclear	Net Imported Electricity	Wind	Solar	Other ⁴
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	GWh	GWh	GWh	GWh	GWh	GWh	GWh
2007	9,613	408	1,372	11,728	13,596	24,184	1,373	42,453	18,904	833	0	2,555
2008	8,885	399	809	4,935	6,106	25,711	1,790	43,209	23,344	1,251	0	2,996
2009	6,108	368	736	3,261	4,296	26,420	1,525	43,485	23,361	2,266	0	2,888
2010	6,384	425	637	1,790	3,340	24,214	889	41,870	24,912	2,596	0	2,916
2011	4,591	434	331	1,026	1,826	27,634	721	42,695	24,883	2,828	6	2,823
2012	2,228	499	392	459	851	24,572	731	40,775	25,516	2,992	53	2,945
2013	2,225	456	503	882	1,385	25,631	766	44,756	25,902	3,539	67	3,003
2014	2,154	453	833	2,228	3,061	25,974	849	43,039	20,789	3,986	71	3,194
2015	1,038	472	835	1,942	2,778	25,879	825	44,603	19,809	3,984	98	3,028
2016	654	472	344	624	968	26,314	836	41,571	22,358	3,943	137	2,881
2017	242	385	264	642	905	29,554	795	42,167	24,319	4,219	178	2,919
2018	272	415	790	1,616	2,405	29,045	811	42,919	26,766	3,985	294	2,729
2019	187	379	382	361	742	30,141	583	44,865	23,134	4,454	507	2,648
2020	64	423	180	212	392	29,521	635	38,430	19,990	4,163	822	2,233
2021	0	449	208	845	1,054	27,502	712	31,177	27,394	4,111	1,143	2,255

Table 3-4b. (In Trillion Btu)

Year	Coal	Natural Gas	Distillate ¹	Residual	Total Petroleum ²	Hydro ³	Nuclear	Net Imports ³	Wind	Solar	Other ^{3,4}	Total ⁵
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	220.6	416.9	7.9	73.7	84.5	12.7	445.3	175.2	8.2	0.0	23.7	1,611.2
2008	195.6	407.3	4.7	31.0	37.8	16.4	451.6	213.3	12.3	0.0	27.4	1,596.5
2009	131.8	375.6	4.3	20.5	26.5	13.8	454.8	211.4	22.1	0.0	26.1	1,501.3
2010	141.6	433.7	3.7	11.3	20.2	8.0	437.6	223.7	25.3	0.0	26.2	1,533.7
2011	99.2	443.6	1.9	6.4	11.0	6.4	446.8	220.0	27.5	0.1	25.0	1,523.8
2012	48.7	513.6	2.3	2.9	5.1	6.4	427.3	222.0	28.4	0.5	25.6	1,491.5
2013	47.2	469.5	2.9	5.5	8.4	6.5	467.7	220.5	33.7	0.6	25.6	1,498.0
2014	45.9	466.0	4.8	14.0	18.8	7.1	450.1	173.8	37.7	0.7	26.7	1,444.1
2015	22.0	486.0	4.8	12.2	17.0	6.8	466.5	164.1	37.0	0.9	25.1	1,439.7
2016	15.6	486.5	2.0	3.9	5.9	6.9	434.8	184.1	36.3	1.3	23.7	1,411.7
2017	6.3	397.4	1.5	4.0	5.6	6.5	441.0	197.5	38.0	1.6	23.7	1,357.7
2018	7.0	428.1	4.5	10.2	14.7	6.5	448.7	215.9	36.3	2.7	22.0	1,416.2
2019	4.8	390.4	2.2	2.3	4.5	4.6	468.5	182.7	39.6	4.5	20.9	1,358.5
2020	1.6	436.8	1.0	1.3	2.4	5.0	401.4	156.9	39.6	7.2	17.5	1,300.3
2021	0.0	463.4	1.2	5.3	6.5	5.6	325.7	213.7	36.7	10.1	17.6	1,293.6

¹ Includes small quantities of kerosene-type jet fuel.

² Includes petroleum coke used for electric generation.

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

⁴ Includes primarily waste, methane, and wood. See Table 3-5 for a breakout of energy output.

⁵ 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 2007–2021

Figure 3-5.

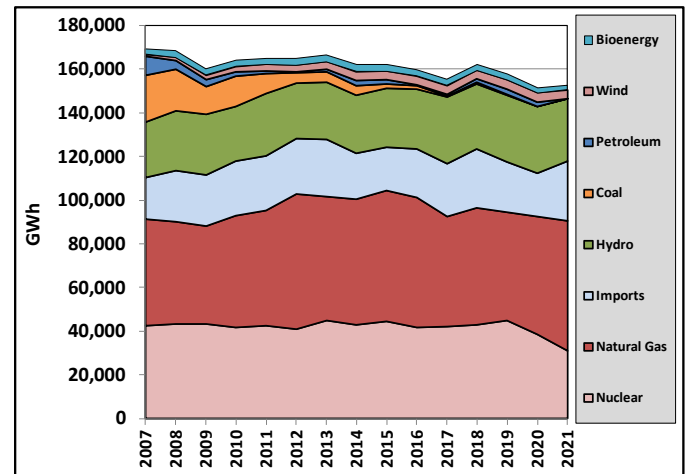


Table 3-5. (In Gigawatt-Hours)

Year	Coal GWh	Natural Gas GWh	Petroleum Products GWh	Conv. Hydro GWh	PS Hydro GWh	Nuclear GWh	Bioenergy ^{1,2}			Wind GWh	Solar ³ GWh	In-State Generation GWh	Net Imports GWh	Total Generation GWh	Electricity Requirements GWh
							Waste GWh	LFG GWh	Wood GWh						
2007	21,406	48,893	8,780	24,184	1,373	42,453	1,902	397	256	833	0	150,477	18,904	169,381	167,341
2008	19,154	46,845	4,001	25,711	1,790	43,209	1,903	533	560	1,251	0	144,956	23,344	168,300	165,612
2009	12,759	44,625	2,829	26,420	1,525	43,485	1,900	648	340	2,266	0	136,797	23,361	160,158	158,780
2010	13,583	51,077	2,094	24,214	889	41,870	1,893	708	315	2,596	0	139,239	24,912	164,151	163,505
2011	9,426	52,713	1,234	27,634	721	42,695	1,878	735	210	2,828	7	140,081	24,883	164,964	163,329
2012	4,551	62,073	606	24,572	731	40,775	1,897	736	311	2,992	53	139,297	25,516	164,813	162,840
2013	4,697	57,039	1,057	25,631	766	44,756	1,799	828	377	3,539	52	140,540	25,902	166,442	163,514
2014	4,325	57,507	2,259	25,974	849	43,039	1,866	789	539	3,986	51	141,185	20,789	161,974	160,059
2015	2,046	59,919	1,992	25,879	825	44,603	1,862	745	422	3,984	52	142,329	19,809	162,138	161,572
2016	1,493	59,698	676	26,314	836	41,571	1,841	748	293	3,943	54	137,465	22,358	159,823	160,798
2017	567	50,270	636	29,554	795	42,167	1,900	730	288	4,219	47	131,175	24,319	155,494	156,370
2018	692	53,593	1,678	29,045	811	42,919	1,878	648	203	3,985	49	135,501	26,766	162,267	161,114
2019	426	49,451	1,994	30,141	583	44,865	1,832	661	155	4,454	52	134,614	23,134	157,748	155,848
2020	146	54,094	2,189	29,521	635	38,430	1,620	613	0	4,163	48	131,459	19,990	151,449	150,310
2021	0	59,460	159	27,502	712	31,177	1,603	651	0	4,111	50	125,425	27,394	152,819	152,147

¹ Includes primarily waste, landfill gas (LFG), and wood.

² Data for disaggregation prior to 2001 are not available.

³ 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 2021 was 2,719 GWh (70.4% of total solar) with 1,230 GWh (31.8%) in the residential sector, 1,465 GWh (37.9%) in the commercial sector, and 24 GWh (0.6%) in the industrial sector.

**New York State
Fossil Fuel¹ for Electric Generation Trends
2007–2021**

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

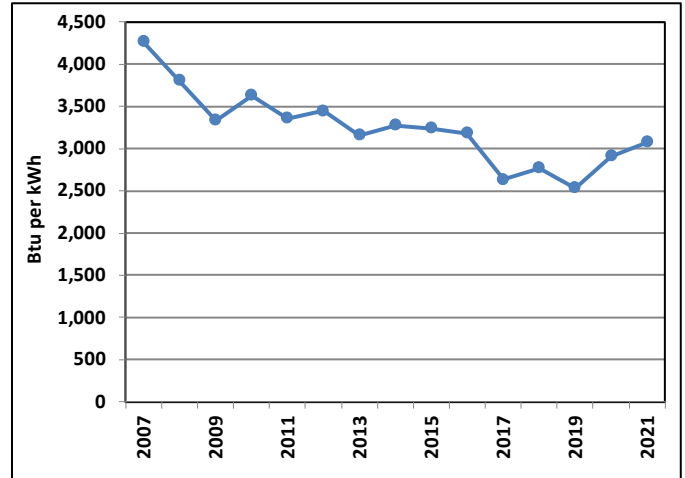


Table 3-6. Fossil Fuel Use for Electricity Trends

Year	Total Fossil Fuel Use	Fossil Fuel per kWh of in-State Generation
	TBtu	Btu
2007	722	4,262
2008	641	3,807
2009	534	3,334
2010	595	3,627
2011	554	3,357
2012	568	3,443
2013	525	3,155
2014	531	3,277
2015	525	3,238
2016	508	3,178
2017	409	2,632
2018	450	2,772
2019	400	2,534
2020	441	2,911
2021	470	3,075

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

**New York State
Sales of Electricity
to Ultimate Consumers
2007–2021**

Figure 3-7.

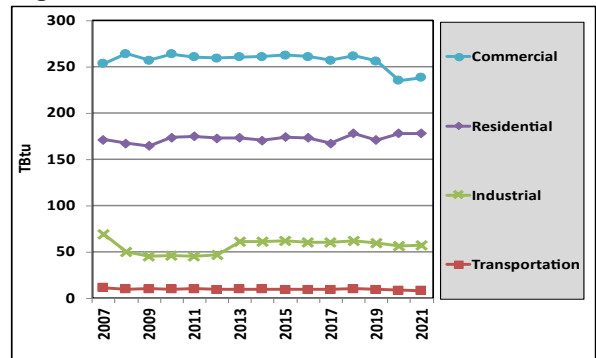


Table 3-7a. (In Gigawatt-Hours)

Year	Residential	Commercial	Industrial	Transportation	Total
	GWh	GWh	GWh	GWh	GWh
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
2017	49,081	75,333	17,811	2,767	144,992
2018	52,153	76,745	18,077	2,954	149,930
2019	50,141	75,091	17,548	2,820	145,600
2020	52,257	68,989	16,610	2,550	140,407
2021	52,157	69,920	16,891	2,455	141,424

Table 3-7b. (In Trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Total
	TBtu	TBtu	TBtu	TBtu	TBtu
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
2017	167.5	257.0	60.8	9.4	494.7
2018	177.9	261.9	61.7	10.1	511.6
2019	171.1	256.2	59.9	9.6	496.8
2020	178.3	235.4	56.7	8.7	479.1
2021	178.0	238.6	57.6	8.4	482.5

**New York State
Net Consumption
of Energy by Sector
2007–2021**

Figure 3-8.

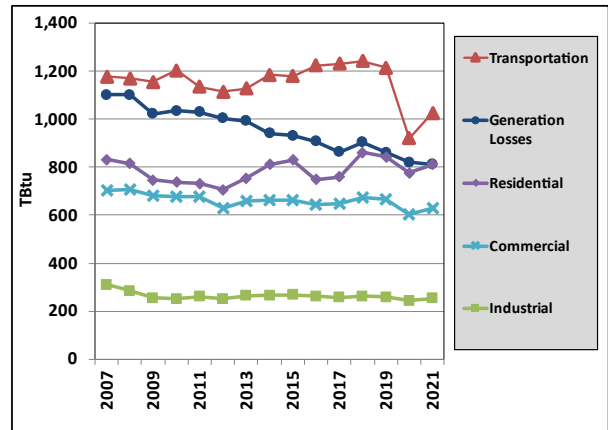


Table 3-8. (In Trillion Btu)

Year	Residential	Commercial	Industrial	Transportation	Net Consumption	Generation Losses ¹	Primary Consumption
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	832.1	705.2	311.2	1,177.5	3,026.0	1,102.8	4,131.6
2008	815.7	707.0	284.4	1,171.0	2,978.1	1,102.9	4,083.0
2009	747.4	681.5	255.1	1,154.8	2,838.8	1,021.8	3,862.3
2010	738.1	678.7	251.1	1,202.9	2,870.8	1,035.0	3,911.0
2011	731.9	677.3	259.9	1,134.6	2,803.8	1,029.6	3,836.1
2012	706.7	629.6	252.1	1,115.4	2,703.8	1,003.1	3,706.9
2013	755.0	660.7	265.0	1,127.9	2,808.6	993.4	3,801.9
2014	811.7	663.2	265.2	1,184.8	2,924.8	941.3	3,866.1
2015	829.6	662.4	267.1	1,180.4	2,939.5	931.7	3,871.2
2016	749.3	643.8	262.0	1,224.2	2,879.4	907.4	3,786.8
2017	759.0	647.9	257.2	1,232.0	2,896.1	863.0	3,759.0
2018	861.1	675.5	261.5	1,242.5	3,040.6	904.7	3,945.2
2019	843.8	664.7	259.2	1,215.4	2,983.0	861.8	3,844.8
2020	776.4	601.8	243.8	920.1	2,542.1	821.3	3,363.3
2021	810.7	630.1	253.3	1,026.8	2,721.0	811.1	3,532.2

1 Conversion and transmission losses.

**New York State
Net Residential Consumption
of Energy by Fuel Type
2007–2021**

Figure 3-9.

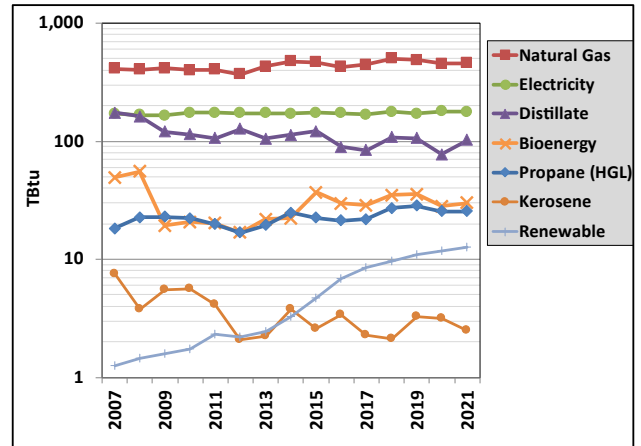


Table 3-9a. (In Physical Units)

Year	Coal	Natural			LPG	Total	Wood	Utility-Scale		Customer-Sited
		Gas	Distillate	Kerosene				Electricity	Solar PV	
	Mtons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh	
2007	13	400	30,101	1,318	4,771	36,190	2,468	50,241	9	
2008	0	394	28,139	661	5,885	34,685	2,762	49,034	16	
2009	0	405	20,755	973	5,940	27,668	967	48,246	21	
2010	0	390	19,781	999	5,781	26,561	1,037	50,946	32	
2011	0	394	18,454	726	5,146	24,327	1,006	51,240	42	
2012	0	358	21,943	365	4,381	26,689	841	50,692	56	
2013	0	416	18,199	394	5,051	23,644	1,097	50,777	77	
2014	0	458	19,682	672	6,463	26,817	1,110	49,975	162	
2015	0	452	21,140	458	5,849	27,448	1,849	51,013	319	
2016	0	412	15,511	602	5,529	21,642	1,479	50,831	547	
2017	0	433	14,519	402	5,698	20,619	1,430	49,081	733	
2018	0	486	18,696	376	7,098	26,170	1,741	52,153	868	
2019	0	474	18,350	576	7,361	26,287	1,776	50,141	1,039	
2020	0	437	13,495	551	6,652	20,699	1,408	52,257	1,136	
2021	0	446	17,739	440	6,656	24,836	1,496	52,157	1,230	

Table 3-9b. (In Trillion Btu)

Year	Coal	Natural			LPG	Total	Wood	Electricity	Solar ¹	Geothermal	Total
		Gas	Distillate	Kerosene							
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
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	119.9	5.5	22.8	148.2	19.3	164.6	1.3	0.2	747.4
2010	0.0	399.7	114.2	5.7	22.2	142.1	20.7	173.8	1.5	0.3	738.1
2011	0.0	404.3	106.5	4.1	19.8	130.4	20.1	174.8	1.6	0.7	731.9
2012	0.0	369.2	126.5	2.1	16.8	145.4	16.8	173.0	1.8	0.4	706.7
2013	0.0	430.8	104.9	2.2	19.4	126.5	21.9	173.3	2.0	0.4	755.0
2014	0.0	473.6	113.4	3.8	24.8	142.1	22.2	170.5	2.8	0.4	811.7
2015	0.0	467.0	121.8	2.6	22.5	146.9	37.0	174.1	4.3	0.4	829.6
2016	0.0	425.6	89.3	3.4	21.2	113.9	29.6	173.4	6.4	0.4	749.3
2017	0.0	446.6	83.6	2.3	21.9	107.7	28.6	167.5	8.1	0.4	759.0
2018	0.0	501.6	107.7	2.1	27.3	137.1	34.8	177.9	9.3	0.4	861.1
2019	0.0	488.9	105.7	3.3	28.3	137.2	35.5	171.1	10.6	0.4	843.8
2020	0.0	451.8	77.7	3.1	25.6	106.4	28.2	178.3	11.3	0.4	776.4
2021	0.0	459.9	102.2	2.5	25.6	130.3	29.9	178.0	12.2	0.4	810.7

¹ Includes customer-sited solar electric and thermal energy.

**New York State
Net Commercial Consumption
of Energy by Fuel Type
2007–2021**

Figure 3-10.

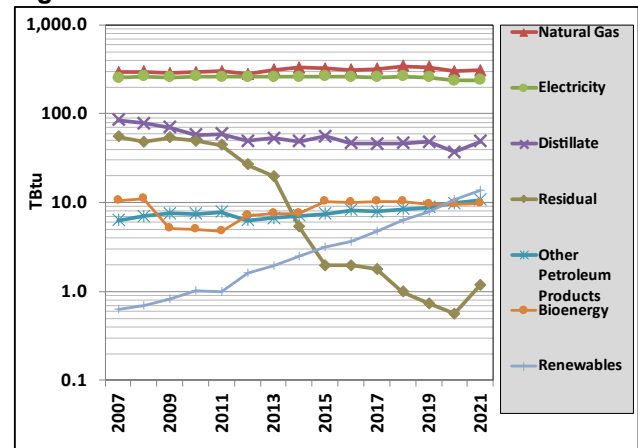


Table 3-10a. (In Physical Units)

Year	Coal	Natural Gas	Distillate	Residual	Kerosene	LPG	Total Petroleum	Wood	Utility-Scale Electricity	Customer-Sited Solar PV
	MTons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh
2007	119	285	14,606	8,723	244	1,276	25,112	398	74,326	7
2008	68	290	13,447	7,685	128	1,641	23,110	420	77,416	8
2009	22	281	12,062	8,571	169	1,724	22,738	137	75,347	12
2010	3	287	10,050	7,835	154	1,718	19,937	135	77,276	24
2011	4	291	10,310	7,089	168	1,797	19,551	130	76,406	43
2012	0	270	8,602	4,237	60	1,558	14,630	114	76,018	91
2013	0	301	9,223	3,139	28	1,693	14,273	132	76,342	127
2014	0	320	8,434	846	54	1,776	11,303	137	76,541	183
2015	0	311	9,634	312	28	1,892	14,967	271	77,006	262
2016	0	303	8,095	312	57	2,061	13,605	262	76,507	317
2017	0	310	7,935	285	31	2,023	13,343	262	75,333	439
2018	0	330	8,111	156	41	2,118	13,491	261	76,745	616
2019	0	323	8,364	117	74	2,200	13,842	256	75,091	806
2020	0	289	6,437	90	54	2,472	12,165	252	68,989	1,148
2021	0	298	8,453	188	42	2,731	14,561	268	69,920	1,465

Table 3-10b. (In Trillion Btu)

Year	Coal	Natural Gas	Distillate	Residual	Kerosene	LPG	Total Petroleum	Wood	Waste	Electricity	Solar ¹	Geothermal	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
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	681.5
2010	0.1	294.1	58.0	49.3	0.9	6.6	114.8	2.7	2.3	263.7	0.2	0.8	678.7
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	677.3
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	629.6
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	55.5	2.0	0.2	7.3	64.9	5.4	4.8	262.7	2.4	0.8	662.4
2016	0.0	312.2	46.6	2.0	0.3	7.9	56.8	5.2	4.9	261.0	2.9	0.8	643.8
2017	0.0	320.4	45.7	1.8	0.2	7.8	55.4	5.2	5.0	257.0	4.0	0.8	647.9
2018	0.0	341.0	46.7	1.0	0.2	8.1	56.1	5.2	5.0	261.9	5.6	0.8	675.5
2019	0.0	333.2	48.2	0.7	0.4	8.4	57.8	5.1	4.5	256.2	7.2	0.8	664.7
2020	0.0	298.6	37.1	0.6	0.3	9.5	47.4	5.0	4.5	235.4	10.1	0.8	601.8
2021	0.0	307.4	48.7	1.2	0.2	10.5	60.6	5.4	4.5	238.6	13.0	0.8	630.1

¹ Includes customer-sited solar electric and thermal energy.

**New York State
Net Industrial Consumption
of Energy by Fuel Type
2007–2021**

Figure 3-11.

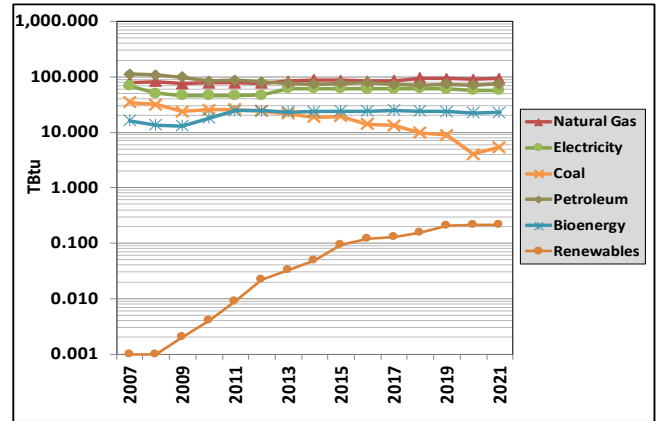


Table 3-11a. (In Physical Units)

Year	Coal	Natural Gas	Distillate	Residual	Kerosene	LPG	Other Petroleum	Total Petroleum	Wood	Utility-Scale Electricity	Customer-Sited Electricity
	MTons	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mcords	GWh	GWh
2007	1,313	78	3,625	1,461	215	1,243	12,398	20,890	735	20,213	0
2008	1,205	81	3,409	1,247	41	753	12,438	19,538	614	14,685	0
2009	902	73	2,931	485	76	583	12,166	17,798	579	13,417	0
2010	979	76	2,274	514	548	611	9,810	15,545	818	13,480	0
2011	1,008	76	2,809	1,244	164	718	9,231	15,566	925	13,420	1
2012	909	75	2,502	578	144	903	9,161	15,411	953	13,705	2
2013	816	80	2,274	711	84	875	8,686	14,812	939	17,911	3
2014	714	85	2,001	552	153	950	8,569	14,165	930	18,003	5
2015	723	83	2,031	431	127	817	9,123	15,120	926	18,079	10
2016	521	81	1,872	457	176	868	9,801	15,723	936	17,709	13
2017	496	83	1,904	539	58	608	8,776	14,599	925	17,811	14
2018	364	92	1,953	406	124	665	8,612	14,450	917	18,077	17
2019	349	91	2,544	360	121	647	8,384	14,765	932	17,548	23
2020	158	87	2,330	194	384	760	8,056	14,199	898	16,610	24
2021	211	90	2,039	444	108	973	8,738	15,054	904	16,891	24

Table 3-11b. (In Trillion Btu)

Year	Coal	Natural Gas	Distillate	Residual	Kerosene	LPG	Other Petroleum	Total Petroleum	Wood	Waste	Electricity	Solar ¹	Total ²
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	34.6	79.8	21.0	9.2	1.2	4.2	76.2	111.8	14.7	1.3	69.0	0.0	311.2
2008	31.6	82.4	19.7	7.8	0.2	2.5	76.3	106.6	12.3	1.3	50.1	0.0	284.4
2009	23.6	74.8	16.9	3.0	0.4	1.9	75.6	97.9	11.6	1.5	45.8	0.0	255.1
2010	25.4	77.8	13.1	3.2	3.1	2.3	62.1	84.0	16.4	1.5	46.0	0.0	251.1
2011	25.9	77.7	16.2	7.8	0.9	2.8	58.5	86.2	18.5	5.9	45.8	0.0	259.9
2012	24.2	77.0	14.4	3.6	0.8	3.5	57.5	79.8	19.1	5.3	46.8	0.0	252.1
2013	21.6	82.9	13.1	4.5	0.5	3.4	55.0	76.4	18.8	4.2	61.1	0.0	265.0
2014	18.7	87.4	11.5	3.5	0.9	3.6	54.5	74.0	18.6	5.0	61.4	0.0	265.2
2015	19.3	86.1	11.7	2.7	0.7	3.1	57.7	76.0	18.5	5.4	61.7	0.1	267.1
2016	14.0	83.6	10.8	2.9	1.0	3.3	61.7	79.6	18.7	5.4	60.4	0.1	262.0
2017	13.3	85.7	11.0	3.4	0.3	2.3	55.5	72.6	18.5	6.2	60.8	0.1	257.2
2018	9.7	94.6	11.2	2.6	0.7	2.6	54.3	71.3	18.3	5.6	61.7	0.2	261.5
2019	8.9	93.4	14.7	2.3	0.7	2.5	53.0	73.1	18.6	5.1	59.9	0.2	259.2
2020	4.0	89.5	13.4	1.2	2.2	2.9	51.2	70.9	18.0	4.5	56.7	0.2	243.8
2021	5.4	92.8	11.8	2.8	0.6	3.7	55.8	74.7	18.1	4.6	57.6	0.2	253.3

¹ Includes customer-sited solar electric and thermal energy.

² Includes fuels used by industry to generate electricity and process steam.

**New York State
Net Transportation Consumption
of Energy by Fuel Type
2007–2021**

Figure 3-12.

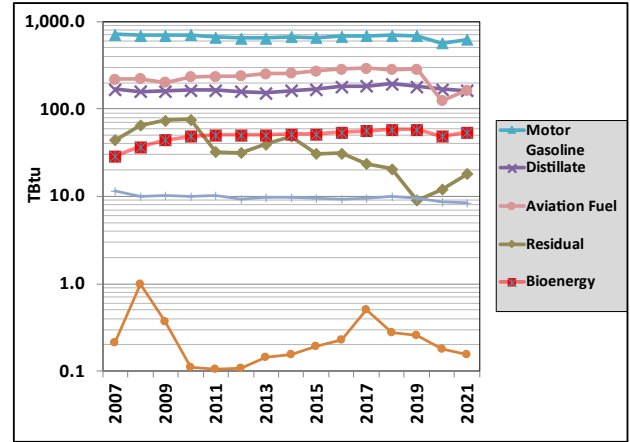


Table 3-12a. (In Physical Units)

Year	Natural Gas	Distillate	Residual	Motor Gasoline	Jet Fuel ¹	Propane (HGL)	Total Petroleum	Ethanol ²	Biodiesel ³	Electricity
	Bcf	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	GWh
2007	16	29,146	7,063	139,140	38,588	56	194,083	7,482	482	3,397
2008	16	27,485	10,336	136,105	39,293	257	194,971	9,827	414	2,918
2009	15	27,670	11,743	135,921	35,364	97	191,161	11,859	439	3,025
2010	19	28,245	12,094	138,087	41,093	29	217,556	13,242	355	2,922
2011	23	28,534	5,158	130,718	41,569	27	204,426	12,587	1,209	2,981
2012	21	27,591	4,988	127,902	42,219	28	200,011	12,399	1,221	2,748
2013	20	26,395	6,300	127,461	44,878	38	202,266	12,514	1,132	2,864
2014	33	28,052	7,770	131,943	45,179	41	211,270	12,902	1,180	2,853
2015	35	29,331	4,897	129,909	47,781	51	206,419	12,297	1,259	2,816
2016	28	31,420	4,965	134,799	50,233	59	216,225	12,855	1,438	2,756
2017	26	31,659	3,736	136,414	51,544	131	218,661	13,200	1,495	2,767
2018	27	33,748	3,296	137,758	49,975	71	220,012	13,407	1,709	2,954
2019	31	31,501	1,431	135,872	50,626	68	214,494	13,330	1,845	2,820
2020	28	29,277	1,919	112,676	22,026	47	162,305	10,995	1,506	2,550
2021	37	28,092	2,893	124,180	28,927	41	181,647	12,274	1,728	2,455

Table 3-12b. (In Trillion Btu)

Year	Natural Gas	Distillate	Residual	Motor Gasoline	Jet Fuel ¹	Propane (HGL)	Total Petroleum	Ethanol ²	Biodiesel ³	Electricity	Total
	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu	TBtu
2007	16.0	168.6	44.4	715.5	218.7	0.2	1,120.9	26.4	2.6	11.6	1,177.5
2008	16.3	158.9	65.0	695.0	222.7	1.0	1,107.9	34.6	2.2	10.0	1,171.0
2009	15.8	159.8	73.8	691.8	200.5	0.4	1,084.7	41.6	2.4	10.3	1,154.8
2010	19.2	163.1	76.0	699.7	232.9	0.1	1,125.1	46.8	1.9	10.0	1,202.9
2011	23.3	164.6	32.4	661.8	235.6	0.1	1,050.4	44.2	6.5	10.2	1,134.6
2012	22.2	159.1	31.4	647.4	239.3	0.1	1,033.5	43.8	6.5	9.4	1,115.4
2013	20.8	152.1	39.6	645.0	254.4	0.1	1,047.0	44.3	6.1	9.8	1,127.9
2014	34.5	161.7	48.8	667.5	256.1	0.2	1,088.7	45.6	6.3	9.7	1,184.8
2015	36.2	169.0	30.8	656.9	270.9	0.2	1,083.1	44.7	6.7	9.6	1,180.4
2016	28.6	180.9	31.2	681.4	284.8	0.2	1,131.9	46.6	7.7	9.4	1,224.2
2017	26.7	182.3	23.5	689.3	292.2	0.5	1,139.8	47.9	8.0	9.4	1,232.0
2018	28.3	194.4	20.7	696.2	283.3	0.3	1,146.1	48.8	9.2	10.1	1,242.5
2019	31.8	181.4	9.0	686.4	287.0	0.3	1,115.6	48.5	9.9	9.6	1,215.4
2020	28.5	168.5	12.1	569.2	124.8	0.2	834.5	40.4	8.1	8.7	920.1
2021	37.9	161.9	18.2	627.1	164.0	0.2	926.5	44.9	9.3	8.4	1,026.8

¹ Consists of aviation gasoline and kerosene-type jet fuel.

² Ethanol values are embedded in motor gasoline but are excluded from the petroleum products' total.

³ Biodiesel includes biodiesel used in all four end-use sectors including residential, commercial, industrial, and transportation. No sectoral breakout is provided for biodiesel estimates.