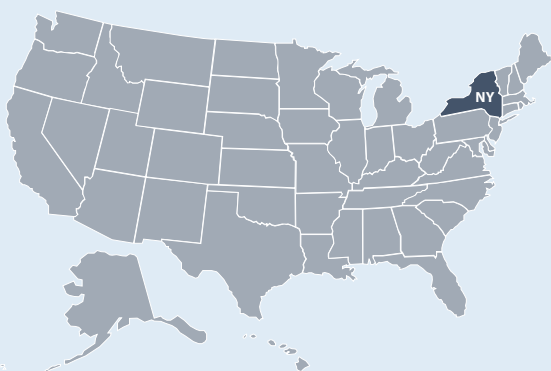




State of New York ENERGY SECTOR RISK PROFILE



New York State Facts



POPULATION

19.54 M



HOUSING UNITS
8.36 M



BUSINESS ESTABLISHMENTS
0.54 M

ENERGY EMPLOYMENT: 136,439 jobs

PUBLIC UTILITY COMMISSION: New York State Public Service Commission

STATE ENERGY OFFICE: New York State Energy Research and Development Authority

EMERGENCY MANAGEMENT AGENCY: New York State Emergency Management Office

AVERAGE ELECTRICITY TARIFF: 14.83 cents/kWh

ENERGY EXPENDITURES: \$2,762/capita

ENERGY CONSUMPTION PER CAPITA: 188 MMBtu (50th highest out of 50 states and Washington, D.C.)

GDP: \$1,668.9 billion

Data from 2020 or most recent year available.

For more information, see the Data Sources document.

ANNUAL ENERGY CONSUMPTION

ELECTRIC POWER: 226,570 GWh

COAL: 600 MSTN

NATURAL GAS: 1,287 Bcf

MOTOR GASOLINE: 129,300 Mbbl

DISTILLATE FUEL: 48,100 Mbbl

ANNUAL ENERGY PRODUCTION

ELECTRIC POWER GENERATION: 606 plants, 131.6 TWh, 44.1 GW total capacity

Coal: 3 plants, 0.4 TWh, 1.4 GW total capacity

Hydro: 164 plants, 30.6 TWh, 4.7 GW total capacity

Natural Gas: 108 plants, 47.6 TWh, 24.2 GW total capacity

Nuclear: 5 plants, 44.9 TWh, 5.7 GW total capacity

Petroleum: 87 plants, 0.5 TWh, 3.9 GW total capacity

Wind & Solar: 199 plants, 5.0 TWh, 2.5 GW total capacity

Other sources: 40 plants, 2.6 TWh, 1.8 GW total capacity

COAL: 0 MSTN

NATURAL GAS: 10 Bcf

CRUDE OIL: 400 Mbbl

ETHANOL: 4,200 Mbbl

Data from EIA (2018, 2019).

This State Energy Risk Profile examines the relative magnitude of the risks that the state of New York's energy infrastructure routinely encounters in comparison with the probable impacts. Natural and man-made hazards with the potential to cause disruption of the energy infrastructure are identified. Certain natural and adversarial threats, such as cybersecurity, electromagnetic pulse, geomagnetic disturbance, pandemics, or impacts caused by infrastructure interdependencies, are ill-suited to location-based probabilistic risk assessment as they may not adhere to geographic boundaries, have limited occurrence, or have limited historic data. Cybersecurity and other threats not included in these profiles are ever present and should be included in state energy security planning. A complete list of data sources and national level comparisons can be found in the Data Sources document.

New York Risks and Hazards Overview

- The natural hazard that caused the greatest overall property loss between 2009 and 2019 was **Flooding** at \$156 million per year (leading cause nationwide at \$12 billion per year).
- New York had 98 Major Disaster Declarations, 0 Emergency Declarations, and 0 Fire Management Assistance Declarations for 8 events between 2013 and 2019.
- New York registered 9% fewer Heating Degree Days and 39% greater Cooling Degree Days than average in 2019.
- There is 1 Fusion Center located in East Greenbush.

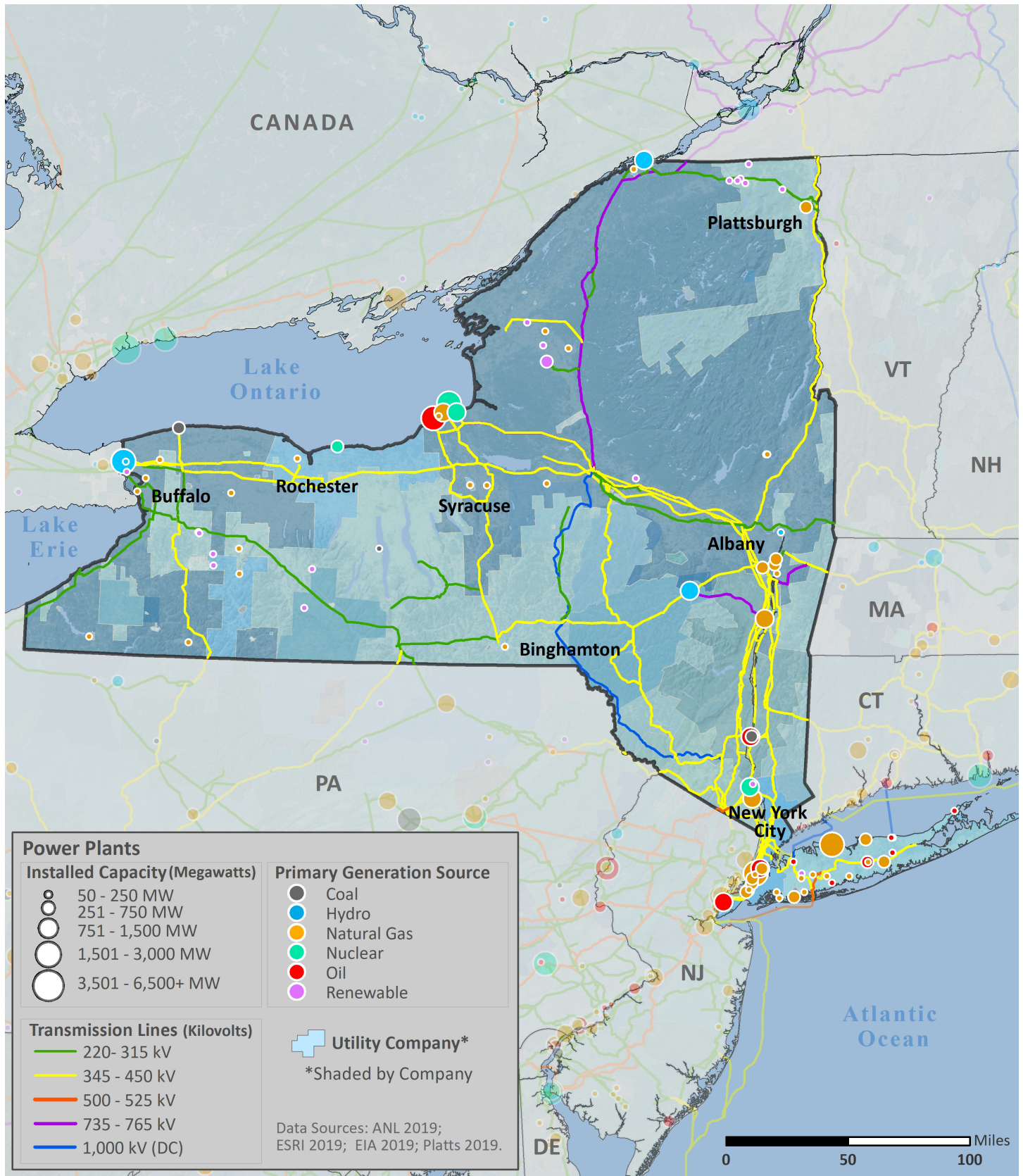
Annualized Frequency of and Property Damage Due to Natural Hazards, 2009 – 2019

	HAZARD FREQUENCY – Annualized	PROPERTY DAMAGE – Annualized (\$Million per year)
Drought	1	\$0
Earthquake (≥ 3.5 M)	0	\$0
Extreme Heat	4	\$0
Flood	51	\$156
Hurricane	0	\$0
Landslide	0	\$0
Thunderstorm & Lightning	113	\$21
Tornado	9	\$6
Wildfire	0	\$0
Winter Storm & Extreme Cold	58	\$7

Data Sources: NOAA and USGS



ELECTRIC









Electric Infrastructure

- New York has 115 electric utilities:
 - 11 Investor owned
 - 4 Cooperative
 - 47 Municipal
 - 53 Other utilities
- Plant retirements scheduled by 2025: 15 electric generating units totaling 2,341 MW of installed capacity.

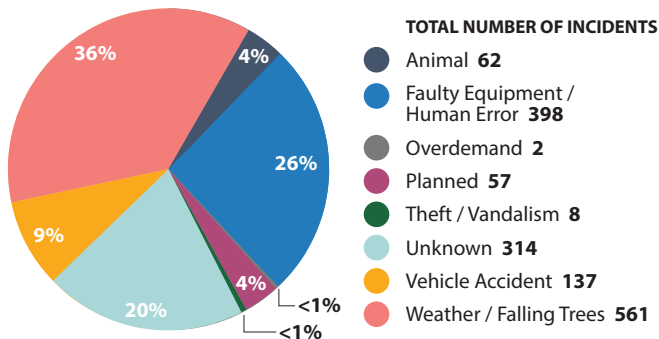
- In 2018, the average New York electric customer experienced 1 service interruption that lasted an average of 6.8 hours.
- In New York, between 2008 and 2017:
 - The greatest number of electric outages occurred in **July** (leading month for outages nationwide)
 - The leading cause of electric outages was **Weather or Falling Trees** (leading cause nationwide)
 - Electric outages affected 1,989,048 customers on average

Electric Customers and Consumption by Sector, 2018

	 CUSTOMERS	 CONSUMPTION
Residential 	87%	35%
Commercial 	13%	51%
Industrial 	<1%	12%
Transportation 	<1%	2%

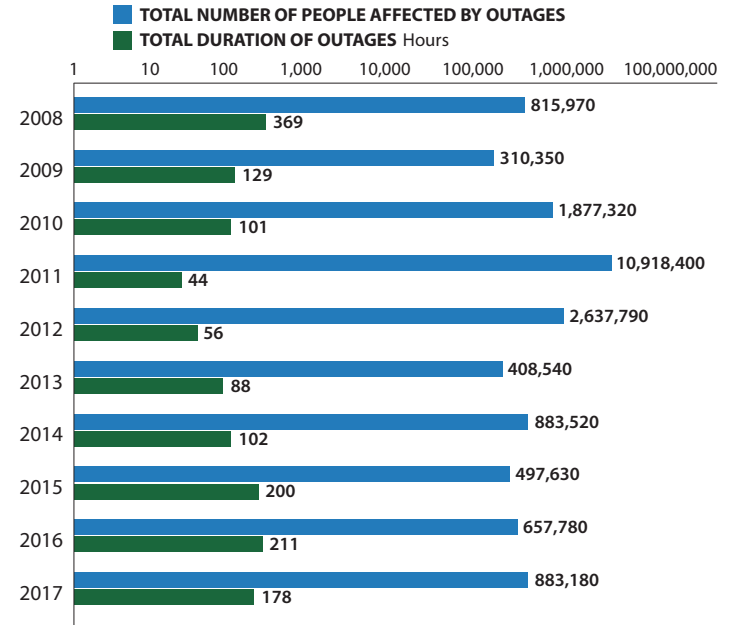
Data Source: EIA

Electric Utility-Reported Outages by Cause, 2008 – 2017



Data Source: Eaton

Electric Utility Outage Data, 2008 – 2017

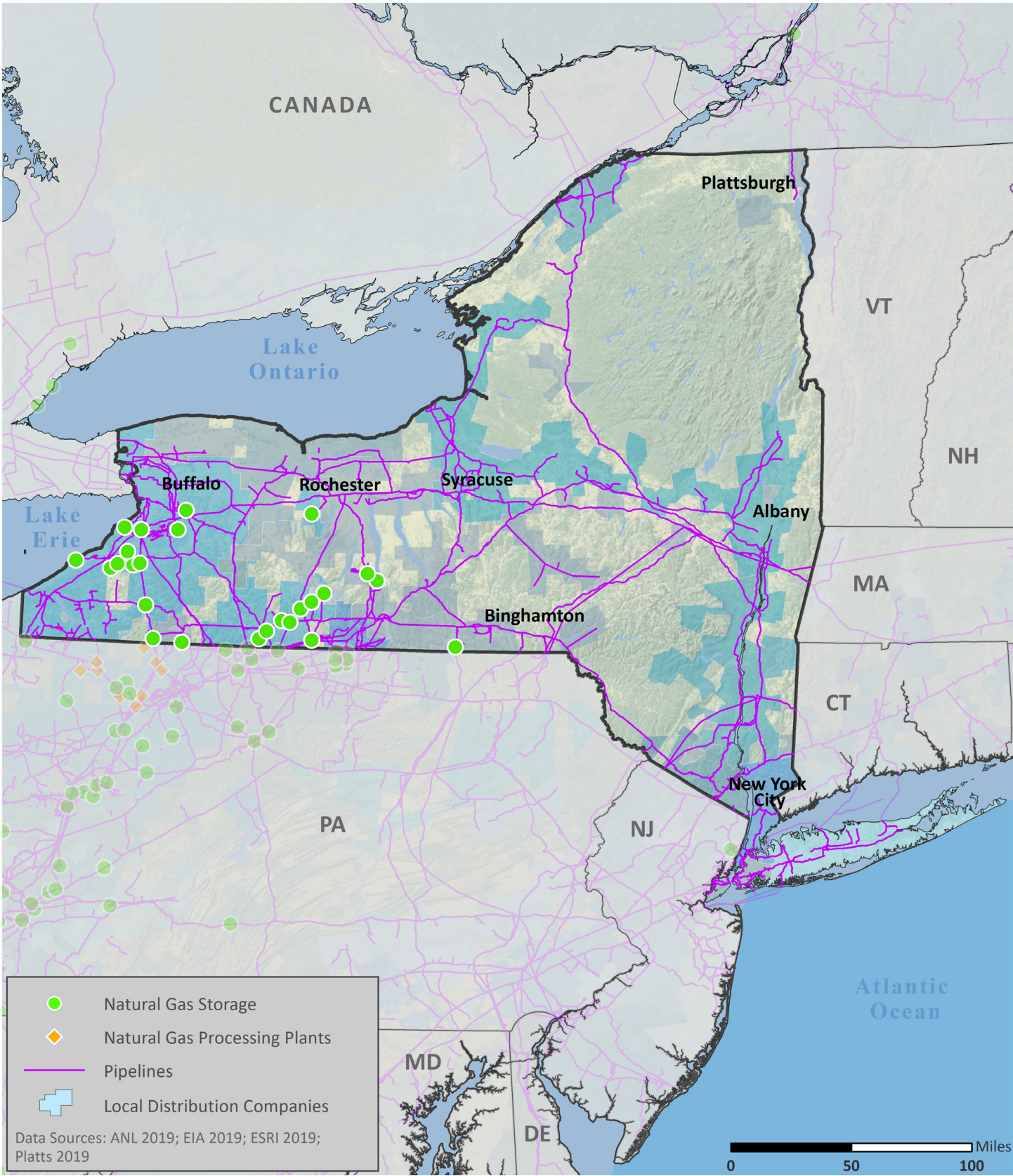


Note: This chart uses a logarithmic scale to display a very wide range of values.
Data Source: Eaton



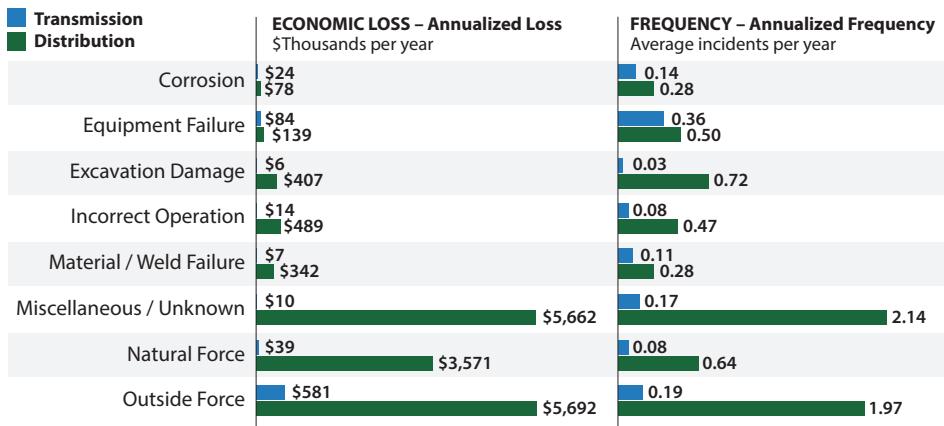


NATURAL GAS



Natural Gas Transport

Top Events Affecting Natural Gas Transmission and Distribution, 1984 – 2019

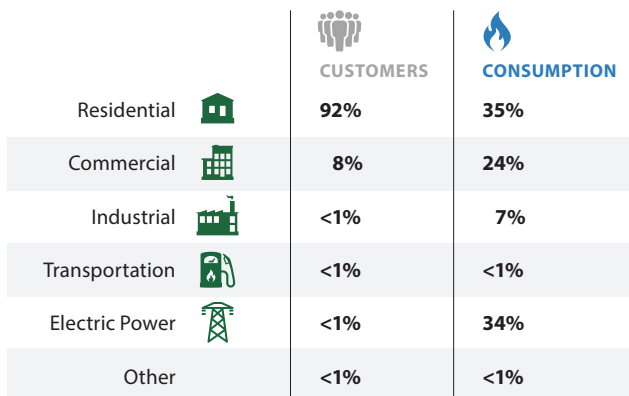


Data Source: DOT PHMSA

- As of 2018, New York had:
 - 4,589 miles of natural gas transmission pipelines
 - 49,307 miles of natural gas distribution pipelines
- 55% of New York's natural gas transmission system and 21% of the distribution system were constructed prior to 1970 or in an unknown year.
- Between 1984 and 2019, New York's natural gas supply was most impacted by:
 - Outside Forces** when transported by transmission pipelines (3rd leading cause nationwide at \$20.65M per year)
 - Outside Forces** when transported by distribution pipelines (leading cause nationwide at \$76.59M per year)

Natural Gas Processing and Liquefied Natural Gas

Natural Gas Customers and Consumption by Sector, 2018



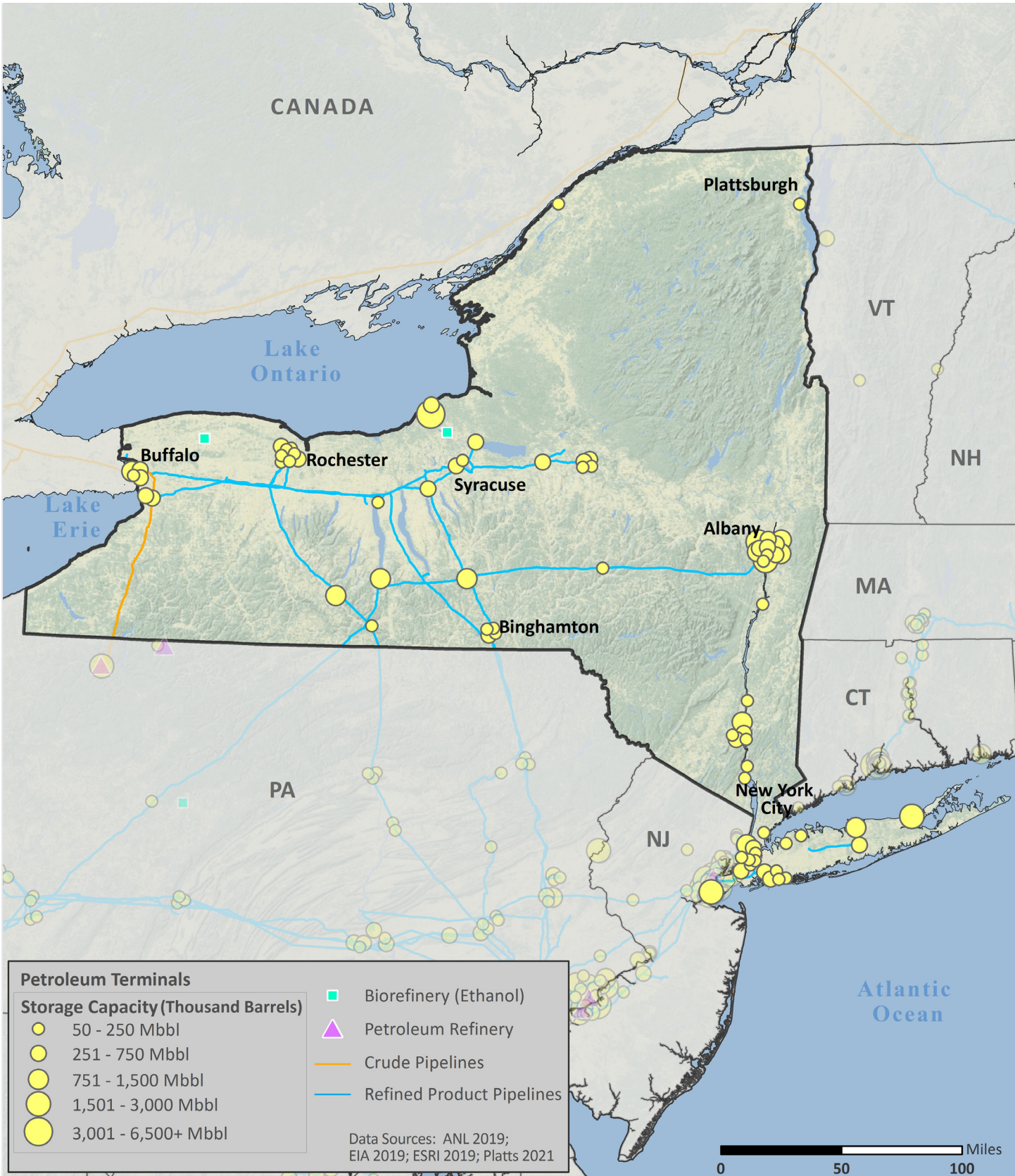
Data Source: EIA

- New York has 0 natural gas processing facilities.
- New York has 3 liquefied natural gas (LNG) facilities with a total storage capacity of 930,000 barrels.



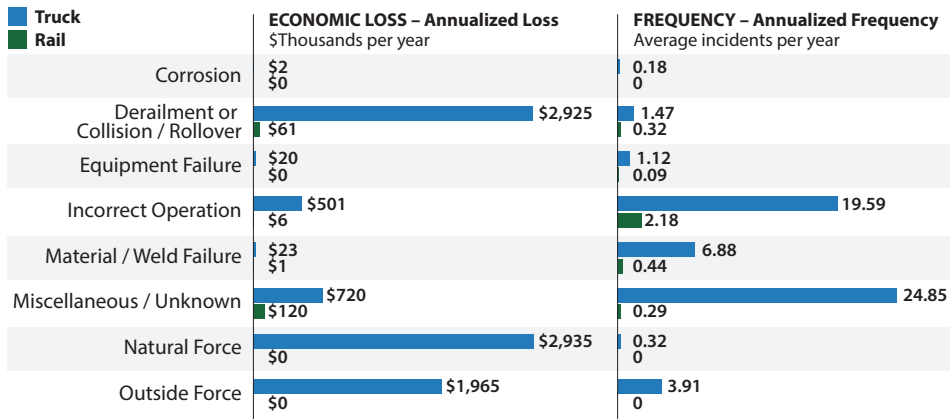


PETROLEUM



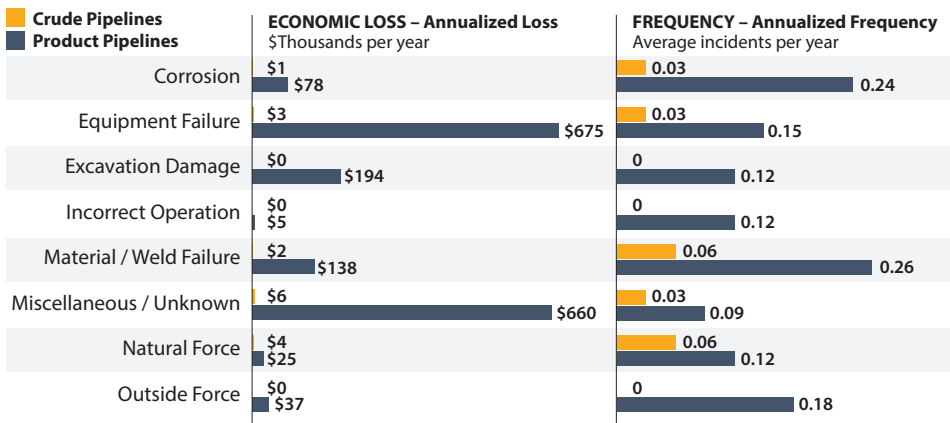
Petroleum Transport

Top Events Affecting Petroleum Transport by Truck and Rail, 1986 – 2019



Data Source: DOT PHMSA

Top Events Affecting Crude Oil and Refined Product Pipelines, 1986 – 2019



Data Source: DOT PHMSA

- As of 2018, New York had:
 - 95 miles of crude oil pipelines
 - 854 miles of refined product pipelines
 - 0 miles of biofuels pipelines
- 85% of New York’s petroleum pipeline systems were constructed prior to 1970 or in an unknown year.
- Between 1986 and 2019, New York’s petroleum supply was most impacted by:
 - **Natural Forces** when transported by truck (4th leading cause nationwide at \$28.16M per year)
 - **Miscellaneous or Unknown** events when transported by rail (3rd leading cause nationwide at \$6.11M per year)
 - **Miscellaneous or Unknown** events when transported by crude pipelines (5th leading cause nationwide at \$4.71M per year)
 - **Equipment Failures** when transported by product pipelines (6th leading cause nationwide at \$4.66M per year)
- Disruptions in other states may impact supply.

Petroleum Refineries

- There are no operating petroleum refineries in New York.

