

1 Overview

The energy profile of New York State is comprised of multiple fuels, markets, supply chains, and demand dynamics. These complicated parameters are monitored and researched by NYSERDA and compiled in this annual report with the following major sections:

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 U.S. and New York State. National petroleum statistics have been aggregated to represent the same six fuels included in 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 standardized across fuel types using energy units and British thermal units (Btu) measured statewide per million Btu (MMBtu).

New York State Energy Expenditures presents the estimated net energy expenditures by sector and fuel type in nominal dollars, as well as in 2021 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 and in 2021 constant dollars.

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

Appendices provide supplemental information and 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 and utility; weather normalized residential energy consumption; estimated county-level solar capacity and generation; conversion factors; and glossary of energy terms.

2021 NEW YORK STATE ENERGY FAST FACTS

2021 represents the first year of gradual recovery from the COVID-19 Public Health Emergency. As a result of the continued impact, energy use patterns should not be considered structural changes to the New York Energy profile in comparison to 2020 or earlier datasets.

PRIMARY ENERGY CONSUMPTION

5.0% greater than 2020; 8.1% less than 2019

| | |
|--|----------------------|
| Primary consumption (3.6% of U.S. total) (trillion Btu)..... | 3,532.2 |
| By sector: | |
| Residential..... | (17.9%)632.8 |
| Commercial..... | (11.1%)391.6 |
| Industrial..... | (5.5%)195.7 |
| Transportation..... | (28.8%)1,018.5 |
| Electric Generation..... | (36.6%)1,293.6 |

By fuel type:

| | |
|-------------------------------|----------------------|
| Petroleum..... | (33.9%)1,198.7 |
| Natural Gas..... | (38.5%)1,361.2 |
| Nuclear..... | (9.2%)325.7 |
| Renewable..... | (8.1%)286.8 |
| Net Imported Electricity..... | (6.0%)213.7 |
| Bioenergy ¹ | (3.8%)134.1 |
| Coal..... | (0.2%)5.4 |
| Pumped Storage Hydro..... | (0.2%)5.5 |

Primary consumption per capita (million Btu)..... 177.9

NET ENERGY CONSUMPTION AND EXPENDITURES

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

| | | |
|---------------------|---------------------------|---------------------|
| Total:..... | 2,721.0..... | \$57.7 |
| By sector: | | |
| Residential..... | (29.8%)810.7..... | (33.4%)\$19.3 |
| Commercial..... | (23.2%)630.1..... | (25.4%)\$14.7 |
| Industrial..... | (9.3%)253.3..... | (3.7%)\$2.1 |
| Transportation..... | (37.7%)1,026.8..... | (37.5%)\$21.6 |

By fuel type:

| | | |
|------------------------------|---------------------------|-----------------------|
| Petroleum..... | (48.8%)1,192.2..... | (43.3%)\$25.0 |
| Natural Gas..... | (33.0%)897.8..... | (16.8%)\$9.7 |
| Electricity..... | (17.7%)482.5..... | (39.5%)\$22.8 |
| Bioenergy ¹ | (4.3%)116.5..... | (< 1.0%)< \$1.0 |
| Renewable..... | (1.0%)26.6..... | (< 0.1%)< \$0.1 |
| Coal..... | (0.2%)5.4..... | (< 0.1%)< \$0.1 |

Estimated energy expenditures leaving the State (billions).....\$17.0

AVERAGE ENERGY PRICES

| | 2020 | 2021 |
|-------------------------------------|--------------|---------|
| Gasoline - all grades (gallon)..... | \$2.15..... | \$2.87 |
| Heating Oil (gallon)..... | \$2.16..... | \$2.55 |
| Natural Gas (thousand cubic feet) | | |
| Residential..... | \$12.86..... | \$13.87 |
| Commercial..... | \$6.92..... | \$ 7.96 |
| Industrial..... | \$7.03..... | \$ 8.44 |
| Electricity (kilowatt-hour) | | |
| Residential..... | 18.3¢..... | 19.5¢ |
| Commercial..... | 14.6¢..... | 16.1¢ |
| Industrial..... | 5.5¢..... | 8.4¢ |

2021 KEY ENERGY OBSERVATIONS

- COVID-19 pandemic recovery begins with vaccines becoming available.
 - Recovery also includes a change in workforce dynamics. More remote working becomes available.
 - Primary consumption did not reach 2019 (pre-pandemic) levels.
- Annualized data for prices do not capture the market dynamics observed during this period of high market volatility.

¹Ethanol (40.4 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 increased 0.7% from 2020; 5.7% less than 2019

| | |
|--|--------------------|
| Sales to ultimate consumers (gigawatt-hours) | 141,424 |
| By sector: | |
| Residential..... | (36.9%).....52,157 |
| Commercial..... | (49.4%).....69,920 |
| Industrial..... | (11.9%).....16,891 |
| Transportation..... | (1.7%).....2,455 |
| In-State Generation (gigawatt-hours)..... | 131,466 |

By fuel type:

| | |
|-------------------------------|--------------------|
| Nuclear..... | (20.4%).....31,177 |
| Natural Gas..... | (38.9%).....59,460 |
| Hydro..... | (18.5%).....28,214 |
| Net Imported Electricity..... | (17.9%).....27,394 |
| Petroleum..... | (0.1%).....158.9 |
| Wind..... | (2.7%).....4,111 |
| Solar..... | (1.8%).....2,769 |
| Bioenergy..... | (1.5%).....2,254 |

PETROLEUM

Consumption increased 13.1% from 2020; 12.8% less than 2019

| | |
|---|-------------------|
| Consumption (3.8% of U.S. total) (million barrels)..... | 235.3 |
| By sector: | |
| Residential..... | (10.6%).....24.8 |
| Commercial..... | (6.2%).....14.6 |
| Industrial..... | (7.1%).....16.7 |
| Transportation..... | (75.7%).....178.1 |
| Electric Generation..... | (0.4%).....0.1 |
| In-State production (thousand barrels)..... | 266.0 |

NATURAL GAS

Consumption increased 4.4% from 2020; 1.8% less

| | |
|--|-------------------|
| Consumption (4.1% of U.S. total) (billion cubic feet)..... | 1,263.6 |
| By sector: | |
| Residential..... | (33.8%).....445.6 |
| Commercial..... | (22.6%).....297.8 |
| Industrial..... | (6.8%).....89.9 |
| Transportation..... | (2.8%).....36.7 |
| Electric Generation..... | (34.0%).....449.0 |
| In-State production (billion cubic feet)..... | 9.7 |

ADDITIONAL 2020 STATISTICS

| | |
|---|-----------|
| Population (6.1% of U.S. total) (million)..... | 19.9 |
| Number of housing units (million)..... | 8.5 |
| Gross State Product (billion 2020 dollars)..... | \$1,901.3 |
| Motor vehicle registrations (million)..... | 9.4 |
| Vehicle miles of travel (billion miles)..... | 106.9 |
| Heating degree-days (decreased 0.5% from 2020)..... | 5,605 |
| Cooling degree-days (decreased 7.0% from 2020)..... | 702 |

Note: Totals may not sum exactly due to rounding.

DATA SOURCE

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

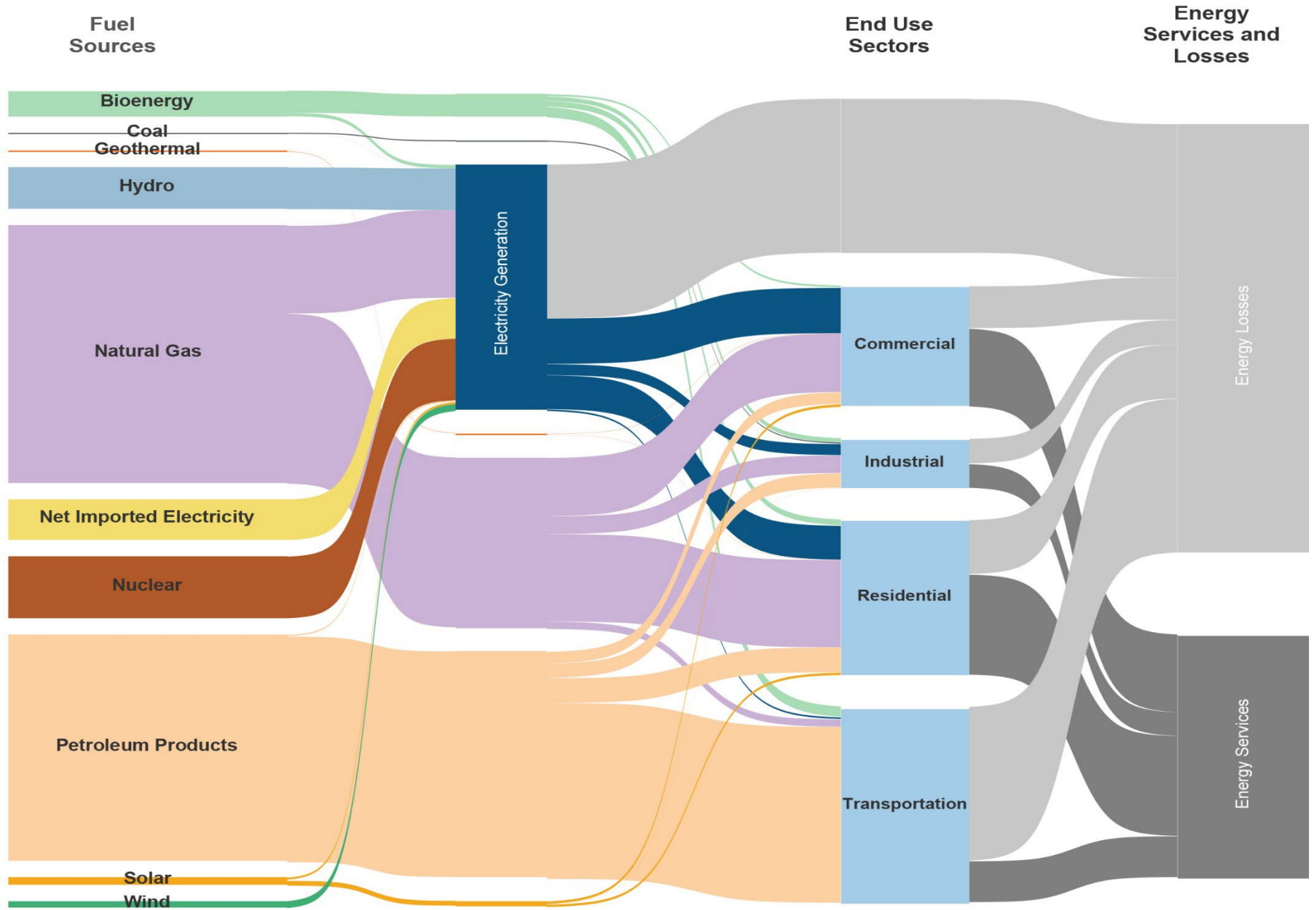
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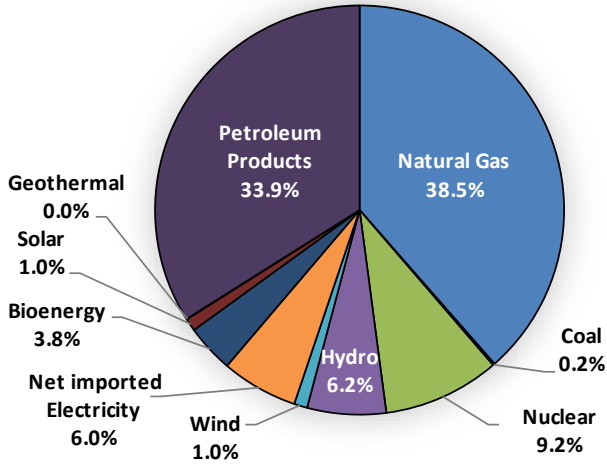
2021 New York State Energy Flow (TBtu)
Estimated Primary Energy Consumption: 3,532 TBtu

Select Year
2021

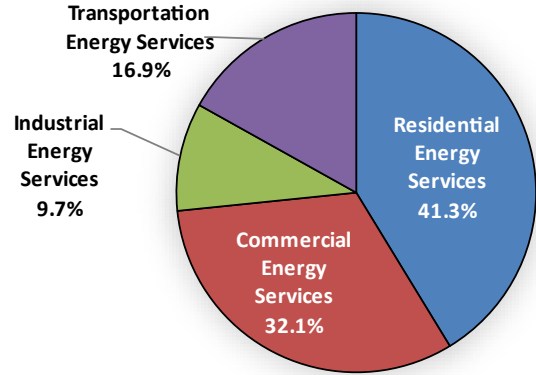


2021 New York State Energy at a Glance

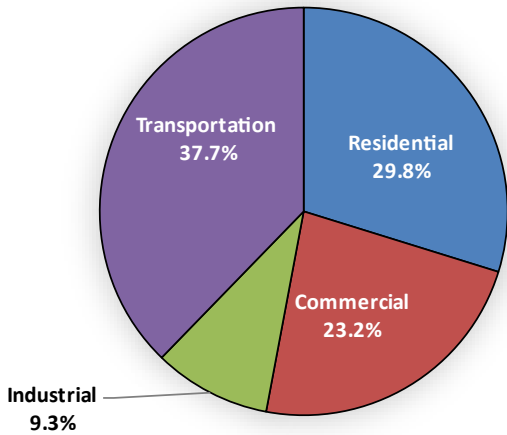
2021 NYS Fuel Sources



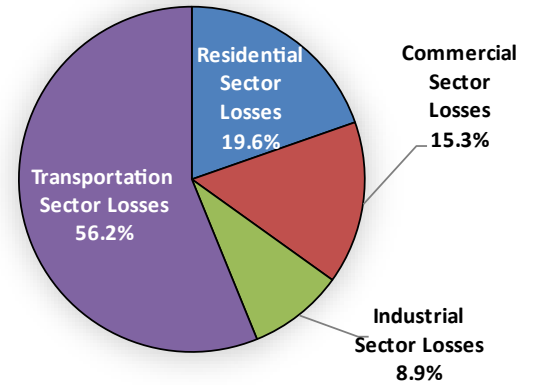
2021 NYS Energy Services



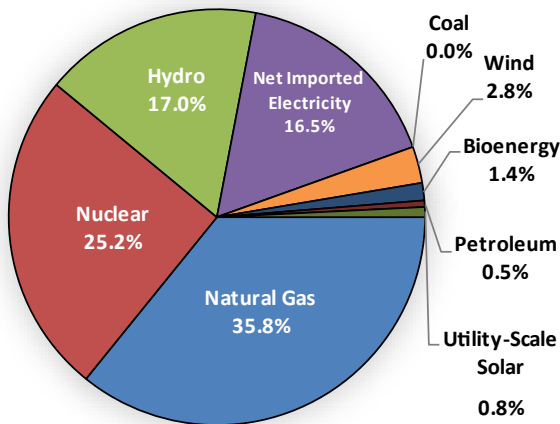
2021 NYS End-Use Sectors



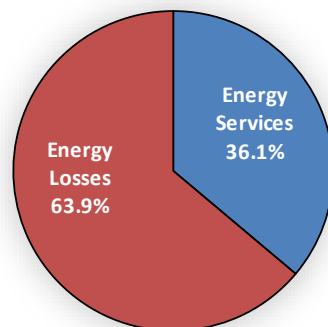
2021 NYS Energy Losses



2021 NYS Energy for Electricity Generation

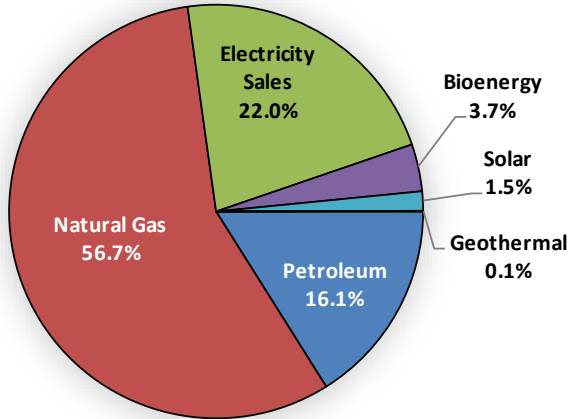


2021 NYS Energy End-Use Services and Losses

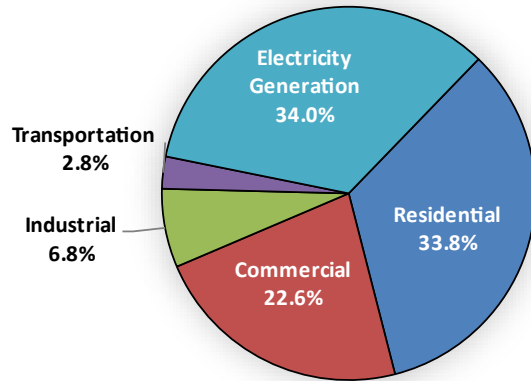


2021 New York State Energy at a Glance

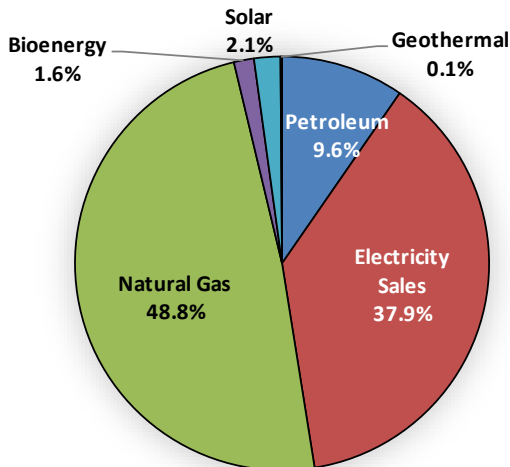
2021 NYS Residential Sector



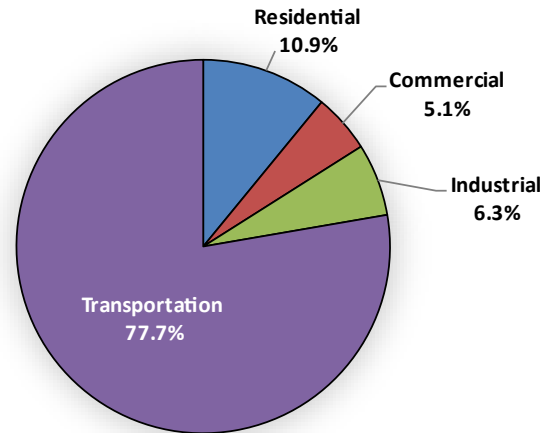
2021 NYS Natural Gas by Sector



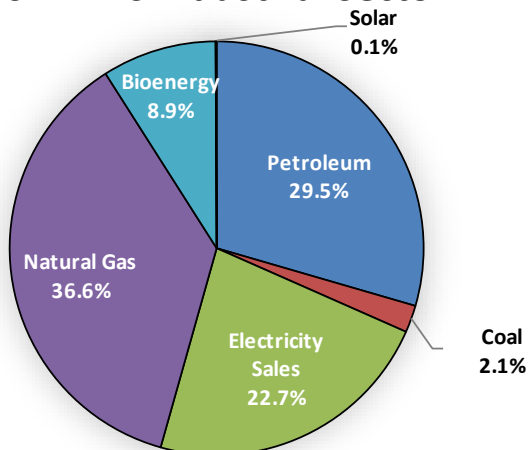
2021 NYS Commercial Sector



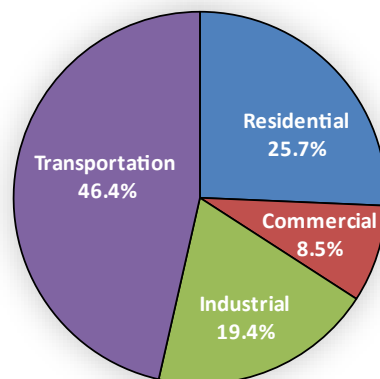
2021 NYS Petroleum by Sector



2021 NYS Industrial Sector

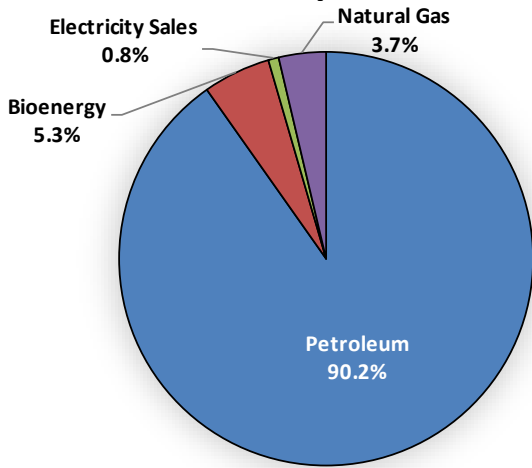


2021 NYS Bioenergy by Sector

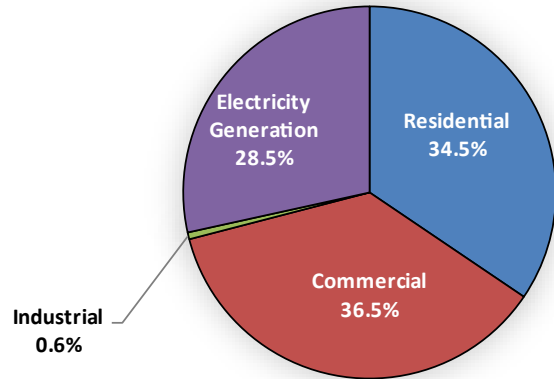


2021 New York State Energy at a Glance

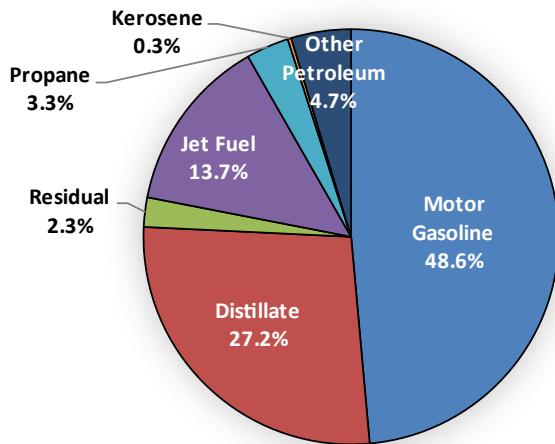
2021 NYS Transportation Sector



2021 NYS Solar by Sector



2021 NYS Petroleum Products



2021 NYS Electricity Sales

