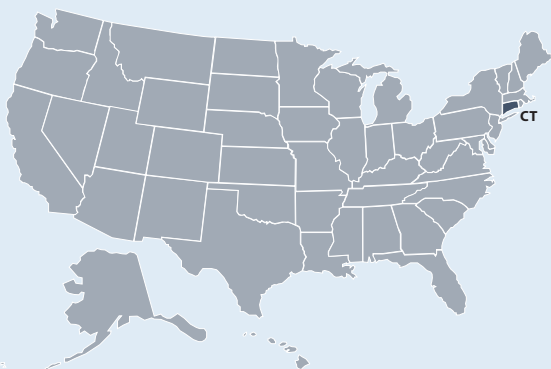




State of Connecticut ENERGY SECTOR RISK PROFILE



Connecticut State Facts



POPULATION

3.57 M



HOUSING UNITS

1.52 M



BUSINESS ESTABLISHMENTS

0.09 M

ENERGY EMPLOYMENT: 21,516 jobs

PUBLIC UTILITY COMMISSION: Connecticut Public Utilities Regulatory Authority

STATE ENERGY OFFICE: Connecticut Department of Energy and Environmental Protection

EMERGENCY MANAGEMENT AGENCY: Connecticut Division of Emergency Management and Homeland Security

AVERAGE ELECTRICITY TARIFF: 18.41 cents/kWh

ENERGY EXPENDITURES: \$3,508/capita

ENERGY CONSUMPTION PER CAPITA: 203 MMBtu (46th highest out of 50 states and Washington, D.C.)

GDP: \$275.7 billion

Data from 2020 or most recent year available.

For more information, see the Data Sources document.

ANNUAL ENERGY CONSUMPTION

ELECTRIC POWER: 43,870 GWh

COAL: 200 MSTN

NATURAL GAS: 277 Bcf

MOTOR GASOLINE: 32,200 Mbbl

DISTILLATE FUEL: 13,500 Mbbl

ANNUAL ENERGY PRODUCTION

ELECTRIC POWER GENERATION: 137 plants, 40.1 TWh, 10.9 GW total capacity

Coal: 1 plant, 0.1 TWh, 0.4 GW total capacity

Hydro: 13 plants, 0.4 TWh, 0.1 GW total capacity

Natural Gas: 45 plants, 21.3 TWh, 5.8 GW total capacity

Nuclear: 1 plant, 16.7 TWh, 2.2 GW total capacity

Petroleum: 26 plants, 0.0 TWh, 2.3 GW total capacity

Wind & Solar: 40 plants, 0.2 TWh, 0.1 GW total capacity

Other sources: 11 plants, 1.3 TWh, 0.3 GW total capacity

COAL: 0 MSTN

NATURAL GAS: 0 Bcf

CRUDE OIL: 0 Mbbl

ETHANOL: 0 Mbbl

Data from EIA (2018, 2019).

This State Energy Risk Profile examines the relative magnitude of the risks that the state of Connecticut’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.

Connecticut Risks and Hazards Overview

- The natural hazard that caused the greatest overall property loss between 2009 and 2019 was **Hurricanes** at \$6 million per year (5th leading cause nationwide at \$1.9 billion per year).
- Connecticut had 17 Major Disaster Declarations, 9 Emergency Declarations, and 0 Fire Management Assistance Declarations for 5 events between 2013 and 2019.
- Connecticut registered 10% fewer Heating Degree Days and 47% greater Cooling Degree Days than average in 2019.
- There is 1 Fusion Center located in Hartford.

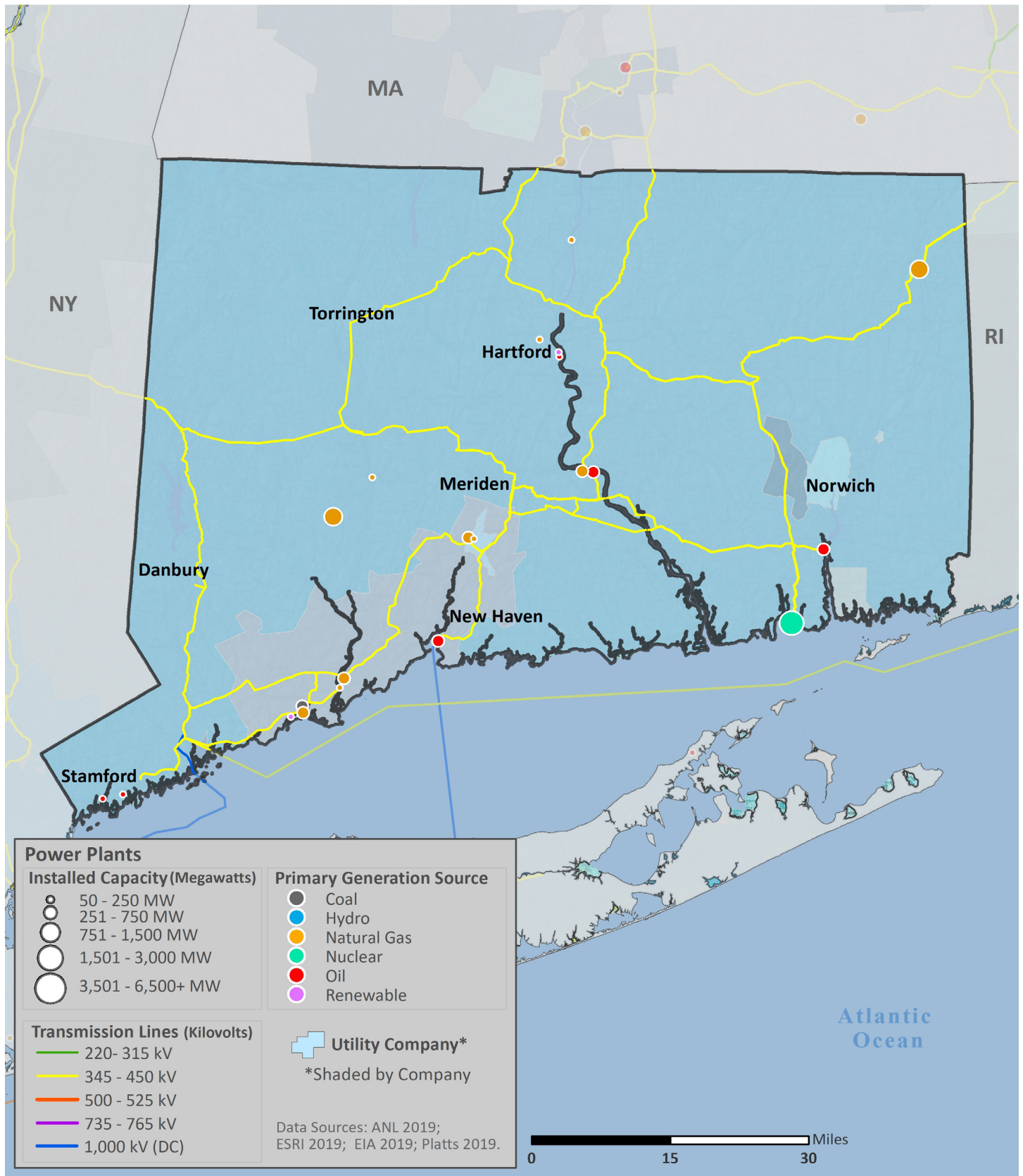
Annualized Frequency of and Property Damage Due to Natural Hazards, 2009–2019

| | HAZARD FREQUENCY – Annualized | PROPERTY DAMAGE – Annualized (\$Million per year) |
|-----------------------------|-------------------------------|---|
| Drought | 1 | \$0 |
| Earthquake (≥ 3.5 M) | 0 | \$0 |
| Extreme Heat | 2 | \$0 |
| Flood | 12 | \$2 |
| Hurricane | <1 | \$6 |
| Landslide | 0 | \$0 |
| Thunderstorm & Lightning | 38 | \$3 |
| Tornado | 2 | \$1 |
| Wildfire | 0 | \$0 |
| Winter Storm & Extreme Cold | 21 | \$2 |

Data Sources: NOAA and USGS



ELECTRIC









Electric Infrastructure

- Connecticut has 34 electric utilities:
 - 3 Investor owned
 - 0 Cooperative
 - 7 Municipal
 - 24 Other utilities
- Plant retirements scheduled by 2025: 1 electric generating unit totaling 400 MW of installed capacity.

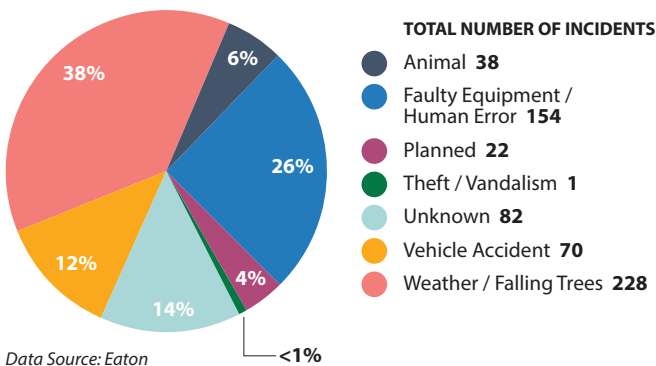
- In 2018, the average Connecticut electric customer experienced 1.3 service interruptions that lasted an average of 10.9 hours.
- In Connecticut, between 2008 and 2017:
 - The greatest number of electric outages occurred in **June** (2nd for outages nationwide)
 - The leading cause of electric outages was **Weather or Falling Trees** (leading cause nationwide)
 - Electric outages affected 379,319 customers on average

Electric Customers and Consumption by Sector, 2018

| |  CUSTOMERS |  CONSUMPTION |
|--|---|---|
| Residential  | 90% | 45% |
| Commercial  | 9% | 43% |
| Industrial  | <1% | 11% |
| Transportation  | <1% | <1% |

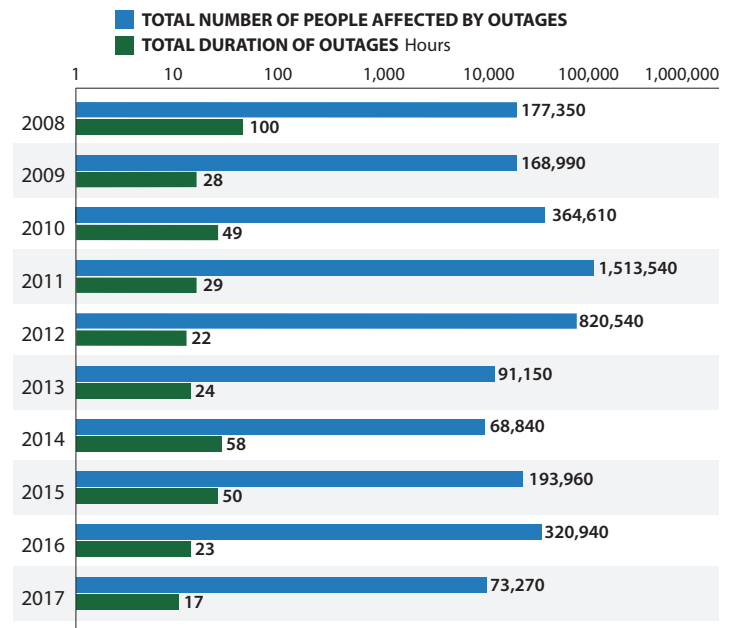
Data Source: EIA

Electric Utility-Reported Outages by Cause, 2008 – 2017



Data Source: Eaton

Electric Utility Outage Data, 2008 – 2017

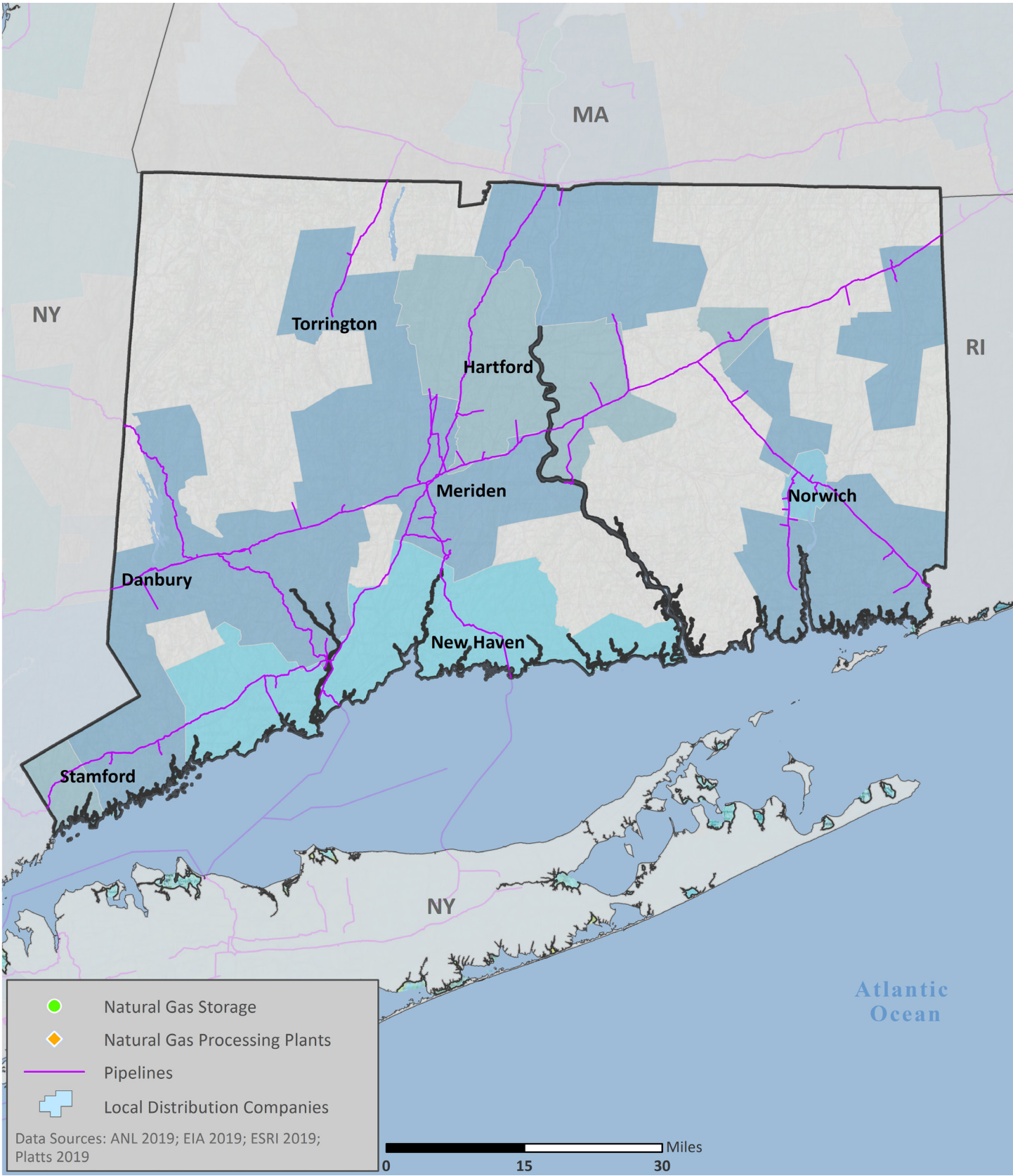


Note: This chart uses a logarithmic scale to display a very wide range of values.
Data Source: Eaton



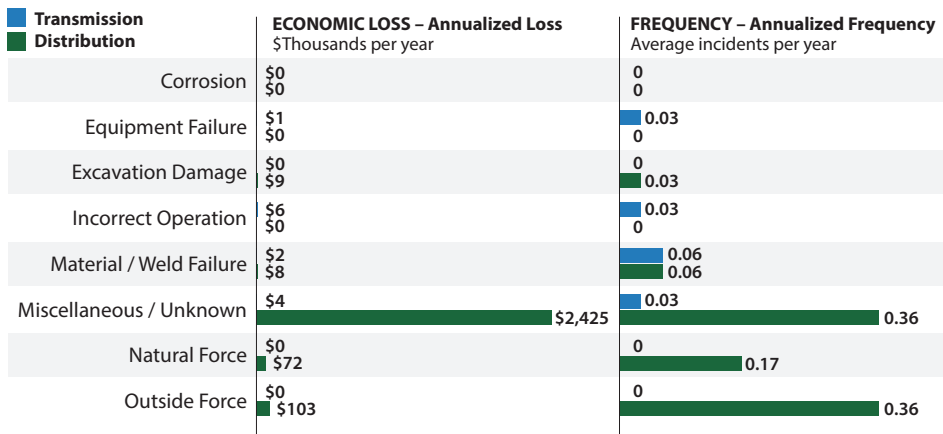


NATURAL GAS



Natural Gas Transport

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

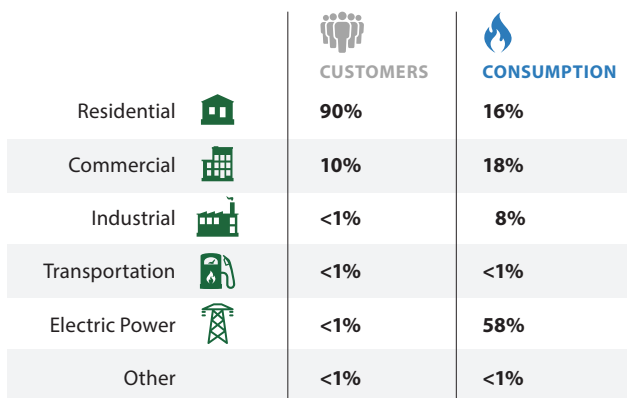


Data Source: DOT PHMSA

- As of 2018, Connecticut had:
 - 598 miles of natural gas transmission pipelines
 - 8,168 miles of natural gas distribution pipelines
- 68% of Connecticut’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, Connecticut’s natural gas supply was most impacted by:
 - **Incorrect Operations** when transported by transmission pipelines (8th leading cause nationwide at \$3.58M per year)
 - **Miscellaneous or Unknown** events when transported by distribution pipelines (2nd leading cause nationwide at \$67.89M per year)

Natural Gas Processing and Liquefied Natural Gas

Natural Gas Customers and Consumption by Sector, 2018



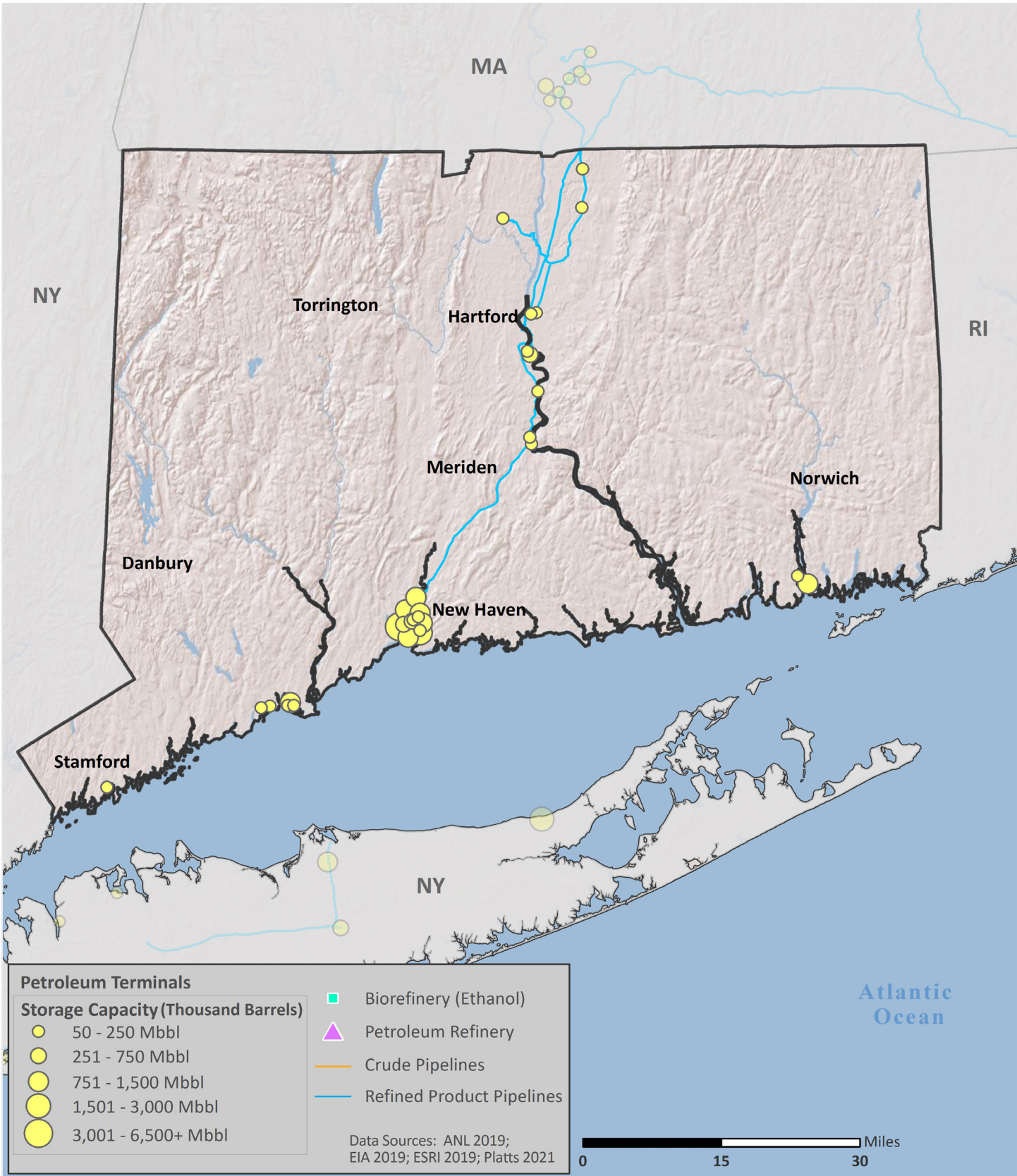
Data Source: EIA

- Connecticut has 0 natural gas processing facilities.
- Connecticut has 4 liquefied natural gas (LNG) facilities with a total storage capacity of 1,045,191 barrels.



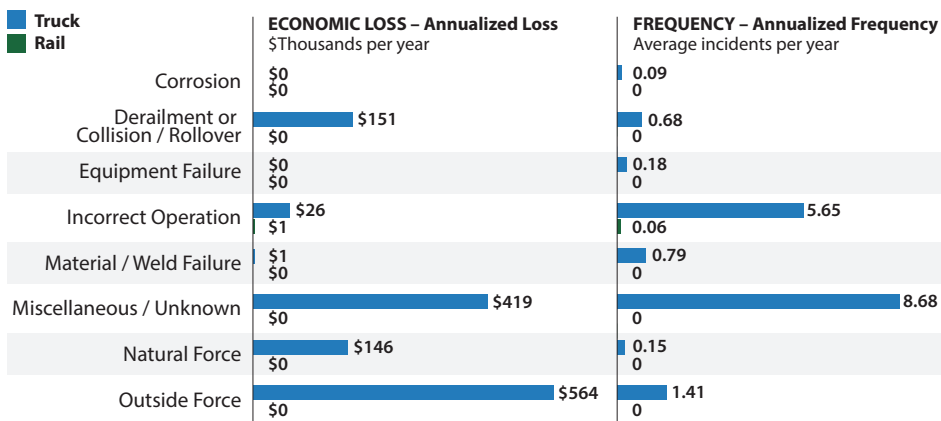


PETROLEUM



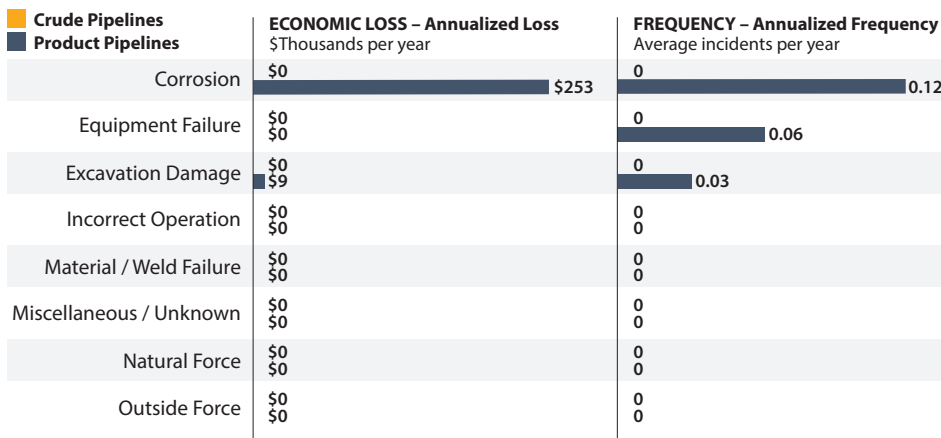
Petroleum Transport

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, Connecticut had:
 - 0 miles of crude oil pipelines
 - 94 miles of refined product pipelines
 - 0 miles of biofuels pipelines
- 77% of Connecticut’s petroleum pipeline systems were constructed prior to 1970 or in an unknown year.
- Between 1986 and 2019, Connecticut’s petroleum supply was most impacted by:
 - **Outside Forces** when transported by truck (2nd leading cause nationwide at \$60.45M per year)
 - **Incorrect Operations** when transported by rail (4th leading cause nationwide at \$2.02M per year)
 - **Corrosion** when transported by product pipelines (2nd leading cause nationwide at \$15.20M per year)
- Disruptions in other states may impact supply.

Petroleum Refineries

- There are no operating petroleum refineries in Connecticut.

